EUROPEAN CENTRAL BANK

EUROSYSTEM

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

Quality report 2018

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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 obliging 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 (hereinafter the "ECB Guideline").[2] Furthermore, the report provides information supporting the Macroeconomic Imbalance 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 set out in the statistics quality framework (SQF)[3] and quality assurance procedures, published on the ECB's website. This report therefore provides a quality analysis of the statistical output, covering the elements of: (i) methodological soundness, (ii) timeliness, (iii) reliability and stability, (iv) internal consistency (completeness and validation, and net errors and omissions) and (v) external consistency/coherence with other comparable statistical domains (euro area accounts, foreign trade in goods statistics, Monetary Financial Institutions (MFI) balance sheet items, money market funds, investment funds and securities holdings statistics).

The descriptive and quantitative indicators used throughout this report are based on monthly data from September 2015 to June 2018 (unless otherwise indicated) and on quarterly data from the third quarter of 2015 until the second quarter of 2018 (unless otherwise indicated). Data and revisions published up to 20 October 2018 are included. Supporting tables/charts and details of how the indicators are computed can be found in the respective annexes to this report.

Given the specific requirements of the MIP and the responsibilities entrusted to the ECB in the context of the MoU, the box at the end of the report presents some indicators relating to the fitness for purpose of the data for all EU countries. The box draws on annual data up to 2017 and revisions up to 2016 and focuses on the following quality dimensions: (i) data availability, (ii) revisions, (iii) errors and omissions, and (iv) external consistency with sector accounts.

Statistical developments between 2017 and 2018

In general, euro area countries have fully implemented the sixth edition of the International Monetary Fund's (IMF's) Balance of Payments and International

1 The principles underpinning this report can be found in the Public commitment on European Statistics by the ESCB. The ECB Statistics Quality Framework and quality assurance procedures, published in April 2008, build upon the ESCB public commitment.

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

3 The SQF is available here.

Investment Position Manual (BPM6) and the respective ECB data requirements. This has enabled national compilers (national central banks (NCBs) and national statistical institutes (NSIs)) 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.

While statistical standards are generally observed, there is still room for improvement in terms of methodological soundness. Luxembourg, the Netherlands, Malta and Cyprus are encouraged to continue working to increase the coverage and quality of data for special purpose entities (SPEs). Greece should start reporting data for financial intermediation services indirectly measured (FISIM). Belgium, Germany, France and Lithuania should improve their reporting of 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[4]. Furthermore, national compilers in general should make efforts to improve the coverage of assets held abroad by resident households.

The majority of countries have complied on a continuous basis with the deadlines for data transmission, with a few exceptions. Ireland should put in place contingency measures in order to ensure that such restrictive situations do not reoccur. In terms of data availability, Malta should take the necessary steps to start reporting complete datasets for monthly and quarterly other flows as soon as possible[5].

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.

Concerning internal consistency, the large majority of countries provide fully consistent data to the ECB. Austria has made improvements; however, further efforts are needed to increase the consistency of monthly and quarterly data for goods and the current account as a whole. Ireland has also improved the consistency of monthly and quarterly data, but at the expense of the reliability of the revised monthly data. Belgium and Finland should ensure that quarterly positions 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

4 This will be achieved with the start of the forthcoming reporting framework.

5 Malta has started the reporting, but further efforts are necessary to ensure that data are complete and validated, and that longer time series are available.

encourages b.o.p./i.i.p. colleagues to interact with their counterparts to structurally reduce discrepancies and/or to reconcile differences between datasets when there are objective methodological differences.

In particular, methodological differences between financial accounts and b.o.p./i.i.p. statistics were removed with the introduction of the new European System of National and Regional Accounts (ESA 2010) and BPM6. It is therefore critical that all countries follow the agreed steps to ensure full consistency.

The European System of Central Banks (ESCB) working groups on Financial Accounts (WG FA) and on External Statistics (WG ES), along with other sub-structures of the Statistics Committee (STC), are working closely together on the following common issues:

- securities held with non-resident custodians that are not covered by national securities holdings statistics;
- coverage of the other financial institutions (OFIs) sector and, in particular, the timely coverage of SPEs, given the lack of primary statistics;
- coverage of financial derivatives for all sectors, owing to missing data sources and/or counterpart sector details.

On the basis of this report, a list of notable issues affecting certain euro area countries, as well as the 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 SPE coverage and geographical detail.	Cyprus
	A1.2	Increase SPE coverage and provide accurate counterpart geographical detail.	The Netherlands, Malta
	A1.3	Decrease as much as possible the remaining coverage gap for SPEs.	Luxembourg
Services	A2.1	Start reporting FISIM data.	Greece
	A2.2	Include service margins on buying and selling financial assets[1)].	Belgium, Germany, Greece, Spain, France, Luxembourg, Malta, Slovakia
	A2.3	Include in the accounts an estimate for employee stock options.	Luxembourg
	A2.4	Provide formal proof as to why employee stock options are negligible.	Cyprus
Portfolio investment	A3	Follow the accrual principle when reporting financial account transactions for portfolio investment.	France, Germany
Financial derivatives	A4	Correctly report financial derivatives transactions/positions for the general government sector.	Belgium, Germany, France, Lithuania,
Functional classification	A5.1	Report transactions (and associated positions) in debt securities between companies engaged in a direct investment relationship under the appropriate functional category.[2)]	Number of countries (including Germany, Greece, France, Luxembourg, Netherlands)[2)]
	A5.2	Classify trade credits between companies in a direct investment relationship as direct investment instead of other investment.[3)]	Belgium, Spain,
	A5.3	Correctly report transactions/positions between fellow enterprises for equity, in particular correct the negative positions.	Belgium, France

Foreign direct investment	A6.1	Assess and confirm whether the transactions/positions between fellow enterprises in equity are negligible.	Germany, Greece, Austria, Slovenia, Slovakia
	A6.1	Assess and confirm whether the reverse direct investment transactions/positions in equity are negligible.	Belgium, Germany, France, Lithuania, Austria, Slovenia, Slovakia
	A6.3	Correctly report transactions/positions between fellow enterprises for debt instruments.	The Netherlands
Other investment	A7.1	Correctly report the assets and liabilities of insurance, pension and standardised guarantee schemes.	Ireland (assets), Finland[5], Malta
	A7.2	Start reporting intra-Eurosystem technical balances and/or ensure that they are reported without errors and are consistent with ECB balance sheet figures.	Ireland, Finland[6]
Reconciliation of positions and flows	A8	Continue improving the breakdown between price changes, exchange rate changes and other volume changes in order to ensure a realistic reconciliation of positions and flows.	Ireland
Illegal activities	A9	Include an estimation for illegal activities (trade).	Portugal
Households holding of assets abroad	A10	Improve the estimation models for assets held abroad by households.	All countries
Reserve assets	A11	Value the reserve assets at end-month market prices and produce consistent monthly revaluation changes.	Ireland
Goods	A12	Provide a high-quality estimate for goods on a monthly basis, in particular for the community concept.	Ireland
Timeliness and punctuality (Section 3)			
Timeliness	B1	Put measures in place to avoid future instances of non-compliance.	Ireland
Data and metadata availability (Section 4)			
Non-compliance (data availability)	C1	Report high-quality quarterly other flows as well as revisions for missing periods.[4]	Malta
	C2	Start reporting equity by type: listed, unlisted and investment fund shares.	Malta
Accuracy and reliability			
Revisions	D1	Increase the accuracy of the first assessments for goods (monthly data), in particular for the community concept.	Ireland
Internal consistency (Sections 6.1 and 6.2)			
Validation and integrity rules	E1	Decrease the discrepancies between monthly and quarterly data for goods and total current account.	Austria
	E2	Ensure that the quarterly positions and flows are appropriately reconciled.	Belgium, Malta
	E3	Eliminate the plausibility problems of monthly b.o.p. data by improving the reconciliation of monthly and quarterly datasets, using as much as possible existing monthly data sources.	Ireland
Net errors and omissions (n.e.o.)	F1	Investigate the increasing n.e.o. and their negative bias.	Finland
External consistency: b.o.p./i.i.p/ data with euro area sector accounts (Section 7.2)			
b.o.p./i.i.p. with RoW data	G1	Continue following the agreed implementation timetable to solve pending discrepancies, as agreed in the STC work programme.	All countries; 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	H1	Continue regularly assessing the difference between the BSI and b.o.p. 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	I1	Start reporting investment fund data, as reported in analogous Investment Funds Balance Sheet Statistics (IVF).	Malta
	I2	Investigate why the data reported in the IVF dataset is consistently higher than the data reported in the b.o.p. dataset.7)	Italy
External coherence: b.o.p./i.i.p. data with securities holdings statistics (Section 7.6)			
b.o.p./i.i.p. with SHSS data	J1	Include third-party holdings, in particular of listed shares, in the b.o.p./i.i.p. data.	Germany

Asymmetries (Sections 8.1 and 8.2)			
Asymmetries	K1	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 complexity of including this item in the accounts, the WG ES, in cooperation with national compilers, will provide guidance for estimating margins in the EU.
2) The WG ES is committed to provide guidance on the determination of the functional category for hybrid instruments. As a general rule and as specified in BPM6, transactions and positions in debt securities between companies engaged in a direct investment relationship should be recorded in direct investment. On this basis, the WG ES will provide updated and encompassing guidance on the recording of transactions and positions in debt instruments between companies engaged in a direct investment relationship.
3) The implementation of this recommendation is 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).This recommendation also impacts other investment.
4) This also applies to the Central Bank of Malta in terms of completeness and validation checks. Malta has started to report these data, but further efforts are required to achieve a complete and validated dataset.
5) 6) Finland has started to report the data, although only in transmissions more recent than those relevant for this report. Longer time series will be provided according to the revision policy.
7) The coherence between quarterly investment position data and IVF statistics has improved compared to the 2017 report. The remaining discrepancy will be resolved by September 2019.

Statistical issues affecting MIP indicators

Some of the quality dimensions addressed in the report are also relevant for assessing the quality of data for MIP purposes (e.g. methodological issues A1 to A11, C3, F1 and G1 in Table 1). Other recommendations, such as those related to functional classification (e.g. A5.1 to A5.3) or to the reconciliation of stocks and flows (C1, E2), do not impact the computation of the main MIP indicators but play a role in the calculation and analysis of auxiliary indicators. However, the particularities of the annual data and of the process, as well as the scope of the ECB's responsibilities in the context of the MoU on the MIP (all EU NCBs that are 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 (with very few exceptions for the goods and services balance). However, further data are needed for the calculation of auxiliary indicators (in particular the new auxiliary indicator, net international investment position excluding non-defaultable instruments[6] as a percentage of GDP) from Bulgaria, Croatia, the Czech Republic, Greece, Malta, Latvia[7] and Romania.

All in all, the impact of revisions on the direction (information) of first assessments is relatively minor. National errors and omissions in general remained stable in the last review period, but they are on average still above 2% of GDP in Malta, Finland, Bulgaria, Hungary and Sweden (see Chart MIP 1). Furthermore, a bias (higher than 2% of national GDP in the period 2015-17) was identified in the net errors and omissions of Malta, Slovakia, Finland and Denmark. Last but not least, the analysis shows that discrepancies between b.o.p./i.i.p. statistics and sectoral accounts persist for several countries, negatively affecting the analytical combination of the two datasets as well as indicating a lack of reliability or adequacy to the methodology of at least one of the two statistics. Despite this, the situation has improved compared with the previous quality report.

6 Instruments that cannot be subject to default: foreign direct investment equity and equity shares and inter-company cross-border-FDI debt.

7 Latvia will provide the missing breakdowns during the course of 2019.

For more information on the assessment of 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).[8] It fulfils the formal requirement obliging 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 (hereinafter the "ECB Guideline").[9] Furthermore, the report provides information supporting the Macroeconomic Imbalance 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 adopted by the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB).

The focus of the report is on national data for euro area countries and euro area aggregates. The data for EU Member States are commented on in the MIP box at the end of the report and are also available in the annexed tables[10].

Scope of data coverage and structure of the report

This report analyses a number of aspects by which data quality can be measured. These include (following the order they are presented in the report): (i) a review of methodological issues where national compilers diverge from statistical standards; (ii) an assessment of compliance by NCBs 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) external consistency/coherence, i.e. consistency vis-à-vis other statistical domains/datasets, namely foreign trade statistics, euro area (sector) accounts, MFI balance sheet statistics, investment fund statistics and securities holdings 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 2017/Q3 2017 to June 2018/Q2 2018). Section 5 (accuracy and reliability) analyses the impact of three years of revisions (April 2015/Q2 2015 to March 2018/Q1 2018), and the remainder of the sections focus on three years of data (Q3 2015 to Q2 2018).

8 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 Statistics Quality Framework (SQF) and quality assurance procedures, published in April 2008, build upon the ESCB public commitment.

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

10 While Eurostat publishes 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 figures vis-à-vis the rest of the world. The ECB report additionally analyses figures vis-à-vis the extra-euro area, whereas the Eurostat report assesses figures vis-à-vis outside of the EU.

The last data vintage used throughout the report is the one available as of 20 October 2018 and the country coverage is the EU28, 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 display 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 2017 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 relate to national GDP to facilitate the analysis relating 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 STC (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[11]. Most of the assessment included in this section is based on this ECB publication, as well as on the regular ECB contacts with national compilers regarding general data quality issues.[12]

In this quality report, a succinct overview of the methodological soundness of b.o.p. and i.i.p. data is provided for the main 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 so-called Special Purpose Entities (SPEs), which are considered to be resident in the economy where they are incorporated.

Most countries correctly apply the residency concept. In the euro area, several countries host a large population of SPEs and therefore face certain challenges in achieving full coverage. In 2018, Cyprus and Malta revised the geographical allocation of their foreign direct investment positions from reference period 2016, as reflected in an improvement in the bilateral asymmetry indicators regarding direct investment positions (see Section 8.2). The revisions in the geographical allocation of positions for Malta introduced a series break in Q1 2016; back data are scheduled to be provided gradually. Luxembourg covers in its SPE survey all SPEs with a balance sheet of over €500 million. Grossing up is performed for SPEs with balance sheets of between €300 and €500 million and assets/liabilities vis-à-vis the rest of the world, which results in a final coverage of approximately 90% of total assets/liabilities.

The Netherlands has also improved its coverage of SPEs compared with 2017; in particular, it has clarified the residency and improved the registration of those entities

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

12 The ECB and Eurostat are also initiating country visits to better understand output quality and the respective contributing factors in the context of the MoU on MIP.

that are registered in two countries and increased the coverage of non-financial corporations (NFCs) in the context of the integration of the b.o.p. and RoW compilation. The geographical allocation of the grossed up figures still has room for improvement.

2.2 Functional classification

Most countries classify b.o.p. and i.i.p. data by function in conformity with BPM6 methodology. However, there is still 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 as portfolio investment. This deviation creates internal inconsistencies at the euro area level owing to the residual approach used to calculate euro area portfolio investment liabilities. Therefore, the ECB will provide updated and encompassing guidance on the recording of transactions and positions in debt instruments between companies engaged in a direct investment relation. Similarly, trade credits and advances between companies in a direct investment relationship are included in other investment by Belgium and Spain. Germany classifies all transactions and positions in loans/deposits as other investment if at least one of the counterparts under a direct investment relation is an MFI.

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[13], while Germany, Greece, Austria, Slovenia and Slovakia do not include transactions and positions in equity.[14] France has started to record transactions and positions between fellow enterprises in equity from Q1 2018 onwards, although both it and Belgium occasionally report negative positions. Moreover, Belgium, Germany, France, Lithuania[15], Austria, Slovenia, Slovakia and Finland do not identify reverse direct investment in equity[16], and Malta shows negative values for positions.

2.3 Coverage

Financial intermediation services indirectly measured are not yet classified in the services account in Greece, remaining instead with income. Similarly, service margins

13 Latvia has confirmed that the transactions and positions between fellow enterprises are negligible and therefore reports zeros.

14 In most cases, the extent 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.

15 Compilers do not currently provide information on reverse investment. Lithuania is working towards improving the sources and quality of this data.

16 In the case of Estonia, under Estonian national legislation foreign subsidiaries are not allowed to invest in the equity of their Estonian parent companies and therefore reverse investment on the liability side is not possible. Estonia collects reverse investment on the asset side but no such transaction has been yet reported, therefore Estonia reports zero values.

on buying and selling financial assets are not recorded by a large number of countries, namely Belgium, Germany, Greece, Spain, France, Luxembourg, Malta and Slovakia. Given the complexity of this issue, the WG ES has started investigating approaches to define best practices and support those countries that have not yet estimated this financial service. Work is ongoing and concrete output results are expected from 2020 onwards.

According to public metadata, Cyprus[17] and Luxembourg do not currently estimate compensation arising from employee stock options.

Greece has included in its official statistics the results of a new estimation method for sea transport services. The model represents a significant improvement relative to the previous method of estimating sea transport services. A task force for the recording and compilation of maritime transactions in national accounts and balance of payments is currently mandated to identify data collection methods and compilation techniques that are feasible for addressing the coverage and consistency of maritime activities in the accounting frameworks.

Belgium and Germany should improve the quality of transactions in financial derivatives for the government sector, as they are either directly derived as the difference of positions or are zero. In addition, France and Lithuania do not record any transactions and positions in financial derivatives by the government sector. There is also scope for increasing the quality of financial derivatives data in general. The WG ES, in cooperation with the WG FA, has mandated a task force to issue recommendations on data sources and data collection and compilation methods. The task force is scheduled to provide guidance in 2020.

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 reference period January 2014 onwards – with the exception of Ireland, Malta[18] and Finland[19].

Furthermore, Ireland does not correctly report monthly intra-Eurosystem technical claims and liabilities, while Finland does not report correct values for either monthly or quarterly data[20].

Ireland (for financial corporations other than the MFI sector) does not cover assets related to insurance, pension schemes and standardised guarantee schemes, while Finland[21] and Malta do not cover either assets or liabilities.

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17 Considered negligible in the case of Cyprus. Cyprus is encouraged to provide formal proof of the negligibility of employee stock options.

18 Malta has started to report the data, although only in transmissions more recent than those relevant for this report (for reference period 2018 only). Longer time series will be provided according to the revision policy.

19 Finland has started to report the data, although only in transmissions more recent than those relevant for this report. Longer time series will be provided according to the revision policy.

20 Finland has started to report the data, although only in transmissions more recent than those relevant for this report. Longer time series will be provided according to the revision policy.

21 Finland started to report the data after this report was drafted. Longer time series will be provided according to the revision policy.

Furthermore, Malta does not report the breakdown of equity (listed and unlisted shares, other equity and investment fund shares).

In general, most countries have difficulties in producing an accurate estimation of b.o.p. transactions and i.i.p. for the household sector; this under-coverage is believed to be relevant in particular for assets held (including with custodians) outside the euro area. Most euro area countries use mirror data from (i) the locational banking statistics of the Bank for International Settlements (BIS) to cover deposits and loans vis-à-vis non-resident banks, and (ii) so-called third-party holdings[22] collected in the context of securities holdings statistics. Finland does not include any adjustment for household assets held abroad. 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 does not include an estimation. Many countries also have difficulties in accounting for real estate holdings, both of resident households abroad and non-resident households in the respective euro area countries.

The majority of euro area countries estimate to varying degrees the impact of illegal economic activities. According to the b.o.p./i.i.p. book and bilateral communication, Portugal[23] does not currently include an estimation regarding illegal trade in goods activities requested at EU level (smuggling, trafficking, illegal drugs).

Last but not least, national compilers in general should improve the measurement of reinvested earnings on foreign direct investment and the valuation of unlisted shares and other equity.

2.4 Other methodological issues

Horizontal and vertical inconsistencies in the i.i.p. data of Malta prevent the ECB from validating the figure reported for net external debt. Only the Maltese net external debt total is available and not its 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 (s-b-s) basis; however, no equivalent entry is recorded in the underlying instrument in the financial account.

For Ireland, other volume changes owing to changes in methodology or coverage are in some cases reported together with (exchange rate and price) revaluations, impacting the reliability of its position/flow reconciliation. However, there have been improvements in portfolio and other investment in terms of plausibility between sectors and instruments.

With its publication of i.i.p. data for 2017, Germany implemented a change in the way debt securities liabilities are compiled (full residual approach). Previously, debt

[22] Securities held with non-resident custodians; in the context of SHS, this refers to custodians' residents in other euro area countries.

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

securities positions were calculated as cumulated b.o.p. transactions. As a consequence, portfolio investment liabilities are higher since reference period 2015.

Ireland does not value monthly reserve assets at end-month market prices (including for exchange rate changes), thereby not reporting revaluation changes for inter-quarter months.

In the case of Ireland, the monthly estimate for goods (according to the community concept) does not display the expected seasonal pattern and often generates negative values for both exports and imports for the community and national concepts. The quality of monthly Irish data has an impact on the quality of euro area aggregates for goods. Furthermore, the revisions for the monthly estimate for goods (see Section 5) display erratic patterns.

3 Timeliness and punctuality

Non-compliance is defined with regard to (transmission) timeliness/punctuality and quality standards vis-à-vis the requirements laid down in the ECB Guideline ECB/2011/23 (as amended).[24]

In the period under review (reference period July 2017 to June 2018), 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:

The Central Bank of Ireland transmitted data for reference period August 2017 with a 24-hour delay due to severe weather conditions in the country.

The Central Bank of Malta did not report mandatory series for reference periods Q4 2017 and Q1 2018. 24 mandatory series were missing for quarterly b.o.p. in both periods, while 128 and 98 series were missing for quarterly i.i.p., respectively.

[24] The ECB prepares bi-annual compliance reports for the Internal Compliance Coordination Group, which are submitted to the Governing Council.

4 Data and metadata availability

4.1 Completeness

For the reference period July 2017 to June 2018, the production of b.o.p., i.i.p. and international reserves statistics was smooth.

In terms of completeness, the large majority of countries submit all the mandatory items, albeit sometimes with delays (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 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 these are to access and the extent to which confidentiality constraints hamper the analytical work.

In line with the ECB legal framework on data confidentiality,[25] 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 statistical 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[26] (i.e. “main items”). The shares are calculated at dataset level for the reference period Q3 2017 to Q2 2018. Table A.1.1 in the Annex shows the same indicator for “all (mandatory) items” transmitted under the ECB Guideline.

[25] 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 of 22 December 1998 (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.

[26] 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 Q1 2014.

Table 2

Average share of observations marked as “free for publication” per dataset (main items), for the period Q3 2017 to Q2 2018

Country	Quarterly b.o.p. main items	Quarterly i.i.p. main items
BE	100	100
DE	100	100
EE	100	100
IE	89	92
GR	100	100
ES	90	94
FR	100	100
IT	100	100
CY	92	95
LV	100	100
LT	100	100
LU	100	100
MT	90	80
NL	100	100
AT	100	100
PT	99	100
SI	100	100
SK	100	100
FI	96	94

Source: ECB.

The majority of euro area countries (Belgium, Germany, Estonia, Greece, France, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Austria, Slovenia and Slovakia) release all “main items” to the general public. The remaining countries (Spain, Cyprus and Portugal) release more than 90% of this dataset, while only Ireland and Malta release less than 90% of the observations in Tables 2A and 4A of Annex II of the ECB Guideline. With respect to last year’s assessment, Finland considerably increased its share of main items available for publication (from around 60% to 95%), while Malta recorded a small deterioration for quarterly i.i.p. It should be noted that the percentages are calculated based on the number of observations without taking into account their magnitudes.

Full monthly b.o.p. datasets are flagged as “non-publishable” or “confidential” by Ireland, Cyprus, the Netherlands and Austria (generally on the basis of national dissemination policies). Concerning the full extent of quarterly data transmitted to the ECB (Tables 2A and 4A being only a small subset), six euro area countries for quarterly b.o.p. and nine euro area countries for quarterly i.i.p. have made all the data required in the legal act available to final users, in line with last year’s results (see Table A.1.1).

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 the ECB's Statistical Data Warehouse or in the External Transactions and Positions section of the Statistics Bulletin. Furthermore, the ECB has a Statistical Information Request facility to help external users of statistics access and analyse 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, emails or social media.

Table A.1.2 in the Annex presents a summary of the national practices regarding data and metadata accessibility. Similarly to the ECB, all euro area countries provide technical facilities to download data in different formats (Excel tables, CSV files, PDF documents or via interactive statistical databases). Furthermore, the majority of 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. Most euro area countries publish regular press release updates on their websites: some on a monthly and quarterly basis and others either quarterly or monthly. Last but not least, all countries present extensive information on 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 and publication means.

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 of data sources and/or methods that needs to be addressed. Conversely, minimal or no revisions does not necessarily mean that the first assessment was 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:[27]

Relative size indicators measure the difference between the first and last assessments either in relation to the underlying series (when strictly positive) (symmetric mean 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 positions 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).[28]

All charts depict the indicators calculated for a revision window of three years (Q2 2015 to Q1 2018 for national and euro area aggregates – quarterly series – and April 2015 to March 2018 for euro area aggregates – monthly series).

[27] The indicators are explained in more detail in Annex 9.2.

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

In general, the revisions recorded for the period Q2 2015 to Q1 2018 are not fundamentally different from the equivalent period analysed in last year's quality report.

5.1 Current account

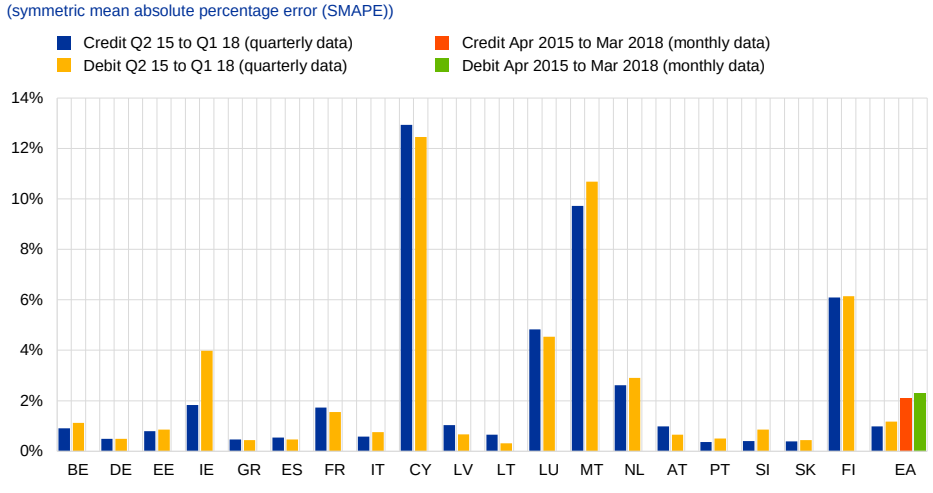
In general, revisions to the euro area current account credits and debits were comparable for monthly and quarterly data as can be seen in Chart 1 below. The euro area aggregates recorded revisions comparable to the euro area country median (2% for the total current account), with the monthly data recording slightly higher revisions.

Cyprus and Malta have the highest revisions among euro area countries for current account credits and debits with a SMAPE value of over 10%. Generally, Cyprus displays a random pattern when revising its current account upwards or downwards. On the other hand, Malta revised its current account downwards in the majority of cases (as explained by a significant downward revision of its secondary income credits and debits). Cyprus shows high directional reliability for its revisions, whereas Malta shows a lesser degree of directional reliability.

In terms of current account sub-items, Ireland displays a significant number of monthly revisions with a SMAPE value of almost 50%. Furthermore, the data show a weak degree of directional reliability with revisions often altering the meaning conveyed by the first assessments. These revisions have a negative impact on the quality of the monthly euro area aggregates.

Chart 1

Revisions to current account credits and debits



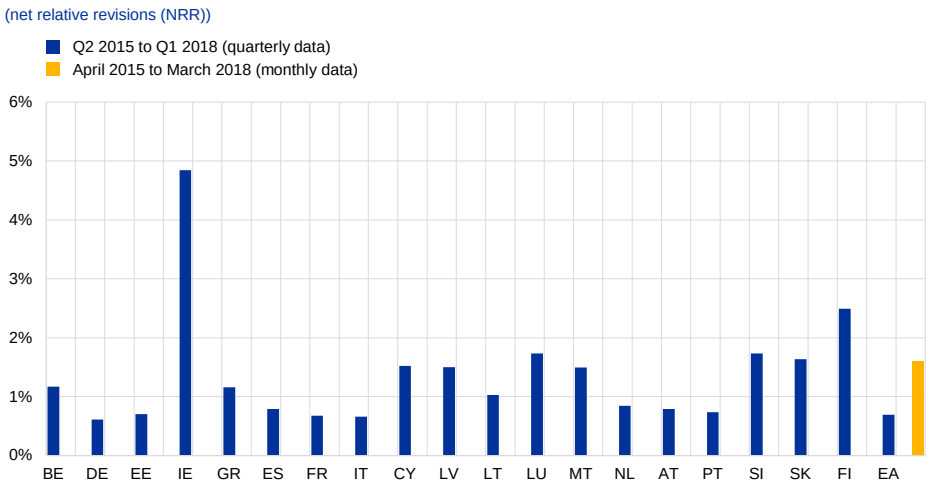
Source: ECB.

Concerning revisions to the current account balance (see Chart 2 below), the euro area as a whole records comparable revisions to the median of euro area countries (1%). Monthly revisions are slightly higher than quarterly revisions as assessed by the NRR indicator.

For the current account balance, the highest number of revisions is recorded by Ireland and Finland.

Chart 2

Revisions to the current account balance



Source: ECB.

Detailed information on SMAPE, upward revisions and directional reliability indicators is available in Tables A.2.1 to A.6.2 in the Annex.

5.2 Financial account transactions

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

The quarterly euro area aggregates recorded revisions of 0.3% of the underlying positions for total transactions in financial assets and liabilities, which is comparable with the median of euro area countries. Revisions to monthly euro area aggregates were considerably higher, as can be seen in Chart 3 below. Monthly revisions to euro area data for direct investment were the highest, at over 1% for both assets and liabilities, followed by revisions to other investment and portfolio investment.

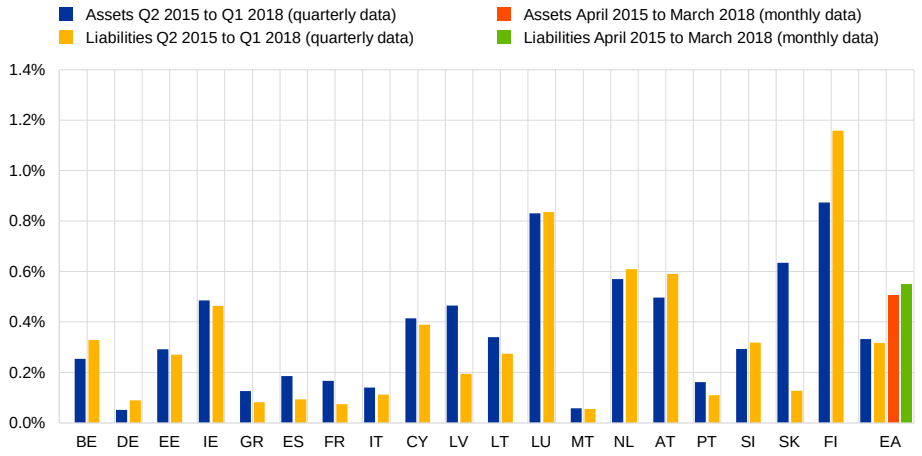
Euro area countries record revisions of less than 1% of the underlying positions for quarterly financial transactions. The highest revisions are recorded by Luxembourg, the Netherlands[29], Austria and Finland. However, this level of revisions is not significantly higher than for most euro area countries.

[29] Dutch revisions can be largely attributed to efforts to achieve consistency between b.o.p. and financial accounts, and hence are not the result of regular revisions.

Chart 3

Revisions to financial account

(mean absolute comparative error (MACE))



Source: ECB.

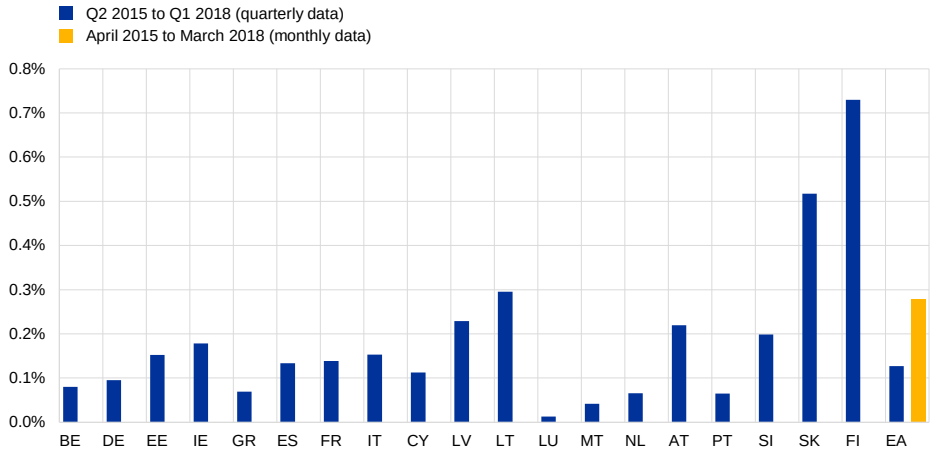
Concerning revisions to net quarterly financial transactions, the euro area as a whole recorded NRR comparable with the median of euro area countries (0.1%), while revisions to the monthly series were substantially higher (across all functional categories).

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

Chart 4

Revisions to net financial account transactions

(net relative revisions (NRR))



Source: ECB.

Detailed information on MACE, upward revisions and directional reliability indicators is available in Tables A.2.1 to A.6.2 in the Annex.

5.3 International investment position

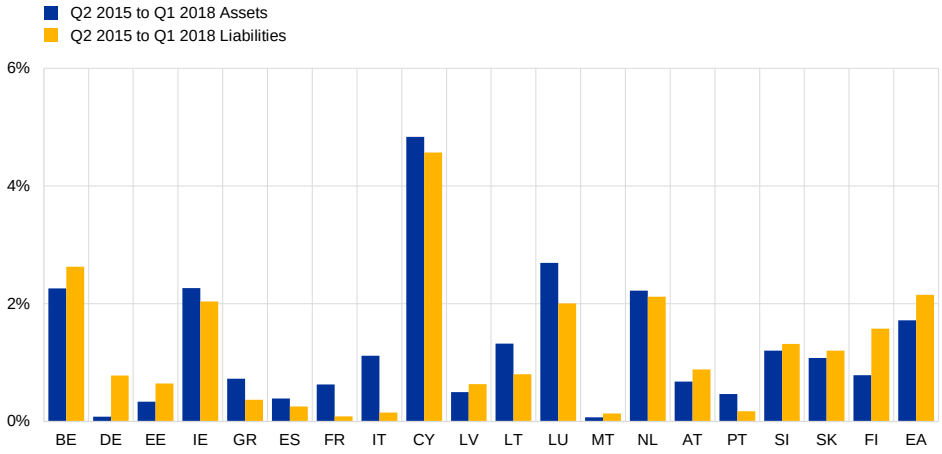
Revisions to quarterly i.i.p. (financial account positions) are shown below in Charts 5 and 6. The euro area as a whole recorded revisions (as measured by SMAPE) of approximately 2% for both assets and liabilities, double the median of euro area countries.

At country level, revisions are in general comparable for assets and liabilities. Belgium, Cyprus[30], Ireland, Luxembourg and the Netherlands[31] recorded the highest revisions in the euro area. All of these countries revised upwards their first assessments of total i.i.p. (for both assets and liabilities) by more than 80%. However, the degree of directional reliability is in general higher than 60% in all the above-mentioned cases.

Chart 5

Revisions to the international investment position

(symmetric mean absolute percentage error (SMAPE))



Source: ECB.

Regarding revisions to net i.i.p., the euro area as a whole recorded revisions of 1.1% of the underlying average positions during the analysed period (equal to the median level of revisions for euro area countries). A slightly higher number of revisions (between 1.8% and 2.7%) was recorded in net positions for the various functional categories (direct, portfolio and other investment). In the case of other investment, the euro area revisions were above the observed median for euro area countries. This is partly explained by the introduction in April 2017 of a model estimating the euro currency in circulation outside the euro area as well as the euro area errors and omissions correction model.

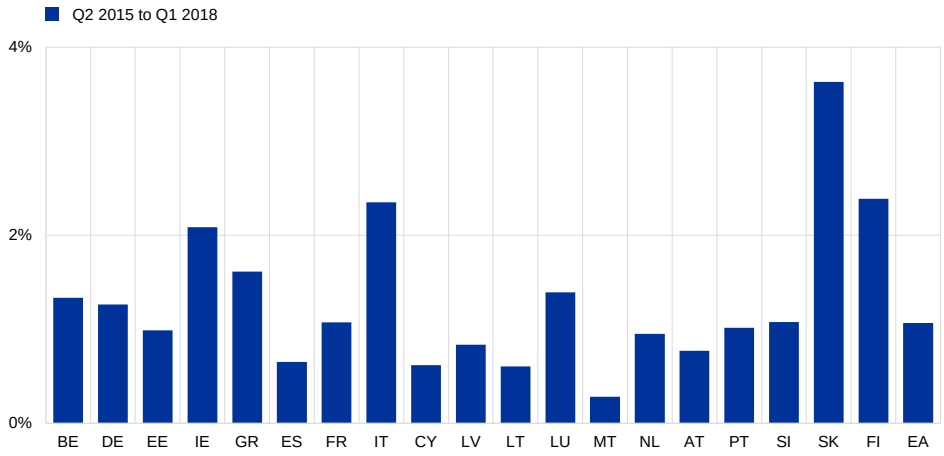
For individual countries, the highest number of NRR for net i.i.p. was recorded by Slovakia, reaching a level of 3.6%.

30 In the case of Cyprus, the revisions are linked to better SPE coverage as well as other regular revisions, affecting mainly direct investment.

31 Dutch revisions can be largely attributed to efforts to achieve consistency between b.o.p. and financial accounts, and hence are not the result of regular revisions.

Chart 6

Revisions to the net international investment position



Source: ECB.

Detailed information on SMAPE, NRR, upward revisions and directional reliability indicators is available in Tables A.2.1 to A.6.2 in the Annex.

6 Internal consistency

This section comprises two parts assessing 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 national datasets were complete and met all basic accounting validation rules. These include linear constraints that apply to the b.o.p., i.i.p. and 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 the i.i.p. statement and 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 compared with monthly data, but the failed validations in both frequencies did not impair the overall quality of the national data or euro area aggregates.

The results are fundamentally in line with last year’s assessment, with the exception of Ireland, for which a larger number of validation problems were detected in the monthly data (especially in counterpart and resident sector breakdowns, international accounting items and regular negative gross flows in the current account), due to an incorrect methodology to reconcile monthly with quarterly data. Furthermore, Malta recorded validation problems in some “of which” items of the quarterly b.o.p. and small inconsistencies in the intra/extra-EU geographical breakdown. Finally, reconciliation issues affected the data for Malta (due to incomplete other flows) and Belgium (mostly for financial derivatives).

Consistency between datasets is very important to ensure the overall quality of the b.o.p. 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 positions and flows, respectively.

In terms of time consistency, the vast majority of countries exhibit full consistency between monthly and quarterly data, with only a few exceptions. Austria improved time consistency for most of its current account items but failed a number of validations for the goods item, with the highest discrepancy recorded for extra-euro

imports of goods. Moreover, Ireland[32] displays for most of the analysed b.o.p. and i.i.p. series a level of time consistency below the euro area median, with extra-euro area secondary income showing consistent monthly and quarterly values in only 89% of cases (see Table A.8.1 in the Annex for more details).

In terms of average reconciled amounts for main items, all countries achieve a full reconciliation between positions and flows, with the exception of Malta, which does not provide complete information on other flows (see Tables A7.5-6 in the Annex for more details).

Although transmissions of back data are non-mandatory, greater efforts by national compilers have resulted in the availability of longer time series for analytical use, including in the context of the MIP. While most countries have provided complete and validated datasets for periods before 2013, there are still several cases where these data are either incomplete or pose serious validation problems. In general, despite improvements in data coverage and quality, it is of utmost importance that countries continue their efforts to provide back data of acceptable quality as agreed by the WG ES.

Regarding series breaks, the following issues can be identified[33]:

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

Germany: major breaks are observed due to the reclassification of positions between fellow companies from other investment to direct investment in Q4 2012;

France: breaks are observed for secondary income credits of other sectors[34] in Q1 2014, mainly reflecting the inclusion of net non-life insurance premiums and claims, and social benefits;

Luxembourg: relevant series breaks in foreign direct investment positions are observed in Q4 2014 as a result of changes in the coverage of SPEs;

Malta: a relevant break is observed in secondary income in Q1 2016 due to the revised methodology for personal transfers in the gaming industry;

Austria: certain breaks apply in primary income credits and debits (from Q1 2013 to Q1 2016)[35].

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.

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32 Ireland has started to report correct data (in particular for secondary income), although only in transmissions more recent than those relevant for this report.

33 For periods before 2013, the transmission of data to the ECB is on a best-effort basis. For more information on breaks before 2013, please refer to the MIP box.

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

35 Explained by SPE activity.

Values for the validation indicators are available in Tables A.7.1-3 in the Annex.

6.2 Net errors and omissions

Net errors and omissions (n.e.o.) (the difference between net lending/borrowing as compiled from the current plus capital accounts and the financial account) provide an indication of the internal consistency of the b.o.p. In fact, the principle of double-entry bookkeeping implies that the sum of all credit and debit transactions should be equal to zero in the b.o.p. statement (i.e. that n.e.o. are 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 a lack of source data 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 also in place. The rationale behind the adjustment is that certain items in portfolio investment and other investment categories are not appropriately captured in the aggregation of national data.

The average absolute error relative 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 graphical representation of the situation in euro area countries and on aggregate (Chart A.7.7 in the Annex shows the average absolute n.e.o. in relation to the i.i.p.).

Overall, the analysis in this year's quality report is in line with the analysis presented in last year's quality report.

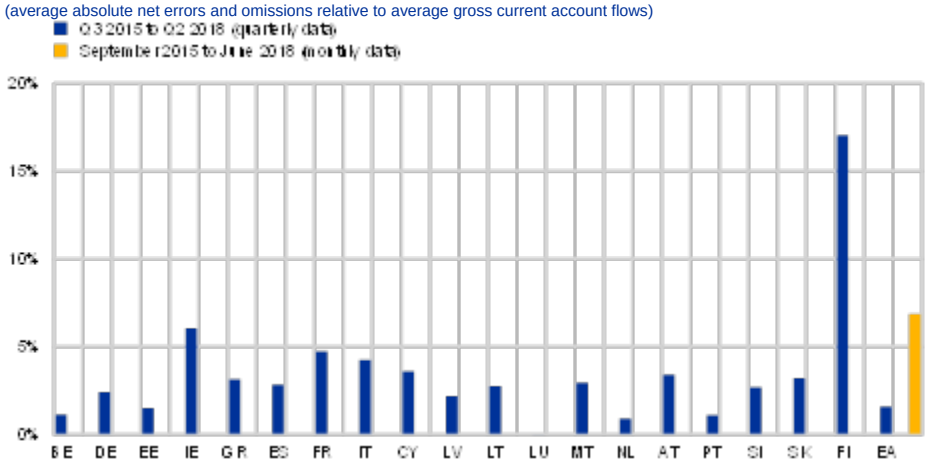
As expected, the euro area as a whole did not exhibit high n.e.o. compared with individual euro area countries. Monthly errors and omissions were substantially higher than quarterly ones (the average absolute n.e.o. relative to average gross current account flows was 7% for monthly data and less than 2% for quarterly data).

Quarterly n.e.o. for euro area countries generally exceeded 2% of the average current account gross flows. Over the period under analysis (Q3 2015 to Q2 2018), Finland displayed the highest average n.e.o. as a percentage of average current account gross flows at 17% (Ireland, which had the second highest n.e.o. in the euro area, recorded a value three times smaller than Finland). Countries are encouraged to continuously monitor the quantity of and reasons behind their n.e.o. and address structural problems as soon as possible.

Chart 7

Relative net errors and omissions[36]

(average absolute net errors and omissions relative to average gross current account flows)



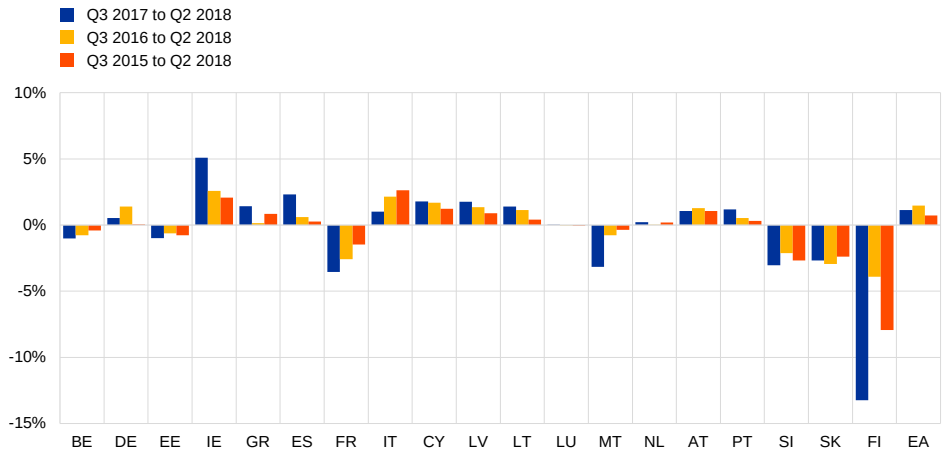
Source: ECB.

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 current account gross flows.

Chart 8

Bias in net errors and omissions

(cumulative net errors and omissions relative to average gross current account flows)



Source: ECB.

Neither the euro area as a whole nor the vast majority of euro area countries display a statistical bias in their n.e.o. A clear exception is Finland, with a negative bias in its n.e.o. of more than 10% in absolute terms of its average gross current account flows during the period Q3 2015 to Q2 2018.

[36] Ideally, the average absolute n.e.o. 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 n.e.o. means that a proper calculation of this indicator is not possible for the time being. Future quality reports should correct this problem.

Values for the validation indicators (including n.e.o.) are available in Tables A.7.1-7 in the Annex.

7 External consistency/coherence

External consistency is defined as the coherence of b.o.p. and i.i.p. data with other related statistical domains. In this report, the external consistency/coherence of the b.o.p. and i.i.p. is assessed against foreign trade statistics, euro area (sector) accounts, MFI balance sheet statistics, investment fund 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 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[37].

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 A.8.1 in the Annex illustrates the individual national directional reliability indicators for the period from Q3 2015 to Q2 2018, for counterpart areas “rest of the world” and “extra-euro area”. The results are comparable to the analysis described in last year’s quality report.

For the euro area as a whole, there is full directional reliability for both imports and exports. Six euro area countries displayed full directional reliability for both exports and imports for the two counterpart areas analysed. A limited number of countries, including Malta[38], showed a lower degree of directional reliability[39]. On average, data for exports/credits were more directionally reliable than for imports/debits.

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

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37 A complete list of the conceptual differences between BPM6 and international merchandise trade statistics (IMTS) is provided in Annex F of “International Merchandise Trade Statistics: Concepts and Definitions”, (IMTS, 2010).

38 In the case of Malta, yachts and aircraft are only deemed to be operationally leased and are therefore removed from goods for b.o.p. purposes.

39 b.o.p. goods sub-item general merchandise (G1), national concept, was used to calculate the directional reliability indicator.

7.2 Consistency with euro area sector accounts

Euro area b.o.p. and i.i.p. data constitute one of the so-called building blocks of the euro area accounts (EAA) and are widely used at national level for the compilation of the rest of the world (RoW) financial and non-financial accounts as part of the system of national accounts.

The methodological differences between b.o.p./i.i.p. and the RoW account (national accounts) were removed with the introduction of ESA 2010 and BPM6, even though some interpretation challenges still remain.[40] However, the analysis shows that inconsistencies between the two statistical domains persist in several Member States, negatively affecting the combined use of the two datasets and their reliability. Acknowledging this, the ESCB has worked to precisely identify the differences and to develop national medium-term work plans to be generally observed by September 2019.[41] In this context, the removal of inconsistencies between the two statistical domains is progressing in the EU and some countries already compile the two sets of statistics in a consistent manner.

7.2.1 Current account

Chart 9[42] shows the differences between the b.o.p. and RoW 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 STC.

For the euro area as a whole, the differences were not significant and lower than last year, with a high level of consistency displayed between the two datasets. At country level, however, differences above 0.5% were recorded for several countries (Belgium, Germany (only for debits), Greece, France, Austria, Slovenia, Slovakia and Finland). As in the previous year, France recorded a discrepancy of 7% for its current account (only for credits), with sizeable discrepancies in particular for services and primary income. Greece also recorded significant differences driven by the goods and services accounts, the latter only for credits.

40 The harmonised EU revisions policy also supports equality between the two statistical domains.

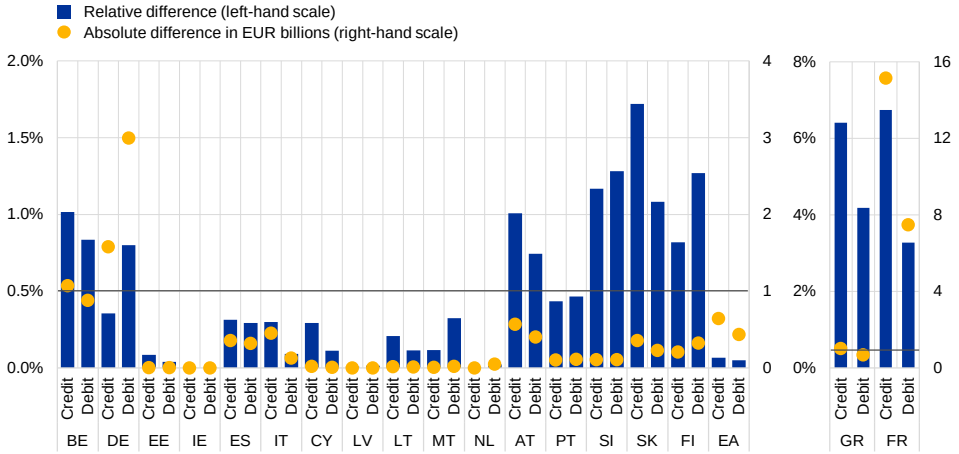
41 Or at the time of the next European benchmark revision, which for most EU countries (20 out of 28) will also occur in 2019. The remaining countries either implemented it in 2018 or plan to do so in 2020.

42 Some national contributions to RoW data were not shared with the ECB in Q2 2018 owing to data validation issues. This affects the comparability of the current account details of Luxembourg, Bulgaria, Hungary, Poland and Romania.

Chart 9

Current account discrepancies between the 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 Q3 2015 to Q2 2018 (b.o.p. vs EAA)



Source: ECB.

7.2.2 Financial transactions

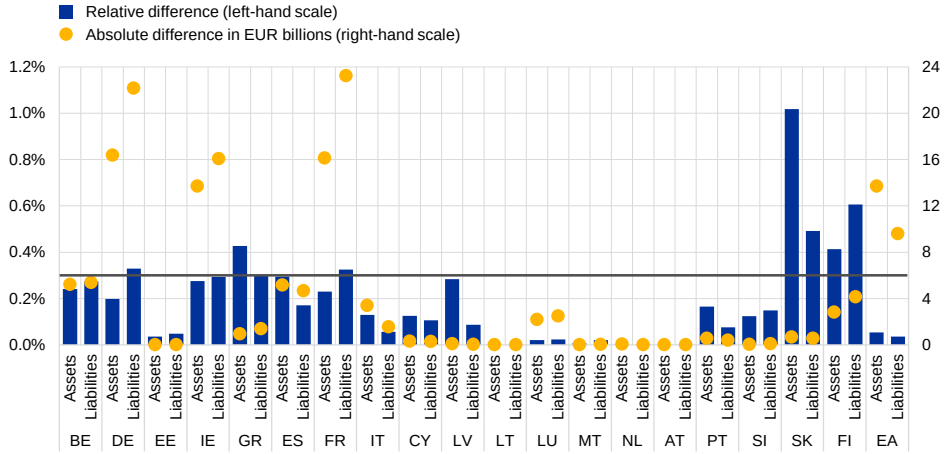
Chart 10 shows the differences between b.o.p. and the RoW account for financial transactions. In this case, discrepancies may be accounted for by timing differences in the recording as well as the reconciliation of the national sectoral accounts; both the "vertical" reconciliation (a correction for errors and omissions) and the "horizontal" reconciliation (asset/liability equality across sectors) may entail larger adjustments to the financial transactions of the RoW account. Nonetheless, as an indicative benchmark, the relative differences should not exceed 0.3% of the average value of the underlying positions.

For the euro area as a whole, the differences were not significant (smaller than last year for assets and broadly unchanged for liabilities) and showed a relatively high level of consistency between the two datasets. At country level differences of above 0.3% were recorded for several countries (Germany (only for liabilities), Greece (only for assets), France (only for liabilities), Slovakia and Finland). Slovakia and Finland recorded the highest relative discrepancies, while the largest absolute differences were observed in Germany, Ireland and France.

Chart 10

Financial account transaction discrepancies between the 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 Q3 2015 to Q2 2018 (b.o.p. vs EAA)



Source: ECB.

Financial positions

Chart 11 below presents the differences between the i.i.p. and the RoW account for financial assets and liabilities (balance sheets/positions). As expected, the differences between the two datasets are larger for positions than for transactions. 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.

The euro area as a whole recorded significant discrepancies of 4% for both assets and liabilities. These discrepancies arose mostly from differences between the compilation and reconciliation processes for the euro area i.i.p. and the RoW. At country level, differences of above 0.5% were recorded for all countries except Germany (assets), Estonia, Cyprus and Latvia (assets), Lithuania, Luxembourg, Malta and Austria (liabilities) and Portugal (liabilities). The highest discrepancies were recorded for France (assets) and Slovakia (liabilities), with values exceeding 4%.

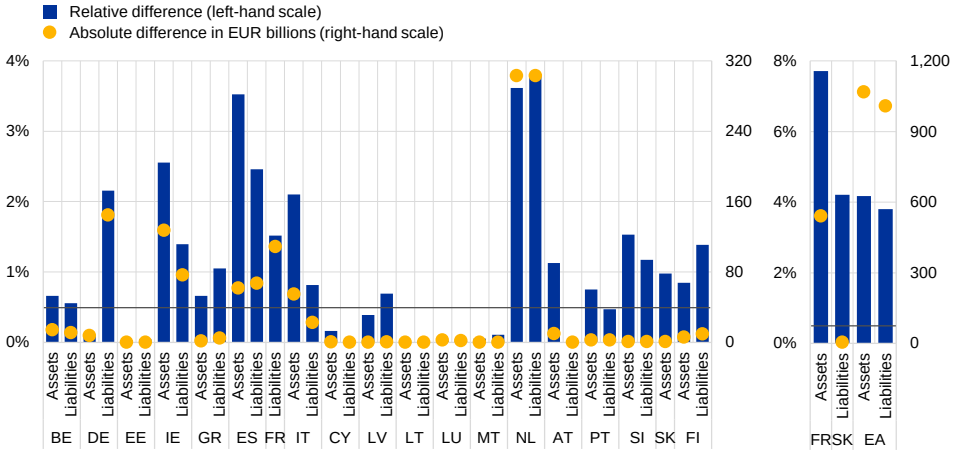
A detailed analysis at the instrument level reveals sizeable differences for financial derivatives, mainly reflecting a different interpretation of the international statistical standards with regard to net or gross recording (which may not cause differences in net figures). Other reasons behind the differences affecting equity and debt instruments (i.e. deposits, loans and debt securities) reflect discrepancies in vintages, data sources, estimation methods and valuation methods[43].

[43] For example, for unlisted equity in direct investment, one dataset may use own funds at book value while the other dataset may use market prices estimated.

Chart 11

Financial account position discrepancies between the 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 Q3 2015 to Q2 2018 (b.o.p. vs euro area accounts))



Source: ECB.

Further details on the comparison are available in Tables A.9.1-4 in the Annex.

7.3 Coherence with MFI balance sheet data

Data on cross-border transactions and positions in the euro area MFI sector are recorded in the euro area b.o.p./i.i.p. and collected under the MFI Balance Sheet statistics (BSI)[44].

The consistency between b.o.p. data for the MFI sector and transactions in external assets and liabilities derived from the BSI statistics of euro area MFIs is essential for the construction of the “monetary presentation of the balance of payments” and its use for monetary policy purposes. 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, persisting discrepancies between the two datasets are in general explained by methodological differences (see below).

For the euro area as a whole, the discrepancies in comparable monthly figures between the two datasets were in general not significant for the period under analysis. Comparability issues emerged for asset positions in equity at quarterly frequency. Discrepancies (around €55 billion) represented more than 16% of the average i.i.p. and BSI positions, and were caused by discrepancies in the French data.

Concerning individual euro area countries, monthly transactions were generally consistent across datasets. Discrepancies affected mostly transactions in equity assets reported by Ireland (9.6%) at quarterly frequency. In terms of positions, Ireland,

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

France, Luxembourg and Slovenia recorded discrepancies above 25% of the average positions for equity securities. In the case of loans and deposits, the highest discrepancy was found in the liabilities of Malta, averaging 13.7% over the reference period. The highest discrepancy in debt securities emerged for Portugal (10.2%).

The main reasons for these inconsistencies include: (i) differences in the classification of instruments, e.g. the b.o.p./i.i.p. may classify an instrument as a deposit whereas it is classified as "remaining assets and liabilities" in BSI statistics[45]; (ii) differences in the treatment of 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 s-b-s for b.o.p. and monthly aggregated sources for BSI, which lead in particular to different valuation criteria (i.e. the b.o.p./i.i.p. is calculated at transaction/market prices, while BSI transactions derived from positions are reported at fair, cost or nominal value, depending on accounting practices).

Eurosystem

Most of the discrepancies in the data for the Eurosystem as a whole (i.e. euro area aggregates) 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 are deemed in circulation in the euro area.

At country level, the treatment of intra-Eurosystem technical claims is a source of discrepancies, as these are included under remaining assets and liabilities without geographical breakdown in BSI, and under currency and deposits in the b.o.p./i.i.p. Additionally, the b.o.p. estimations for foreign holdings of euro banknotes are not included in BSI statistics.

Further details on the comparison are available in Tables A.10.1-6 in the Annex.

7.4 Coherence with money market fund statistics

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 BSI statistics[46], as MMFs are a sub-sector of MFIs.

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

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45 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.

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

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,[47] MMF liabilities are allocated geographically by respondents in BSI statistics. Although in the case of MMF 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 the b.o.p. and i.i.p. may be more accurate.

Further details on the comparison are available in Tables A.11.1-2 in the Annex.

7.5 Coherence with investment fund statistics

Details on cross-border investments in non-MMF investment fund (IF) shares 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 Regulation on Investment Funds[48] (IF dataset).

At the euro area level, the i.i.p. consistently exceeds the IF dataset in terms of euro area investment fund liabilities. The average absolute discrepancy reached a value close to €51 billion for positions and €20 billion for transactions throughout the period under analysis. The discrepancies at the euro area level are partly explained by the use of the residual approach to calculate portfolio investment liabilities (see Section 7.4 above).

At country level, Italy[49] (158%, €7.9 billion) and Malta (200%, €6.7 billion) recorded the highest inconsistencies for IF shares held by non-residents in relative terms. The i.i.p. data reported by Malta is zero, while the IF dataset shows positive (although not very sizeable) outstanding amounts. In addition, while France does not display one of the highest relative discrepancies, the absolute average discrepancy reaches €7.1 billion for stocks; the two datasets are fairly consistent regarding transactions.

Further details on the comparison are available in Tables A.11.1-2 in the Annex.

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47 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.

48 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.

49 The coherence between quarterly investment position data and IVF statistics has improved compared to the 2017 report. The remaining discrepancy will be solved by September 2019.

7.6 Coherence with Securities Holdings Statistics

The ECB Guideline stipulates that portfolio investment collection systems of euro area countries shall as much as possible rely on 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 SHSS[50] provide consistent results, mainly because national portfolio investment assets and SHSS should rely on the same s-b-s sources of information.[51]

This section compares the positions at market value of (i) debt securities and (ii) listed shares and investment fund shares/units as available in the SHSS dataset.[52] 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).

7.6.1 Debt securities

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

For the euro area as a whole, the level of discrepancies for debt securities was 7% of the underlying i.i.p., 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 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[53], the lack of comprehensive coverage of non-ISIN securities data in SHSS[54], and different revision policies between SHSS and i.i.p.

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

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

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

53 Direct reporting by pension funds to the Securities Holdings Statistics Database (SHSDB) will follow in the context of the new ECB Regulation on statistical reporting requirements for pension funds (ECB/2018/2).

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

7.6.2 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 5%. At country level, discrepancies higher than the 15% threshold due to SHSS under-coverage[55] were recorded for the following countries: Italy, Portugal and Finland. Some countries also record an over-coverage of the SHSS amounts, which were quite relevant in the case of investment fund shares held by German financial corporations other than MFIs and non-financial investors that were issued mainly by other euro area countries (the latter is linked to the inclusion of third-party holdings data in SHSS[56]), as well as euro area and, to a lesser extent, non-euro area listed shares held by Luxembourgish financial corporations other than MFIs. Finally, Malta continues to report zero holdings of listed shares and investment fund shares within its b.o.p. and i.i.p. statistics, meaning the indicators were not calculated for this country despite relevant amounts being reported in the SHSS context for these instruments.

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

Further details on the comparison are available in Tables A.12.1-2 in the Annex.

[55] The discrepancies recorded by Slovenia reflect an over-coverage of SHSS amounts.

[56] 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).

8 Asymmetries

Asymmetries are an inherent feature of all statistics for which “mirror” data 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.

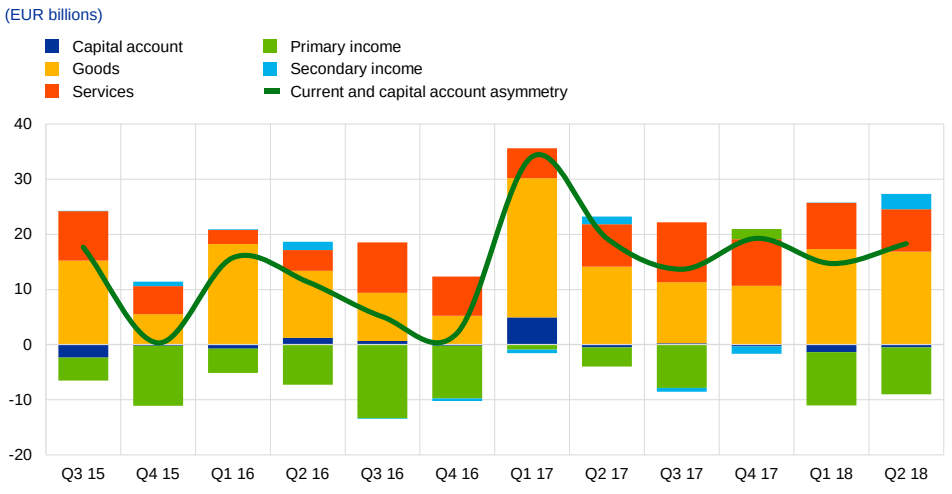
Asymmetries can be observed at the level of the global economy (where the total world assets should equal the total world liabilities), at the level of geographical aggregates (where the total intra-euro area assets should match the total intra-euro area liabilities) or at the level of bilateral pairs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

8.1 Intra-euro area asymmetries

Charts 12 and 13 provide an overview of 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



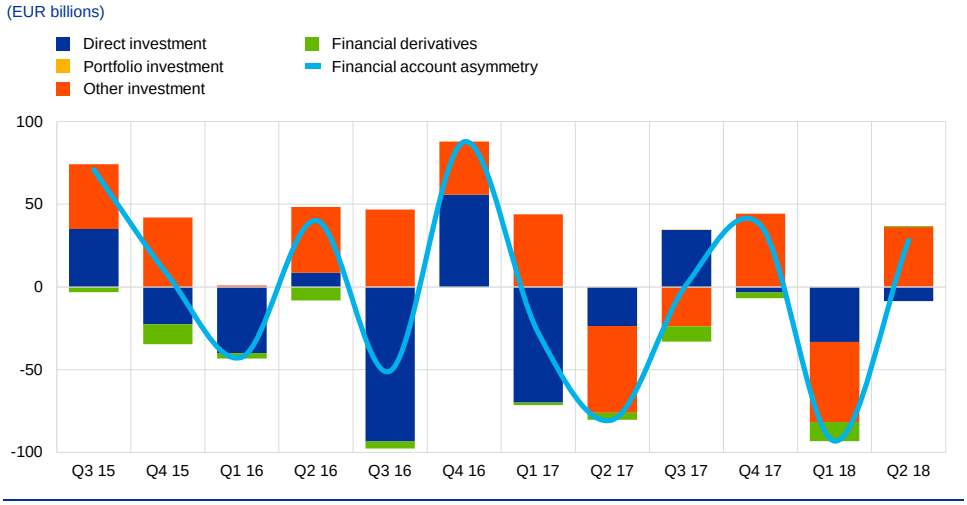
Source: ECB.

Current and capital account asymmetries (credits minus debits) were always positive over the analysed time span and seemed to stabilise at a higher level from Q1 2017. The main contributors to the overall asymmetries show structural biases: consistently positive asymmetries in goods and services accounts, negative contribution from the primary income account. An exception to this behaviour is detected for Q4 2017, where the primary income account also registered a positive contribution. Secondary

income and the capital account significantly affected the overall asymmetries only in particular quarters.

Chart 13

Intra-euro area financial account asymmetries



Source: ECB.

In the financial account, 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; periods where the asymmetries in direct and other investment offset each other alternated with periods where they contributed in the same direction to the overall asymmetry. Other investment asymmetries seemed to drive the direction of the overall financial account asymmetries in the period under review.

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 dataset is not yet available. Owing to data availability, the analysis of bilateral asymmetries between euro area countries is performed only for direct investment. For future quality reports, the analysis will be extended to other items as data becomes available.

The internal and external country geographical quality indicators (ICGQ and XCGQ, respectively) are measures that summarise the quality of the geographical breakdown. The ICGQ aims at assessing the accuracy of the individual geographical 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 for FDI transactions were characterised by significant variability across countries and across time. Several countries consistently obtained high scores for the entire time span, indicating structural problems in matching counterparties’ transactions; the majority of countries 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 individual country counterparts and merely measures how well the counterparts as a group match a country’s estimate for that group; most of the countries therefore 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 several quarters.

The results for FDI positions revealed better scores than for transactions data as regards both quality measures.

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

Further details on summary indicators for bilateral asymmetries are available in Tables A.13.1-4 in the Annex[57].

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

- The analysis is performed on data for the reporting period Q3 2015 to Q2 2018;

- 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;

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

Box 1
Quality indicators on b.o.p. and i.i.p. statistics underlying the MIP

The MIP scoreboard for the Alert Mechanism Report (AMR) consists of 14 headline indicators with thresholds (complemented by auxiliary indicators with no thresholds). 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 (i.i.p.) data underpin the construction of the following three headline indicators:

1. current account balance (percentage of GDP), three-year backward-moving average (up to 13 years of data required);
2. net international investment position (percentage of GDP) (up to ten years of data required);
3. export market share (percentage of world exports), five-year percentage change (up to 15 years of data required);

Additionally, b.o.p. and i.i.p. data are used for five auxiliary indicators:

4. current plus capital account balance (net lending/borrowing) (percentage of GDP) (ten years of data required);
5. "net international investment position excluding non-defaultable instruments[1)] (percentage of GDP)" (NENDI) (ten years of data required);
6. foreign direct investment in the reporting economy, flows (percentage of GDP) (ten years of data required);
7. foreign direct investment in the reporting economy, positions (percentage of GDP) (ten years of data required);
8. export performance against advanced economies (percentage of OECD exports), five-year percentage change (15 years of data required).

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

The following sections assess the fitness for purpose of b.o.p./i.i.p. data for the MIP and analyse the same data vintage as that used in the 2018 Alert Mechanism Report.

Institutional setup

B.o.p. and i.i.p. data are transmitted 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(1) of Guideline ECB/2011/23. 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 NSIs or NCBs. A Memorandum of Understanding between Eurostat and the ECB/Directorate General Statistics (DG-S) on the quality assurance of statistics underlying the MIP (hereinafter "the MoU") was therefore signed in November 2016. In the MoU (and the letters that were exchanged), the European Commission and the ECB mutually recognise the quality assurance frameworks in place in the European Statistical System (ESS) and the ESCB and establish practical working arrangements for cooperation with regard to the quality assurance of statistics underlying the MIP.

The MoU specifies that Eurostat and the ECB/DG-S should regularly conduct assessments of the quality of the national datasets. In particular, the ECB/DG-S should run its quality procedures for the datasets reported by NCBs and provide 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 envisages visits by the ECB/DG-S and Eurostat to NCBs and/or NSIs to help assess the output quality of MIP-relevant data. In 2018, two country visits took place and, as a result of the visits, recommendations for improving data quality were included in the relevant sections of the report.

To ensure full transparency with respect to the quality of 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 consists of national self-assessment reports (Level 3) which, in turn, feed into the domain-specific quality reports (Level 2) – including this report – 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 in the CMFB's section on Quality reports concerning statistics underlying the MIP indicators.

Data availability and confidentiality

The relevant ECB and EU Parliament and Council legal acts do not impose back data requirements in compliance with the BPM6 statistical standard. Despite this, the majority of national compilers have provided the thirteen years of current account back data and ten years of net international investment position back data required for the calculation and analysis of the main indicators. Certain coverage limitations remain for the goods and services balance, mainly as a longer span is required for the calculation of the export market share indicator (15 years).

Regarding the auxiliary indicators, relevant coverage limitations concern the calculation of a new indicator (NENDI) that uses positions in equity securities – information that is not available or not of good quality (as it also includes investment fund shares) for Malta, Croatia (from 2015), Czech Republic and Greece (from 2013), Romania (from 2011), and Latvia[2)], Poland and Bulgaria (from 2010). In general, all available MIP-relevant data are free for publication.

Sources and methods

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

While the compilation of b.o.p. and i.i.p. data 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) Luxembourg, the Netherlands, Cyprus and Malta would still benefit from improvements in the coverage of resident SPEs; (ii) some EU countries should make an effort to implement estimates for service margins on buying and selling financial assets (financial services); (iii) some countries should follow EU recommendations and include estimates for certain illegal economic trade activities (illegal drugs, prostitution services, and smuggling of tobacco and alcohol); (iv) most countries have difficulties capturing household assets held abroad; and (v) in general, countries should improve the measurement of reinvested earnings on foreign direct investment and the valuation of unlisted shares and other equity. For more detailed information, please see Table 1 in the executive summary and Section 2.

Accuracy and reliability

For the reference period 2016, revisions to the current account were minor, amounting to under 1% of GDP in most countries (see MIP Annex Table 1). For the current account balance, only Ireland (8%) and Bulgaria (3%) recorded revisions above 1% of GDP. For the net i.i.p., revisions were above 5% of GDP in Belgium (6%), Finland (11%), Ireland (7%), Luxembourg (12%), the Netherlands (6%), Hungary (6%) and Sweden (6%).

Revisions of the underlying data have generally not altered the meaning conveyed by the first assessment of the headline MIP indicators or the underlying economic assessment.

Internal consistency

For quarterly b.o.p., most countries fulfil all validation (accounting) rules. One notable exception is the data provided by Ireland before 2012, which 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 the 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 positions and flows, the validity of which is very important for confirming the plausibility of the net i.i.p.

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 for periods before Q1 2013 is not mandatory):

Belgium: revisions to portfolio investment due to changes in sources and methodology have been implemented only back to Q1 2014, creating a break in the series affected.

Ireland: available foreign direct investment positions data before 2008 follow the directional principle;

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 i.i.p. data source for financial derivatives held by resident deposit-taking corporations thereafter;

Luxembourg: relevant series breaks in foreign direct investment positions for 2011 are related to improvements in the coverage of SPEs;

Austria: some breaks apply in foreign direct investment positions (in 2005, due to the introduction of data for SPEs) and financial derivatives (before 2006 the reported value for positions in financial derivatives is zero, whereas non-zero values are reported for transactions);

Portugal: positions in financial derivatives assets and liabilities record a break in 2008 as well as certain sectoral and financial instrument breakdowns; the breaks are generated by an increase in coverage in 2008;

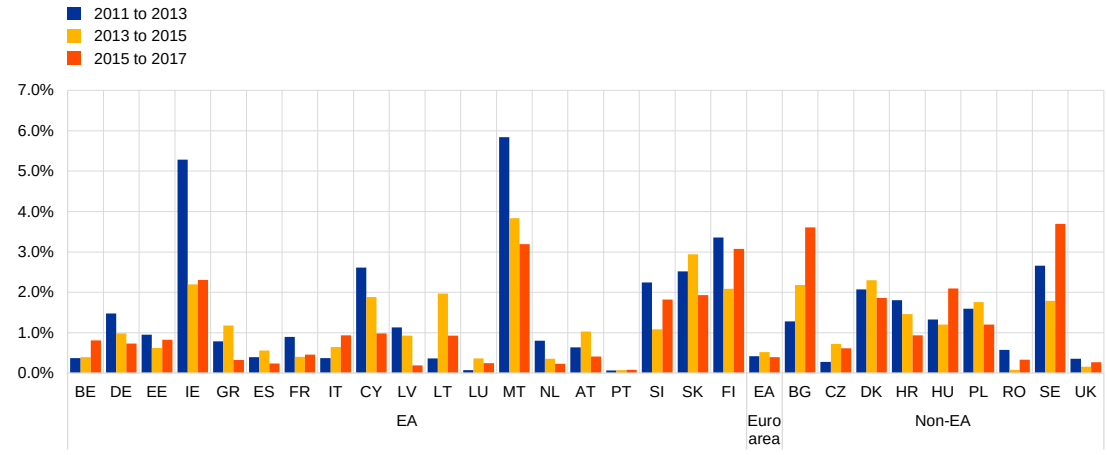
Slovakia: a series break is observed for other investment (assets and liabilities) in 2009.

National **net errors and omissions** in general remained stable in the last review period, however they are still above 2% of GDP in Ireland, Malta, Finland, Bulgaria, Hungary 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

(percentage of GDP)



Source: ECB.

In cumulative terms for the period 2015-17, a bias (at least 2% of GDP) can be statistically identified in Malta, Slovakia, Finland and Denmark.

External consistency

The methodological differences between the b.o.p./i.i.p. and RoW account (national accounts) were removed with the introduction of ESA 2010 and BPM6. However, the analysis shows that inconsistencies between the two statistical domains persist in several Member States, negatively affecting the combined use of these two datasets as well as their reliability. Discrepancies above 0.5% of GDP are recorded (for either credits/debits or both) for the current account of over one-third of EU countries (Greece, France, Malta, Slovenia, Slovakia, the Czech Republic, Poland, Romania, Sweden).[58] Nonetheless, none of the discrepancies recorded was higher than 2% of GDP. For financial account positions, the discrepancies between the i.i.p. and RoW account are more pervasive and total more than 20% of GDP in some cases: Ireland, France (assets), the Netherlands and Sweden.

[58] The comparison for Luxembourg is not possible due to data transmission exemptions.

MIP Annex Table 1

Annual absolute revisions – balance/net items for 2016

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 transactions		Direct investment positions	Portfolio investment equity securities positions	
													Assets	Liabilities
Euro area														
AT	0.37	0.44	0.08	0.36	0.06	0.07	0.06	0.43	0.19	0.17	1.91	0.76	0.07	0.02
BE	0.70	0.26	0.03	0.23	0.54	0.07	0.01	0.72	0.30	4.71	6.06	1.05	0.39	0.72
CY	0.25	0.10	0.27	0.16	0.49	0.07	0.00	0.24	2.62	2.10	2.28	1.90	4.80	0.05
DE	0.20	0.11	0.04	0.07	0.27	0.00	0.07	0.28	0.45	0.27	3.37	0.60	0.00	0.06
EE	0.11	0.13	0.18	0.32	0.16	0.04	0.00	0.11	0.48	0.02	2.77	2.19	0.00	0.03
ES	0.34	0.19	0.01	0.20	0.11	0.02	0.01	0.32	0.17	0.20	1.44	1.19	0.00	0.17
FI	0.63	0.05	0.09	0.13	0.50	0.01	0.01	0.65	1.62	3.48	10.94	2.68	0.47	0.05
FR	0.10	0.35	0.80	0.45	0.27	0.08	0.07	0.16	0.71	0.04	0.84	0.55	0.00	0.39
GR	0.18	0.00	0.00	0.00	0.18	0.00	0.00	0.18	0.09	0.09	0.27	0.36	0.00	0.00
IE	8.12	0.12	6.81	6.69	1.30	0.14	0.01	8.12	8.54	8.42	6.98	5.86	12.17	0.13
IT	0.17	0.12	0.04	0.16	0.02	0.02	0.03	0.20	0.07	0.07	0.12	0.33	0.00	0.00
LU	0.25	2.51	0.80	1.70	2.12	0.67	0.03	0.22	1.82	210.77	12.44	21.24	32.58	3.72
LV	0.24	0.14	0.12	0.26	0.02	0.00	0.00	0.24	0.91	0.07	0.15	0.09	0.05	0.00
LT	0.34	0.00	0.01	0.01	0.03	0.38	0.00	0.34	0.11	0.00	0.23	0.00	0.05	0.00
MT	0.52	0.00	0.86	0.86	0.43	0.10	0.35	0.18	1.70	0.27	1.29	0.02	0.10	0.02
NL	0.89	2.54	1.84	0.71	0.30	0.12	0.06	0.83	0.11	1.85	5.81	7.20	0.06	3.92
PT	0.12	0.21	0.09	0.12	0.05	0.05	0.01	0.11	0.09	0.05	1.54	0.23	0.62	0.00
SI	0.29	0.00	0.19	0.19	0.20	0.10	0.00	0.29	0.06	0.04	0.10	0.02	0.00	0.00
SK	0.71	0.00	0.02	0.02	0.72	0.00	0.00	0.71	1.55	1.40	4.27	4.53	0.00	0.00
I8	0.13	0.07	0.06	0.01	0.12	0.00	0.04	0.09	0.36	0.36	0.30	0.79	0.05	0.09
Non euro area														
BG	2.74	0.00	0.07	0.07	2.67	0.00	0.00	2.74	0.36	0.57	2.17	2.14	0.00	0.00
CZ	0.45	0.10	0.14	0.03	0.42	0.00	0.00	0.45	0.02	0.96	2.26	3.16	0.00	0.00
DK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.70	0.27	1.43	0.12	0.48
GB	0.64	0.14	0.47	0.61	0.05	0.02	0.01	0.63	0.58	1.09		1.33	1.23	1.99
HR	0.10	0.10	0.05	2.76	0.11	0.03	0.31	0.41	0.58	0.10	0.33	0.02	0.00	0.00
HU	0.08	0.07	0.01	0.06	0.06	0.20	0.11	0.03	0.33	0.38	6.45	6.15	0.03	0.00
PL	0.23	0.00	0.03	0.03	0.21	0.00	0.00	0.23	0.42	0.26	0.91	0.75	0.01	0.05
RO	0.03	0.03	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.69	0.00	0.00	0.00
SE	0.26	0.09	0.11	0.20	0.44	0.01	0.00	0.26	1.62	1.55	6.18	3.41	0.02	0.00
B5	0.08	0.05	0.06	0.02	0.08	0.02	0.01	0.07		0.51				

Source: ECB.
Note: All indicators are compiled using neither seasonally adjusted nor calendar adjusted data.
1) Instruments that cannot be subject to default: foreign direct investment equity and equity shares and inter-company cross-border-FDI debt.
2) Latvia will provide the missing breakdowns in the course of 2019.

Annex

Detailed tables

Accessibility and clarity

Table A.1.1

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

July 2017 to June 2018/Q3 2017 to Q2 2018

	Monthly b.o.p.	Quarterly b.o.p.	Quarterly i.i.p.
Country	All items	All items	All items
Euro area			
BE	100	100	100
DE	98	98	100
EE	100	98	99
IE	0	89	91
GR	100	100	100
ES	13	8	35
FR	94	93	90
IT	100	100	100
CY	0	87	89
LV	100	99	100
LT	100	98	100
LU	66	60	47
MT	97	62	58
NL	0	100	100
AT	0	61	60
PT	84	57	66
SI	100	100	100
SK	100	100	100
FI	95	97	95
Euro area median	97	98	99
Non-euro area			
BG	100	97	100
CZ	98	96	92
DK	100	100	100
HR	100	100	100
HU	99	98	100
PL	100	100	100
RO	92	94	97
SE	100	95	94
UK	0	33	6

Source: ECB.

Table A.1.2

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

	Website	Download available	Charts and tables	Press release	Hotline
Euro area					
BE	Y	Y	Y	N	Y
DE	Y	Y	Y	Y	Y
EE	Y	b.o.p. i.i.p.	b.o.p. i.i.p.	Y	Y
IE	Y	b.o.p. i.i.p.	b.o.p. i.i.p.	Y	Y
GR	Y	Y	Y	Y	N
ES	Y	Y	Y	Y	Y
FR	Y	Y	Y	Y	Y
IT	Y	Y	Y	Y	Y
CY	Y	Y	Y	Y	N
LV	Y	Y	Y	N	Y
LT	Y	Y	Y	Y	Y
LU	NCB	NCB	NCB	NCB NSI	NCB NSI
MT	Y	Y	Y	Y	Y
NL	Y	Y	Y	Y	Y
AT	Y	Y/Y	Y/Y	Y	Y
PT	Y	Y	Y	Y	Y
SI	Y	Y	Y	N	N
SK	Y	b.o.p. i.i.p.	N	N	Y
FI	Y	Y	Y	Y	Y
Euro area data	Y	Y	Y	Y	Y
Non-euro area					
BG	b.o.p. i.i.p.	b.o.p. i.i.p.	b.o.p. i.i.p.	b.o.p.	Y
CZ	Y	Y	Y	Y	N
DK	Y	Y	Y	Y	Y
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 A.2.1

Upward revisions ratio for current account (monthly data)

Percentage of revised periods

April 2015 to March 2018

	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	77	74	-	80	71	51	80	51	89	89	59	91	51	74	-	40	94	100	94	94
DE	80	94	-	86	51	46	51	71	89	94	69	74	63	89	-	37	86	94	86	97
EE	63	74	-	57	37	43	20	29	40	60	57	71	80	80	-	66	66	74	43	51
IE	91	66	-	66	100	66	51	66	91	91	86	80	23	43	-	100	71	100	91	100
GR	52	37	-	91	NA	NA	NA	NA	37	47	25	50	66	23	-	100	NA	NA	100	100
ES	37	69	-	69	34	63	46	57	40	46	51	40	46	43	-	94	54	63	60	60
FR	100	100	-	100	86	91	94	94	100	97	56	89	77	86	-	51	94	91	94	94
IT	51	71	-	83	23	63	63	77	66	69	46	71	66	77	-	94	29	37	40	37
CY	60	54	-	69	54	68	69	71	NA	NA	NA	NA	65	56	-	50	50	43	57	50
LV	74	89	-	89	79	85	46	71	77	94	80	97	71	47	-	85	29	27	10	19
LT	54	66	-	89	40	49	20	74	43	46	25	26	71	71	-	83	49	83	63	66
LU	69	94	-	94	86	77	74	100	54	89	57	86	63	91	-	91	11	31	23	17
MT	26	31	-	34	63	77	86	97	26	71	29	57	29	49	-	60	11	17	20	20
NL	77	89	-	86	29	17	74	49	38	86	31	89	86	94	-	86	60	71	17	17
AT	63	54	-	57	57	44	100	51	69	66	71	80	40	57	-	51	94	94	66	83
PT	75	82	-	85	23	10	65	71	61	81	28	52	69	68	-	85	83	87	59	70
SI	69	71	-	89	51	77	57	97	77	60	60	69	97	54	-	80	60	69	57	31
SK	83	71	-	77	57	17	60	57	91	91	86	91	51	71	-	57	50	48	82	82
FI	94	77	-	80	94	63	86	74	91	94	66	94	54	54	-	63	41	51	57	57
Euro area median	69	71	-	83	56	63	64	71	67	83	57	77	65	68		80	57	70	59	60
Euro area	100	-	91	-	80	-	83	-	97	-	74	-	100	-	89	-	91	-	60	-
Non-euro area																				
BG	-	77	-	83	-	51	-	63	-	86	-	80	-	94	-	83	-	66	-	66
CZ	-	94	-	100	-	80	-	91	-	91	-	94	-	63	-	69	-	74	-	49
DK	-	43	-	71	-	37	-	49	-	57	-	51	-	63	-	54	-	57	-	57
HR	-	29	-	46	-	3	-	9	-	94	-	83	-	54	-	71	-	63	-	66
HU	-	89	-	89	-	74	-	74	-	89	-	66	-	74	-	74	-	83	-	89
PL	-	89	-	86	-	80	-	100	-	86	-	63	-	63	-	74	-	51	-	63
RO	-	60	-	77	-	94	-	60	-	57	-	54	-	54	-	100	-	54	-	60
SE	-	74	-	60	-	60	-	34	-	86	-	86	-	74	-	69	-	63	-	20
UK	77	74	-	80	71	51	80	51	89	89	59	91	51	74	--	40	94	100	94	94

Source: ECB.

Table A.2.2

Upward revisions ratio for current account (quarterly data)

Percentage of revised periods

Q2 2015 to Q1 2018 (April)

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	50	92	-	100	67	58	100	92	83	92	33	75	42	75	-	42	83	83	83	83
DE	67	83	-	92	25	17	83	75	100	92	73	73	55	82	-	58	80	100	100	100
EE	42	58	-	75	33	42	42	17	67	83	67	67	67	92	-	100	58	83	92	92
IE	67	58	-	83	64	82	64	73	100	73	91	91	50	50	-	92	36	18	55	58
GR	67	17	-	100	NA	NA	NA	NA	NA	NA	NA	0	67	25	-	100	NA	NA	NA	NA
ES	67	83	-	83	58	67	42	58	17	50	67	67	50	67	-	100	75	75	83	75
FR	91	91	-	91	91	91	91	91	91	92	36	91	45	50	-	67	91	83	100	92
IT	92	75	-	92	42	58	83	83	75	50	58	75	100	75	-	100	58	58	83	75
CY	100	100	-	100	83	100	92	92	58	100	100	100	100	100	-	100	1	0	100	70
LV	58	92	-	67	75	92	42	75	67	100	42	83	33	0	-	58	27	27	0	0
LT	58	58	-	67	36	42	8	42	58	58	33	67	50	58	-	83	NA	0	33	33
LU	67	92	-	100	100	92	83	100	75	83	83	100	67	92	-	75	8	25	17	8
MT	25	42	-	42	75	92	75	100	25	83	42	67	33	75	-	83	17	17	17	17
NL	58	67	-	67	25	0	67	64	25	100	17	33	75	92	-	83	100	83	33	17
AT	67	67	-	75	92	83	42	58	92	92	92	100	25	42	-	42	100	92	83	75
PT	89	80	-	100	10	10	60	90	70	92	56	42	60	50	-	83	90	83	70	75
SI	100	42	-	83	75	33	50	100	83	67	58	67	100	42	-	75	58	67	58	33
SK	92	50	-	75	50	8	67	25	92	100	92	83	42	92	-	42	50	78	73	75
FI	92	50	-	100	83	33	75	50	100	100	92	92	67	33	-	50	25	25	82	67
Euro area median	67	67	-	83	65	58	67	75	75	92	63	75	55	67	-	83	58	71	77	72
Euro area	83	-	100	-	58	-	92	-	100	-	75	-	83	-	92	-	83	-	83	-
Non-euro area																				
BG	-	58	-	58	-	42	-	58	-	92	-	58	-	75	-	75	-	83	-	58
CZ	-	100	-	100	-	75	-	58	-	100	-	100	-	67	-	58	-	75	-	67
DK	-	25	-	25	-	33	-	42	-	67	-	58	-	58	-	42	-	67	-	92
HR	-	25	-	17	-	0	-	0	-	100	-	92	-	42	-	42	-	75	-	83
HU	-	83	-	75	-	58	-	58	-	83	-	67	-	75	-	75	-	25	-	50
PL	-	17	-	42	-	33	-	33	-	33	-	33	-	50	-	42	-	50	-	58
RO	-	50	-	75	-	58	-	50	-	58	-	58	-	50	-	83	-	67	-	58
SE	-	50	-	50	-	25	-	33	-	83	-	67	-	50	-	75	-	25	-	25
UK	50	92	-	100	67	58	100	92	83	92	33	75	42	75	-	42	83	83	83	83

Source: ECB.

Table A.2.3

Upward revisions ratio for international investment position (quarterly data)

Percentage of revised periods

Q2 2015 to Q1 2018 (April)

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	83	92	-	100	75	92	75	58	67	75	-	58	58	50	75	83
DE	8	83	-	58	0	33	30	60	NA	NA	-	58	83	92	20	8
EE	50	67	-	75	33	83	83	83	75	83	-	67	33	25	42	33
IE	100	92	-	92	83	91	50	50	92	92	-	36	92	92	55	64
GR	25	0	-	67	17	8	55	67	0	NA	-	NA	100	80	NA	NA
ES	33	42	-	67	33	50	75	58	17	50	-	50	50	25	58	58
FR	100	100	-	64	100	100	55	42	80	100	-	36	100	100	64	58
IT	100	100	-	42	100	67	67	50	100	83	-	1	33	75	42	67
CY	92	92	-	92	92	100	75	100	92	50	-	75	0	25	67	50
LV	58	100	-	100	75	100	33	55	40	67	-	82	58	100	75	92
LT	83	100	-	100	100	92	83	92	100	100	-	1	33	83	50	58
LU	100	100	-	100	100	100	75	75	33	42	-	67	67	67	58	42
MT	42	58	-	33	25	58	25	42	25	33	-	58	42	75	50	42
NL	100	92	-	92	100	92	67	50	33	58	-	50	83	100	50	50
AT	8	17	-	50	8	8	33	42	92	67	-	33	83	67	67	67
PT	55	10	-	80	90	91	90	100	20	0	-	40	0	8	50	42
SI	75	83	-	100	100	100	50	83	42	25	-	42	75	75	67	58
SK	100	75	-	58	92	58	50	67	83	100	-	30	92	17	67	67
FI	92	100	-	92	33	58	83	75	92	100	-	75	8	8	75	75
Euro area median	83	92	-	80	83	91	67	60	71	67	-	50	58	75	58	58
Euro area	100	-	100	-	100	-	67	-	100	-	75	-	100	-	58	-
Non-euro area																
BG	-	100	-	100	-	92	-	75	-	75	-	75	-	92	-	42
CZ	-	50	-	67	-	92	-	75	-	58	-	42	-	17	-	42
DK	-	92	-	92	-	92	-	58	-	42	-	58	-	92	-	25
HR	-	42	-	33	-	100	-	83	-	42	-	67	-	50	-	25
HU	-	67	-	58	-	67	-	58	-	75	-	58	-	67	-	50
PL	-	75	-	100	-	58	-	100	-	100	-	42	-	42	-	75
RO	-	50	-	92	-	75	-	58	-	50	-	50	-	58	-	50
SE	-	42	-	92	-	50	-	33	-	42	-	50	-	33	-	50
UK	-	50	-	83	-	100	-	67	-	8	-	8	-	92	-	58

Source: ECB.

Directional reliability indicator

Table A.3.1

Directional reliability indicator for current account (monthly data)

Percentage of revised periods

April 2015 to March 2018

	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	94	89	-	77	89	89	89	86	89	80	88	83	91	89	-	77	80	77	94	91
DE	94	91	-	89	97	100	91	97	94	89	91	94	86	83	-	97	94	97	94	94
EE	91	94	-	83	91	100	91	91	86	94	91	89	71	69	-	69	69	74	91	97
IE	74	71	-	69	86	63	83	49	86	86	86	89	77	71	-	74	66	77	89	91
GR	91	91	-	91	NA	NA	NA	NA	100	100	88	97	100	100	-	100	NA	NA	100	100
ES	91	89	-	91	83	83	69	94	94	91	80	83	74	77	-	80	74	80	91	91
FR	94	89	-	91	100	94	94	91	77	80	82	89	74	77	-	94	83	91	60	57
IT	97	91	-	86	100	94	94	89	94	94	83	80	83	83	-	94	86	89	80	74
CY	97	89	-	97	60	62	54	74	NA	NA	NA	NA	91	94	-	88	71	70	78	82
LV	94	83	-	80	94	91	89	94	60	71	77	75	100	91	-	71	88	100	100	92
LT	94	100	-	80	97	94	97	91	83	97	88	89	80	80	-	71	74	83	91	94
LU	74	86	-	89	69	74	66	89	97	89	91	94	63	71	-	83	74	71	86	86
MT	60	63	-	57	80	74	66	66	66	69	57	46	74	63	-	69	46	54	51	51
NL	71	77	-	60	89	83	94	91	68	66	89	77	60	57	-	51	60	74	77	74
AT	69	89	-	63	77	76	69	60	54	54	49	51	71	66	-	60	51	35	46	37
PT	97	100	-	100	100	97	100	100	97	91	97	90	97	97	-	97	97	97	86	90
SI	94	97	-	89	91	100	94	97	94	94	97	94	83	86	-	69	77	86	97	94
SK	83	97	-	94	80	94	89	94	63	71	57	57	74	80	-	69	88	94	76	85
FI	80	86	-	66	94	89	86	91	51	51	80	77	66	66	-	63	62	49	60	66
Euro area median	91	89	-	86	90	90	89	91	86	87	87	86	77	80	-	74	74	79	86	90
Euro area	91	-	91	-	94	-	94	-	97	-	89	-	71	-	71	-	86	-	91	-
Non-euro area																				
BG	-	94	-	89	-	91	-	100	-	86	-	71	-	86	-	63	-	97	-	94
CZ	-	91	-	91	-	97	-	94	-	66	-	83	-	94	-	91	-	100	-	97
DK	-	91	-	86	-	94	-	89	-	77	-	83	-	86	-	91	-	89	-	69
HR	-	83	-	60	-	74	-	63	-	86	-	74	-	71	-	66	-	71	-	66
HU	-	83	-	83	-	97	-	97	-	69	-	60	-	54	-	80	-	60	-	91
PL	-	86	-	80	-	94	-	91	-	69	-	63	-	91	-	74	-	86	-	91
RO	-	86	-	89	-	91	-	94	-	60	-	60	-	89	-	63	-	80	-	80
SE	-	89	-	94	-	100	-	94	-	66	-	69	-	91	-	89	-	57	-	43
UK	-	69	-	69	-	71	-	74	-	71	-	80	-	66	-	60	-	57	-	54

Source: ECB.

Table A.3.2

Directional reliability indicator for current account (quarterly data)

Percentage of revised periods

Q2 2015 to Q1 2018

	Current account				Goods				Services				Primary Income				Secondary Income			
	Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit		Credit		Debit	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																				
BE	91	91	-	91	100	91	91	91	73	82	91	100	73	55	-	73	82	73	91	91
DE	91	100	-	91	100	91	91	100	89	100	90	90	80	100	-	91	78	100	89	90
EE	82	64	-	91	100	91	100	82	100	100	82	91	64	73	-	82	73	82	91	91
IE	91	91	-	100	60	80	80	100	90	90	100	100	91	91	-	82	80	80	80	73
GR	100	100	-	100	NA	NA	NA	NA	NA	1	NA	1	100	100	-	100	NA	NA	NA	NA
ES	82	91	-	100	100	100	100	100	100	100	91	100	100	100	-	91	91	100	100	82
FR	100	100	-	91	100	100	90	100	90	82	80	90	90	100	-	100	60	64	90	91
IT	91	100	-	100	100	100	91	100	100	100	91	100	73	82	-	91	100	100	82	73
CY	91	91	-	73	91	82	64	82	100	100	82	73	91	73	-	55	57	67	75	78
LV	91	91	-	91	91	100	82	91	100	100	82	100	100	90	-	100	90	100	100	1
LT	82	91	-	82	100	91	91	100	82	91	73	100	73	82	-	82	NA	1	91	82
LU	82	73	-	73	82	82	91	82	100	100	82	82	55	73	-	91	64	82	82	73
MT	73	91	-	55	91	100	91	100	100	100	55	82	73	64	-	64	55	45	45	45
NL	55	64	-	55	91	91	100	100	45	70	55	73	36	64	-	27	73	73	73	82
AT	82	100	-	100	73	73	55	73	100	100	100	100	91	91	-	64	82	82	100	91
PT	100	100	-	100	89	100	100	100	100	100	100	82	100	100	-	100	89	82	100	91
SI	91	100	-	82	100	100	100	100	100	100	100	91	82	73	-	45	91	82	100	82
SK	100	91	-	100	100	100	91	91	91	100	100	100	100	100	-	55	100	100	100	91
FI	91	100	-	91	91	91	91	82	64	91	100	100	91	82	-	82	64	64	80	91
Euro area median	91	91	-	91	95	91	91	100	100	100	90	91	90	82	-	82	80	82	90	82
Euro area	100	-	91	-	91	-	91	-	82	-	91	-	100	-	73	-	100	-	91	-
Non-euro area																				
BG	-	100	-	100	-	100	-	100	-	100	-	91	-	82	-	82	-	100	-	100
CZ	-	100	-	91	-	100	-	91	-	91	-	100	-	73	-	91	-	100	-	91
DK	-	73	-	64	-	55	-	91	-	100	-	91	-	91	-	73	-	73	-	100
HR	-	100	-	91	-	100	-	91	-	100	-	100	-	100	-	91	-	100	-	100
HU	-	82	-	82	-	91	-	82	-	100	-	100	-	64	-	82	-	82	-	100
PL	-	82	-	91	-	91	-	73	-	100	-	100	-	100	-	73	-	100	-	100
RO	-	91	-	64	-	91	-	100	-	100	-	100	-	82	-	73	-	91	-	73
SE	-	100	-	91	-	91	-	91	-	100	-	100	-	100	-	100	-	100	-	100
UK	-	82	-	73	-	91	-	55	-	73	-	82	-	73	-	91	-	64	-	91

Source: ECB.

Table A.3.3

Directional reliability indicator for international investment position (quarterly data)

Percentage of revised periods

Q2 2015 to Q2 2018

	Financial account				Direct investment				Portfolio investment				Other investment			
	Assets		Liabilities		Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW	Extra EA	RoW
Euro area																
BE	91	91	-	55	82	100	82	55	91	91	-	100	91	91	82	91
DE	100	100	-	100	89	80	67	100	100	100	-	100	91	100	100	100
EE	100	82	-	82	82	91	82	82	100	100	-	100	100	100	100	100
IE	64	100	-	100	91	91	100	100	91	100	-	100	82	91	90	90
GR	100	100	-	73	100	100	80	73	NA	1	-	NA	NA	NA	NA	NA
ES	73	100	-	73	64	100	55	73	100	73	-	91	82	82	82	100
FR	80	100	-	91	80	82	70	91	100	80	-	100	90	90	90	100
IT	73	100	-	64	82	73	73	64	100	100	-	100	100	100	91	100
CY	73	73	-	91	82	82	91	91	91	100	-	100	91	100	100	73
LV	91	100	-	90	78	100	91	90	100	100	-	100	100	100	100	100
LT	100	100	-	100	100	91	100	100	90	100	-	1	100	100	100	100
LU	82	91	-	91	82	73	73	91	100	100	-	73	91	82	91	73
MT	91	100	-	100	55	64	91	100	100	100	-	73	100	100	100	100
NL	73	91	-	91	73	91	82	91	100	91	-	100	91	91	100	100
AT	64	91	-	91	82	82	73	91	100	100	-	100	100	91	100	91
PT	100	90	-	82	78	73	89	82	67	100	-	100	100	90	100	100
SI	73	100	-	64	100	91	82	64	100	100	-	100	100	100	100	100
SK	91	82	-	91	91	91	100	91	89	100	-	100	73	100	100	91
FI	100	100	-	91	100	100	64	91	100	100	-	82	91	100	100	100
Euro area median	91	100	-	91	82	91	82	91	100	100	-	100	91	100	100	100
Euro area	91	-	73	-	91	-	73	-	91	-	82	-	100	-	100	-
Non-euro area																
BG	-	91	-	82	-	91	-	82	-	100	-	91	-	73	-	82
CZ	-	73	-	91	-	73	-	91	-	91	-	91	-	91	-	91
DK	-	100	-	73	-	100	-	73	-	100	-	91	-	82	-	82
HR	-	100	-	91	-	100	-	91	-	91	-	100	-	100	-	100
HU	-	73	-	91	-	73	-	91	-	82	-	100	-	100	-	91
PL	-	73	-	82	-	73	-	82	-	100	-	100	-	100	-	91
RO	-	55	-	73	-	55	-	73	-	100	-	100	-	100	-	91
SE	-	82	-	73	-	82	-	73	-	100	-	100	-	100	-	100
UK	-	82	-	82	-	82	-	82	-	64	-	82	-	82	-	91

Source: ECB.

Symmetric mean absolute percentage error

Table A.4.1

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

As a percentage of average underlying first and last assessments

April 2015 to March 2018

	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	2	2	-	2	2	3	2	2	4	4	3	4	8	6	-	6	9	13	6	5
DE	1	1	-	1	1	0	2	0	2	2	1	1	2	2	-	3	6	7	3	4
EE	1	1	-	1	2	1	1	1	2	1	2	2	7	6	-	6	10	9	7	5
IE	7	44	-	46	12	45	5	44	6	6	10	8	6	4	-	15	26	27	28	33
GR	1	1	-	1	1	1	0	1	1	1	1	1	2	5	-	6	0	16	1	1
ES	2	1	-	1	2	1	2	1	2	1	3	2	5	4	-	4	8	6	2	3
FR	4	3	-	2	1	1	2	1	6	5	2	2	7	6	-	5	15	19	9	10
IT	1	1	-	2	1	1	1	1	2	1	3	2	6	6	-	5	4	4	9	7
CY	16	16	-	15	14	11	14	7	4	4	8	5	29	29	-	26	24	26	13	15
LV	2	2	-	2	1	1	1	1	5	5	7	3	2	3	-	12	2	2	3	3
LT	1	1	-	1	1	0	1	0	3	2	3	2	30	25	-	23	7	5	6	5
LU	6	6	-	6	12	9	9	6	2	2	2	3	8	8	-	7	7	2	5	4
MT	20	10	-	11	9	8	10	8	11	4	15	3	21	2	-	3	58	52	57	54
NL	4	4	-	5	2	2	1	1	5	5	9	7	12	13	-	14	17	12	23	17
AT	3	3	-	2	3	3	9	2	5	5	4	4	8	8	-	7	16	15	8	8
PT	1	0	-	1	0	0	0	0	1	1	1	1	5	2	-	3	4	3	2	2
SI	1	1	-	1	1	0	1	1	1	1	1	1	17	7	-	11	5	3	2	6
SK	2	1	-	1	1	1	1	1	9	7	7	6	10	6	-	3	8	5	7	5
FI	2	2	-	3	1	1	1	1	5	4	3	5	7	6	-	15	11	10	8	7
Euro area median	2	2	-	2	1	1	1	1	4	4	3	3	7	6	-	6	8	9	7	5
Euro area	2	-	2	-	1	-	1	-	2	-	3	-	5	-	6	-	4	-	2	-
Non-euro area																				
BG	-	1	-	1	-	1	-	1	-	4	-	3	-	5	-	8	-	4	-	1
CZ	-	2	-	2	-	2	-	1	-	3	-	4	-	2	-	3	-	7	-	4
DK	-	8	-	6	-	14	-	5	-	9	-	25	-	19	-	45	-	20	-	19
HR	-	1	-	1	-	2	-	1	-	3	-	3	-	7	-	5	-	20	-	4
HU	-	2	-	1	-	1	-	1	-	3	-	2	-	4	-	7	-	3	-	4
PL	-	1	-	2	-	0	-	0	-	5	-	4	-	3	-	19	-	6	-	4
RO	-	1	-	2	-	1	-	1	-	4	-	3	-	3	-	6	-	16	-	11
SE	-	2	-	1	-	2	-	1	-	3	-	4	-	3	-	5	-	4	-	8
UK	2	2	-	2	2	3	2	2	4	4	3	4	8	6	-	6	9	13	6	5

Source: ECB.

Table A.4.2

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

As a percentage of average underlying first and last assessments

Q2 2015 to Q1 2018

	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	1	1	1	2	1	8	4	-	4	7	9	4	4
DE	0	0	-	0	0	0	0	0	1	2	1	1	2	1	-	2	4	5	2	3
EE	1	1	-	1	1	1	1	1	1	1	1	2	5	4	-	4	7	5	3	3
IE	3	2	-	4	7	4	4	2	2	1	8	6	3	2	-	4	4	4	5	4
GR	0	0	-	0	0	0	0	0	0	0	0	0	2	4	-	5	0	0	0	0
ES	1	1	-	0	0	1	0	0	0	0	1	1	4	3	-	3	3	2	1	1
FR	2	2	-	2	1	1	2	1	4	4	1	1	2	2	-	2	7	9	6	6
IT	0	1	-	1	0	0	0	0	1	1	1	1	5	5	-	5	2	1	2	2
CY	13	13	-	12	4	3	4	3	2	2	6	4	25	25	-	24	3	4	2	2
LV	1	1	-	1	1	1	1	1	1	3	3	1	1	2	-	2	2	2	2	2
LT	1	1	-	0	0	0	1	0	1	1	1	1	26	20	-	4	0	0	4	3
LU	5	5	-	5	13	8	5	5	1	1	1	2	8	7	-	6	8	2	6	4
MT	19	10	-	11	4	5	2	3	10	2	13	2	20	1	-	2	61	54	60	57
NL	3	3	-	3	2	2	1	1	4	3	4	1	7	8	-	8	19	8	4	4
AT	1	1	-	1	1	1	2	0	1	1	1	1	6	5	-	5	12	10	4	5
PT	1	0	-	1	0	0	0	0	0	1	1	0	4	2	-	2	4	3	1	1
SI	1	0	-	1	0	0	0	0	1	1	1	1	13	7	-	10	4	2	1	5
SK	1	0	-	0	0	1	0	0	5	4	3	4	2	0	-	2	0	0	2	1
FI	2	6	-	6	1	1	1	1	4	3	3	3	3	5	-	7	6	3	9	4
Euro area median	1	1	-	1	1	1	1	1	1	1	1	1	5	4	-	4	4	3	3	3
Euro area	1	-	1	-	1	-	1	-	1	-	1	-	2	-	3	-	3	-	2	-
Non-euro area																				
BG	-	1	-	0	-	1	-	0	-	1	-	0	-	2	-	2	-	0	-	1
CZ	-	1	-	1	-	1	-	1	-	2	-	3	-	1	-	2	-	4	-	2
DK	-	1	-	1	-	1	-	1	-	2	-	2	-	2	-	3	-	4	-	4
HR	-	1	-	1	-	2	-	1	-	1	-	1	-	2	-	3	-	2	-	1
HU	-	1	-	1	-	2	-	1	-	2	-	2	-	6	-	4	-	12	-	2
PL	-	1	-	1	-	1	-	1	-	1	-	1	-	3	-	5	-	1	-	1
RO	-	0	-	1	-	0	-	0	-	0	-	1	-	1	-	10	-	3	-	2
SE	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	3	-	2	-	2
UK	1	1	-	1	1	1	1	1	1	1	2	1	8	4	-	4	7	9	4	4

Source: ECB.

Table A.4.3

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

As a percentage of average underlying first and last assessments

Q2 2015 to Q1 2018

	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	2	-	3	2	5	23	27	1	1	-	8	1	1	17	18
DE	0	0	-	1	1	0	21	9	0	0	-	3	0	0	1	5
EE	0	0	-	1	1	1	22	19	0	0	-	8	1	0	4	7
IE	3	2	-	2	2	2	35	21	2	2	-	5	5	3	17	25
GR	0	1	-	0	3	6	19	16	0	0	-	2	0	0	1	1
ES	1	0	-	0	1	1	41	24	0	0	-	20	1	0	22	3
FR	1	1	-	0	2	1	21	13	0	0	-	7	1	1	3	2
IT	1	1	-	0	1	0	30	32	1	2	-	1	1	0	9	2
CY	4	5	-	5	6	8	3	18	1	1	-	2	7	3	25	34
LV	0	1	-	1	2	3	16	7	0	0	-	1	1	1	5	6
LT	1	1	-	1	3	5	14	21	1	1	-	1	0	0	2	2
LU	3	3	-	2	5	6	44	41	0	1	-	17	1	1	28	20
MT	21	0	-	0	21	0	22	5	26	0	-	31	12	0	7	2
NL	3	2	-	2	5	3	36	37	0	0	-	23	1	1	10	8
AT	1	1	-	1	4	2	56	46	0	0	-	8	1	1	13	17
PT	1	0	-	0	5	2	11	13	1	1	-	9	3	2	3	4
SI	3	1	-	1	2	2	15	19	0	0	-	7	1	1	3	4
SK	1	1	-	1	3	1	9	7	1	3	-	0	1	2	1	1
FI	1	1	-	2	1	1	37	38	1	2	-	24	1	0	1	2
Euro area median	1	1	-	1	2	2	22	19	0	0	-	7	1	1	5	4
Euro area	2	-	2	-	3	-	37	-	0	-	19	-	1	-	5	-
Non-euro area																
BG	-	1	-	1	-	2	-	20	-	0	-	6	-	2	-	19
CZ	-	0	-	1	-	2	-	14	-	0	-	5	-	2	-	3
DK	-	1	-	2	-	2	-	63	-	1	-	8	-	1	-	16
HR	-	0	-	0	-	1	-	6	-	1	-	2	-	1	-	5
HU	-	2	-	1	-	2	-	58	-	0	-	1	-	1	-	5
PL	-	0	-	0	-	1	-	22	-	2	-	2	-	1	-	5
RO	-	2	-	1	-	5	-	11	-	1	-	9	-	5	-	24
SE	-	2	-	2	-	6	-	22	-	1	-	9	-	0	-	1
UK	-	1	-	1	-	3	-	35	-	5	-	28	-	1	-	30

Source: ECB.

Mean absolute comparative error

Table A.5.1

Mean absolute comparative error for financial account (monthly data)

As a percentage of average underlying first and last assessments

April 2015 to March 2018

	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	1.0	-	1.0	2.4	1.6	6.1	1.9	3.9	1.1	-	0.7	3.4	2.3	3.2	2.0
DE	0.3	0.1	-	0.2	0.7	0.4	1.2	0.7	0.2	0.1	-	0.3	0.5	0.2	0.2	0.4
EE	2.4	0.9	-	0.8	6.4	2.8	2.7	1.3	1.8	0.8	-	0.8	4.3	1.3	1.4	1.2
IE	1.4	1.0	-	1.1	3.6	2.3	6.1	2.8	0.8	0.6	-	0.6	2.0	1.9	1.9	1.4
GR	0.2	0.2	-	0.1	0.5	0.7	1.6	0.8	0.0	0.1	-	0.5	0.4	0.4	1.3	0.1
ES	0.8	0.6	-	0.5	0.9	0.9	1.3	1.0	1.2	1.0	-	1.0	2.4	0.9	1.0	0.4
FR	0.9	0.7	-	0.6	1.0	0.7	1.2	0.7	2.7	1.3	-	1.2	1.4	1.2	1.0	0.8
IT	0.5	0.3	-	0.2	1.3	0.8	1.4	0.9	0.4	0.3	-	0.3	0.9	0.4	1.2	0.3
CY	1.1	1.3	-	1.1	1.3	1.3	1.0	0.8	5.6	3.4	-	3.0	4.5	4.4	5.9	4.6
LV	0.9	1.1	-	0.5	5.1	4.7	1.5	1.0	0.2	0.6	-	0.2	1.7	1.4	1.0	0.8
LT	3.0	1.3	-	0.7	7.6	3.3	2.7	1.5	1.6	0.5	-	0.2	5.2	3.0	2.5	1.0
LU	1.1	1.1	-	1.2	1.9	2.0	2.4	2.3	0.4	0.5	-	0.8	5.1	3.9	4.3	2.6
MT	0.3	0.3	-	0.3	1.7	0.3	0.3	0.1	1.1	0.1	-	1.8	1.0	0.9	0.9	1.2
NL	1.2	0.8	-	1.0	1.8	1.3	2.6	1.5	0.5	0.5	-	0.8	1.4	1.3	3.1	2.0
AT	2.2	1.3	-	0.9	3.6	2.5	4.5	2.4	0.3	0.2	-	0.4	5.7	3.5	4.7	2.6
PT	0.8	0.4	-	0.2	1.0	0.9	1.4	0.6	2.5	0.5	-	0.7	2.2	1.4	0.4	0.4
SI	0.5	0.5	-	0.5	1.1	0.9	1.1	1.1	0.1	0.1	-	0.6	1.5	1.1	0.3	0.5
SK	2.2	3.1	-	1.1	8.7	9.1	3.3	2.2	2.1	1.6	-	0.4	2.1	4.4	1.9	1.0
FI	1.1	1.3	-	1.5	4.1	3.6	6.2	5.8	1.3	1.4	-	1.4	2.4	3.7	2.0	2.1
Euro area median	1.1	0.9	-	0.7	1.8	1.3	1.6	1.1	1.1	0.5	-	0.7	2.1	1.4	1.4	1.0
Euro area	0.5	-	0.5	-	1.0	-	1.5	-	0.5	-	0.6	-	0.7	-	0.7	-
Non-euro area																
BG	-	0.8	-	0.5	-	2.8	-	0.8	-	2.1	-	1.1	-	1.9	-	1.4
CZ	-	0.5	-	0.5	-	1.4	-	0.6	-	0.7	-	1.9	-	1.6	-	1.2
DK	-	0.6	-	0.9	-	1.1	-	1.7	-	0.6	-	0.6	-	3.0	-	2.5
HR	-	3.5	-	1.5	-	5.5	-	2.0	-	4.7	-	2.2	-	16.7	-	1.3
HU	-	3.7	-	3.0	-	4.9	-	4.1	-	0.2	-	0.2	-	2.5	-	0.9
PL	-	1.1	-	0.7	-	2.4	-	1.2	-	3.3	-	0.8	-	2.3	-	0.5
RO	-	1.9	-	1.2	-	12.4	-	1.3	-	1.9	-	0.8	-	6.4	-	2.3
SE	-	1.6	-	1.7	-	1.3	-	1.2	-	0.2	-	0.5	-	2.2	-	2.6
UK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: ECB.

Table A.5.2

Mean absolute comparative error for financial account (quarterly data)

Q2 2015 to Q1 2018

	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	0.8	0.3	-	0.3	1.1	0.4	1.6	0.7	0.5	0.3	-	0.2	1.8	1.0	1.1	1.1
DE	0.1	0.1	-	0.1	0.3	0.2	0.5	0.2	0.0	0.0	-	0.1	0.3	0.1	0.1	0.3
EE	0.2	0.3	-	0.3	0.9	0.8	0.8	0.4	0.2	0.2	-	0.2	1.1	0.4	0.4	0.3
IE	0.5	0.5	-	0.5	1.3	0.9	3.0	1.2	0.2	0.2	-	0.2	0.9	0.9	0.8	0.7
GR	0.1	0.1	-	0.1	0.3	0.6	1.5	0.7	0.0	0.1	-	0.2	0.0	0.0	0.1	0.0
ES	0.4	0.2	-	0.1	0.5	0.4	0.6	0.5	0.8	0.2	-	0.4	1.4	0.5	0.6	0.1
FR	0.2	0.2	-	0.1	0.5	0.3	0.6	0.3	0.3	0.2	-	0.1	0.4	0.3	0.2	0.2
IT	0.3	0.1	-	0.1	0.9	0.5	0.7	0.6	0.1	0.1	-	0.0	0.3	0.2	0.5	0.1
CY	0.4	0.4	-	0.4	0.4	0.4	0.3	0.3	0.9	0.9	-	0.3	2.1	1.1	1.6	1.5
LV	0.3	0.5	-	0.2	1.1	0.7	0.4	0.2	0.1	0.4	-	0.0	0.7	0.7	0.4	0.3
LT	0.4	0.3	-	0.3	2.0	1.5	0.7	0.7	0.6	0.2	-	0.1	0.4	0.3	0.3	0.3
LU	0.5	0.8	-	0.8	0.8	1.2	1.9	1.6	0.2	0.3	-	0.5	1.6	2.0	1.6	0.9
MT	0.4	0.1	-	0.1	1.3	0.1	0.3	0.0	1.3	0.1	-	1.3	0.8	0.2	0.4	0.1
NL	1.0	0.6	-	0.6	1.5	0.9	1.4	1.1	0.2	0.1	-	0.3	0.4	0.3	0.7	0.5
AT	0.9	0.5	-	0.6	1.9	1.4	3.2	1.8	0.1	0.0	-	0.1	0.9	0.6	1.0	1.0
PT	0.4	0.2	-	0.1	0.5	0.5	0.5	0.3	1.1	0.2	-	0.4	0.7	0.6	0.2	0.1
SI	0.3	0.3	-	0.3	0.7	0.6	0.6	0.7	0.0	0.0	-	0.5	0.7	0.7	0.2	0.3
SK	0.8	0.6	-	0.1	0.6	0.8	0.4	0.2	0.7	0.7	-	0.0	1.2	0.8	0.2	0.2
FI	0.4	0.9	-	1.2	0.8	0.5	2.8	2.4	0.6	0.8	-	0.9	0.8	0.6	0.3	0.4
Euro area median	0.4	0.3	-	0.3	0.8	0.6	0.7	0.6	0.2	0.2	-	0.2	0.8	0.6	0.4	0.3
Euro area	0.3	-	0.3	-	0.7	-	0.9	-	0.1	-	0.2	-	0.3	-	0.2	-
Non-euro area																
BG	-	0.5	-	0.2	-	0.7	-	0.3	-	0.2	-	0.6	-	2.0	-	0.6
CZ	-	0.2	-	0.2	-	0.6	-	0.3	-	0.1	-	0.8	-	0.6	-	0.5
DK	-	0.5	-	0.6	-	0.6	-	1.1	-	0.3	-	0.1	-	2.1	-	1.7
HR	-	0.3	-	0.1	-	0.3	-	0.2	-	0.8	-	0.2	-	1.9	-	0.3
HU	-	2.9	-	2.3	-	3.8	-	3.2	-	0.1	-	0.0	-	0.8	-	0.4
PL	-	0.5	-	0.3	-	1.6	-	0.6	-	0.5	-	0.1	-	0.8	-	0.2
RO	-	0.9	-	0.4	-	3.5	-	0.4	-	0.8	-	0.7	-	2.8	-	0.8
SE	-	0.6	-	0.7	-	0.7	-	0.7	-	0.1	-	0.2	-	0.2	-	0.2
UK	-	0.3	-	0.3	-	0.6	-	1.2	-	0.5	-	0.7	-	0.6	-	0.8

Source: ECB.

Net relative revisions

Table A.6.1

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

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

April 2015 to March 2018

		Current account					Financial account		
		Goods	Services	Primary income	Secondary income		Direct investment	Portfolio investment	Other investment
Euro area									
BE	2	3	3	15	7	0.3	1.7	1.6	2.3
DE	1	1	3	7	4	0.2	0.5	0.3	0.4
EE	2	3	3	9	20	0.6	1.3	1.4	1.4
IE	12	74	12	34	33	0.2	1.7	0.6	2.1
GR	3	1	2	13	36	0.2	0.6	0.3	0.2
ES	2	2	4	9	8	0.7	0.8	1.7	0.9
FR	2	1	7	11	13	0.5	0.8	1.4	1.2
IT	2	2	4	8	18	0.3	1.0	0.4	0.5
CY	5	20	6	4	29	0.5	1.2	5.1	3.9
LV	3	2	9	24	4	1.0	1.5	0.8	1.3
LT	3	1	5	57	16	1.5	2.4	0.6	3.1
LU	3	10	2	4	7	0.0	0.9	1.0	3.6
MT	3	19	5	5	2	0.2	0.2	0.3	0.4
NL	4	3	10	11	59	0.4	0.9	1.0	2.0
AT	5	6	7	7	12	0.9	1.4	0.5	3.1
PT	1	1	3	8	8	0.3	1.0	0.9	0.8
SI	2	1	3	29	13	0.6	1.2	0.8	0.9
SK	1	2	3	14	16	1.6	2.4	1.8	3.9
FI	4	2	5	23	21	1.3	4.3	2.1	2.6
Euro area median	3	2	4	11	13	0.5	1.2	0.9	1.4
Euro area	2	1	4	6	6	0.3	1.0	0.7	0.8
Non-euro area									
BG	2	1	5	18	4	0.6	0.9	2.6	1.8
CZ	2	3	3	7	15	0.5	1.5	0.9	1.5
DK	24	16	53	115	63	2.7	3.4	5.1	7.4
HR	2	2	5	7	35	0.3	0.3	0.3	2.2
HU	2	1	6	18	7	0.6	1.8	0.9	1.4
PL	3	1	8	50	18	1.2	1.9	1.7	3.8
RO	2	2	8	11	38	0.6	1.2	0.7	1.2
SE	4	4	4	11	22				
UK	2	3	3	15	7	0.3	1.7	1.6	2.3

Source: ECB.

Table A.6.2

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

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

Q2 2015 to Q1 2018Q

	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	9	6	0.1	0.5	0.5	1.2	1.3	4.7	5.3	6.2
DE	1	1	3	5	3	0.1	0.2	0.1	0.3	1.3	1.5	3.0	1.0
EE	1	1	2	7	10	0.2	0.4	0.4	0.5	1.0	3.0	0.5	0.5
IE	5	8	11	10	10	0.2	0.8	0.2	0.8	2.1	4.7	3.5	7.3
GR	1	0	0	12	0	0.1	0.6	0.0	0.0	1.6	14.1	0.7	0.6
ES	1	1	1	6	3	0.1	0.4	0.4	0.3	0.6	1.4	0.9	0.3
FR	1	1	6	4	8	0.1	0.3	0.2	0.3	1.1	2.4	0.7	1.4
IT	1	0	1	5	5	0.2	0.7	0.1	0.2	2.3	1.6	3.9	1.0
CY	2	6	4	1	6	0.1	0.3	0.9	1.1	0.6	1.1	5.1	3.9
LV	2	1	6	7	3	0.2	0.4	0.6	0.3	0.8	1.7	0.3	1.7
LT	1	1	1	21	4	0.3	0.8	0.2	0.4	0.6	2.2	2.7	1.1
LU	2	4	2	2	4	0.0	0.4	0.4	2.1	1.4	2.6	2.2	1.3
MT	1	7	3	3	3	0.0	0.1	0.1	0.2	0.3	0.1	0.9	0.3
NL	1	2	7	3	19	0.1	0.2	0.4	0.3	1.0	3.5	7.9	3.0
AT	1	1	1	3	4	0.2	0.5	0.2	0.4	0.8	2.1	0.4	1.5
PT	1	1	2	5	6	0.1	0.6	0.4	0.4	1.0	2.4	1.3	1.7
SI	2	0	3	26	10	0.2	0.7	0.6	0.6	1.1	1.6	4.5	1.3
SK	2	2	2	7	4	0.5	0.4	0.7	0.7	3.6	9.2	4.9	3.6
FI	2	1	2	15	15	0.7	1.9	1.0	0.6	2.4	6.5	5.3	1.9
Euro area median	1	1	2	6	5	0.1	0.4	0.4	0.4	1.1	2.4	2.7	1.4
Euro area	1	1	2	4	3	0.1	0.3	0.3	0.2	1.1	1.9	2.8	1.8
Non-euro area													
BG	2	4	6	27	6	0.5	0.6	0.7	1.6	2.0	7.1	0.9	4.4
CZ	0	0	2	6	2	0.2	0.3	1.1	0.7	1.2	3.1	3.1	2.0
DK	1	2	2	4	7	0.2	0.7	0.3	0.8	0.9	3.4	1.4	1.6
HR	1	1	2	8	6	0.3	0.4	0.6	0.6	0.3	1.4	1.9	0.9
HU	1	1	3	7	17	0.1	0.1	0.1	0.8	1.3	1.7	0.2	1.8
PL	1	0	2	11	3	0.5	1.2	0.2	0.5	0.7	1.6	1.6	1.7
RO	2	0	2	29	7	0.5	0.4	1.3	1.9	2.5	3.8	1.5	6.1
SE	1	1	1	8	4	0.1	0.5	0.2	0.2	2.0	4.1	2.5	0.3
UK	2	3	5	8	6	0.1	1.0	0.9	0.6	1.7	4.5	11.6	3.3

Source: ECB.

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

Table A.7.1

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

Percentage of possible integrity rules

July 2017 to June 2018

	CS	EQ0	FUNC	GEO2	GEO3	IAI	RS	RSCS
Euro area								
BE	100	100	100	100	100	100	100	100
DE	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100
IE	67	100	100	100	93	95	83	95
GR	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100	100
FR	100	100	100	100	100	100	100	100
IT	100	100	100	100	100	100	100	100
CY	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100
LU	100	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100	100
NL	100	100	100	100	100	100	100	100
AT	100	100	100	100	100	100	100	100
PT	100	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100
FI	100	100	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100
Non-euro area								
BG	N/A	N/A	N/A	100	100	100	100	N/A
CZ	N/A	N/A	N/A	100	100	100	100	N/A
DK	N/A	N/A	N/A	100	100	100	100	N/A
HR	N/A	N/A	N/A	66	65	88	83	N/A
HU	N/A	N/A	N/A	100	100	100	100	N/A
PL	N/A	N/A	N/A	100	100	100	100	N/A
RO	N/A	N/A	N/A	100	100	100	100	N/A
SE	N/A	N/A	N/A	100	100	100	100	N/A
UK	N/A	N/A	N/A	100	100	100	100	N/A

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

Table A.7.2

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

Percentage of possible integrity rules

Q3 2017 to Q2 2018

	ACC	BAL	CONS	CS	EQ0	FUNC	GEO2	GEO3	GEO4	IAI	MAT	OTH	OW	RS	RSCS	STR
Euro area																
BE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
DE	100	100	95	100	100	100	100	100	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IE	100	100	97	100	100	100	100	100	100	100	100	100	100	100	100	100
GR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	98	100	100	100	100	100	100	100	100	100	100
FR	100	100	100	100	100	96	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
CY	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LU	100	100	97	100	100	100	100	100	100	100	100	99	100	100	100	100
MT	100	100	100	100	100	100	100	100	99	100	100	98	93	100	98	100
NL	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100
AT	100	100	97	100	100	100	100	100	100	100	100	100	100	100	100	100
PT	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100
FI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Non-euro area																
BG	100	100	100	100	100	100	100	100	91	100	N/A	100	100	100	100	100
CZ	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	100	100
DK	100	100	89	100	100	99	100	100	69	100	N/A	100	100	100	88	100
HR	100	100	44	92	100	100	100	100	100	100	N/A	100	100	100	65	100
HU	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	100	100
PL	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	99	100
RO	100	100	100	100	100	100	100	100	100	100	N/A	100	100	100	100	100
SE	100	100	100	100	100	100	100	100	77	100	N/A	100	100	100	100	100
UK	100	100	77	100	100	100	100	100	68	100	N/A	100	100	100	100	100

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

Table A.7.3

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

Percentage of possible integrity rules

Q3 2017 to Q2 2018

	ACC	BAL	CONS	CS	EQ0	FUNC	GEO2	GEO3	GEO4	IAI	MAT	OTH	OW	RS	RSCS	STR
Euro area																
BE	100	100	100	100	100	100	100	100	100	100	100	87	100	100	99	100
DE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
EE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
IE	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100	100
GR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
ES	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FR	100	100	100	100	100	100	100	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
CY	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
LU	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
MT	100	100	100	100	100	100	100	89	100	100	100	70	100	100	100	100
NL	100	100	100	100	100	100	100	100	100	100	100	98	100	100	99	100
AT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
PT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SK	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
FI	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100
Euro area median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Non-euro area																
BG	100	100	100	100	100	100	100	82	96	100	N/A	N/A	100	100	100	100
CZ	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
DK	100	100	100	100	100	100	100	97	100	100	N/A	N/A	100	100	100	100
HR	100	89	86	100	100	100	100	100	89	100	N/A	N/A	100	40	100	100
HU	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
PL	100	100	100	100	100	99	99	100	85	100	N/A	N/A	100	100	100	100
RO	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100
SE	100	100	100	100	100	100	99	83	100	100	N/A	N/A	100	100	100	100
UK	100	100	100	100	100	100	100	100	100	100	N/A	N/A	100	100	100	100

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

Table A.7.4

Average time consistency for current account

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

Q3 2017 to Q2 2018

	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	96	99	-	98	95	98	95	95	97	98	99	99	94	95	-	91	92	92	89	89
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	99	-	99	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	99	100	-	100	100	100	100	100
LT	100	100	-	100	100	100	100	100	100	100	100	100	99	99	-	100	100	100	100	99
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	97	97	-	96	96	94	86	94	100	100	100	100	100	100	-	100	100	100	100	100
PT	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
SI	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
SK	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
FI	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
Euro area median	100	100	-	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100
Euro area	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-
Non-euro area																				
BG	-	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	-	76	-	86	-	57	-	89	-	63	-	-35	-	96	-	80	-	74	-	65
HU	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
PL	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
RO	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
SE	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100	-	100
UK	-	98	-	100	-	97	-	99	-	97	-	99	-	98	-	97	-	99	-	99

Source: ECB.

Table A.7.5

Average time consistency for financial account

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

Q3 2017 to Q2 2018

	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	99	99	99	99	100	100	-	100	99	99	99	99
GR	100	100	100	100	100	100	-	100	100	100	100	100
ES	100	100	100	100	100	100	-	100	100	100	100	100
FR	100	100	100	100	100	100	-	100	100	100	100	100
IT	100	100	100	100	100	100	-	100	100	100	100	100
CY	100	100	100	100	100	100	-	100	100	100	100	100
LV	100	100	100	100	100	100	-	100	100	100	100	100
LT	100	100	100	100	100	100	-	100	100	100	100	100
LU	100	100	100	100	100	100	-	100	100	100	100	100
MT	100	100	100	100	100	100	-	100	100	100	100	100
NL	100	100	100	100	100	100	-	100	100	100	100	100
AT	100	100	100	100	100	100	-	100	100	100	100	100
PT	100	100	100	100	100	100	-	100	100	100	100	100
SI	100	100	100	100	100	100	-	100	100	100	100	100
SK	100	100	100	100	100	100	-	100	100	100	100	100
FI	100	100	100	100	100	100	-	100	100	100	100	100
Euro area median	100	100	100	100	100	100	-	100	100	100	100	100
Euro area	100	-	100	-	100	-	100	-	100	-	100	-
Non-euro area												
BG	-	100	-	100	-	100	-	100	-	100	-	100
CZ	-	100	-	100	-	100	-	100	-	100	-	100
DK	-	100	-	100	-	100	-	100	-	100	-	100
HR	-	99	-	100	-	100	-	99	-	92	-	99
HU	-	100	-	100	-	100	-	100	-	100	-	100
PL	-	100	-	100	-	100	-	100	-	100	-	100
RO	-	100	-	100	-	100	-	100	-	100	-	100
SE	-	100	-	100	-	100	-	100	-	100	-	100
UK	-	-	-	-	-	-	-	-	-	-	-	-

Source: ECB.

Table A.7.6

Average relative explained changes for financial account sub-components

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

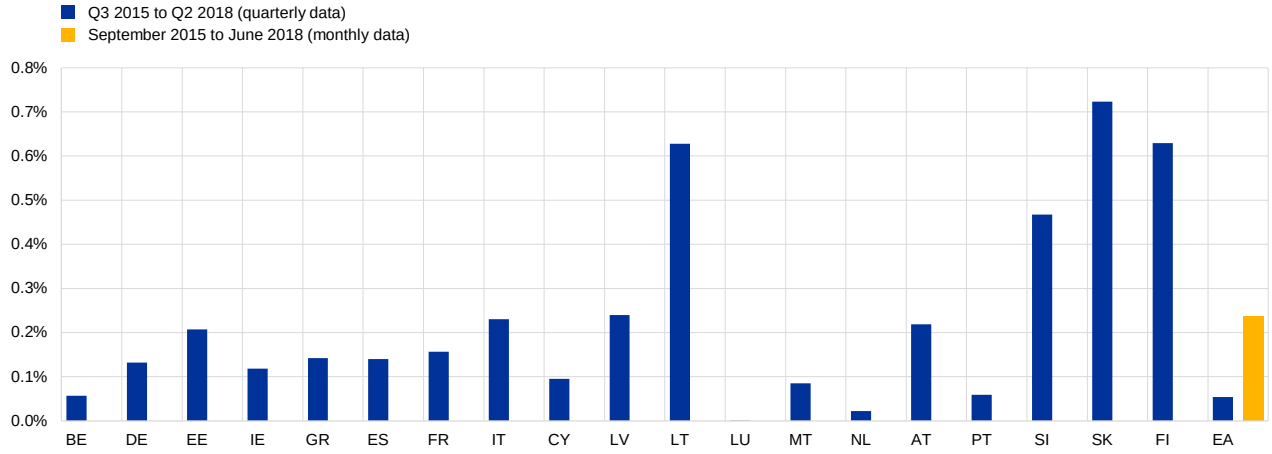
Q3 2017 to Q2 2018

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

Source: ECB.

Chart A.7.7

Average net errors and omissions relative to average international investment position



Source: ECB.

Coherence with international trade in goods statistics

Table A.8.1

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

Percentage of analysed period

Q3 2015 to Q2 2018

	Exports/goods credits		Imports/goods debits	
	Rest of the world	Extra-euro area	Rest of the world	Extra-euro area
Euro area				
BE	88	88	100	75
DE	100	100	100	88
EE	75	100	75	88
IE	100	50	100	100
GR	100	100	100	88
ES	100	88	100	100
FR	100	100	100	100
IT	100	100	100	100
CY	88	100	88	88
LV	100	100	100	100
LT	100	100	100	100
LU	100	88	100	88
MT	38	63	38	25
NL	88	88	88	100
AT	100	88	100	100
PT	100	100	100	100
SI	100	100	100	100
SK	88	100	88	88
FI	88	100	88	100
Euro area median	100	100	100	100
Euro area	-	100	-	100
Non-euro area				
BG	100	-	100	-
CZ	88	-	88	-
DK	88	-	88	-
HR	75	-	75	-
HU	75	-	75	-
PL	75	-	75	-
RO	100	-	100	-
SE	100	-	100	-
UK	75	-	75	-

Source: ECB.

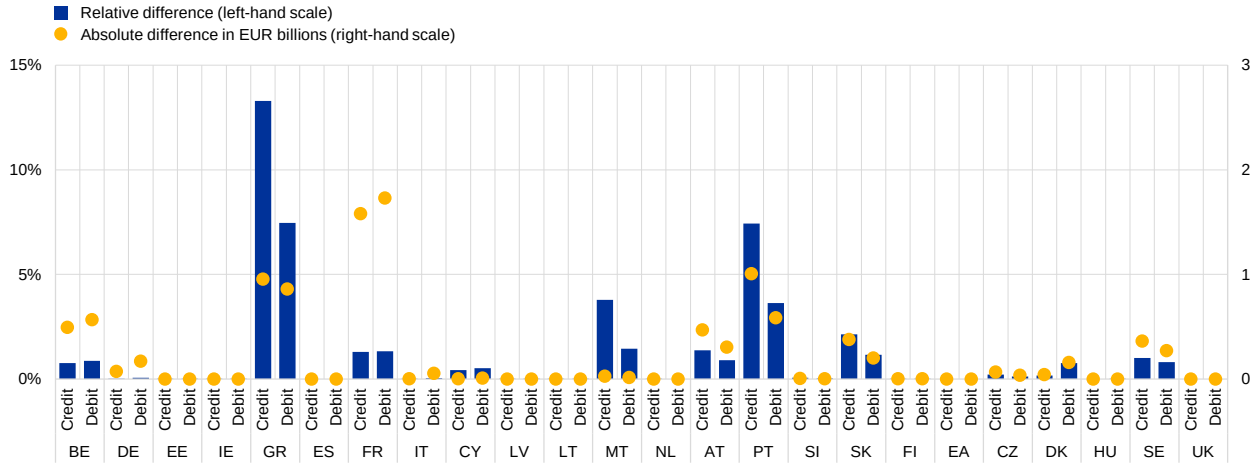
Consistency with sectoral accounts

Chart A.9.1

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)

Q3 2015 to Q2 2018



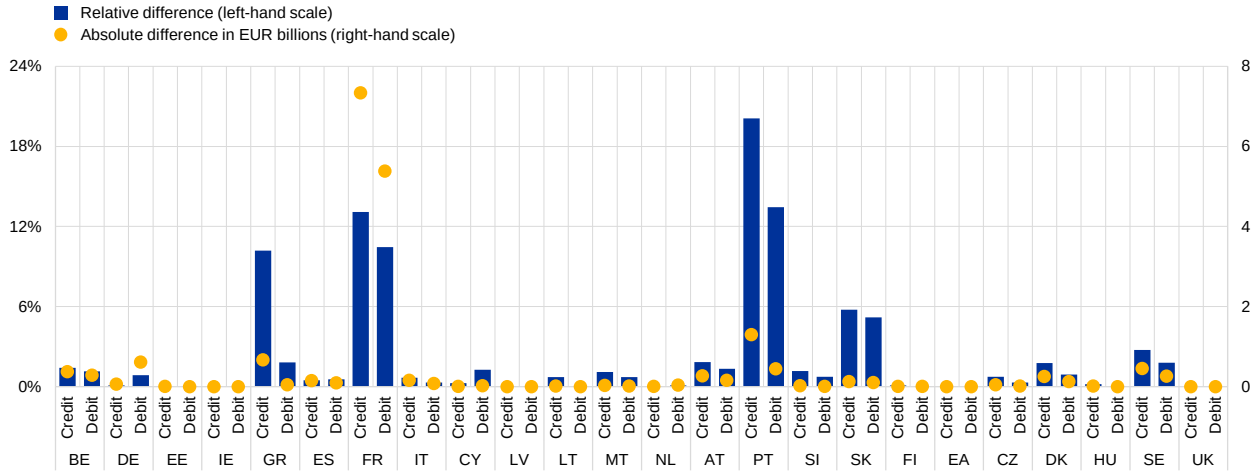
Source: ECB.

Chart A.9.2

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)

Q3 2015 to Q2 2018



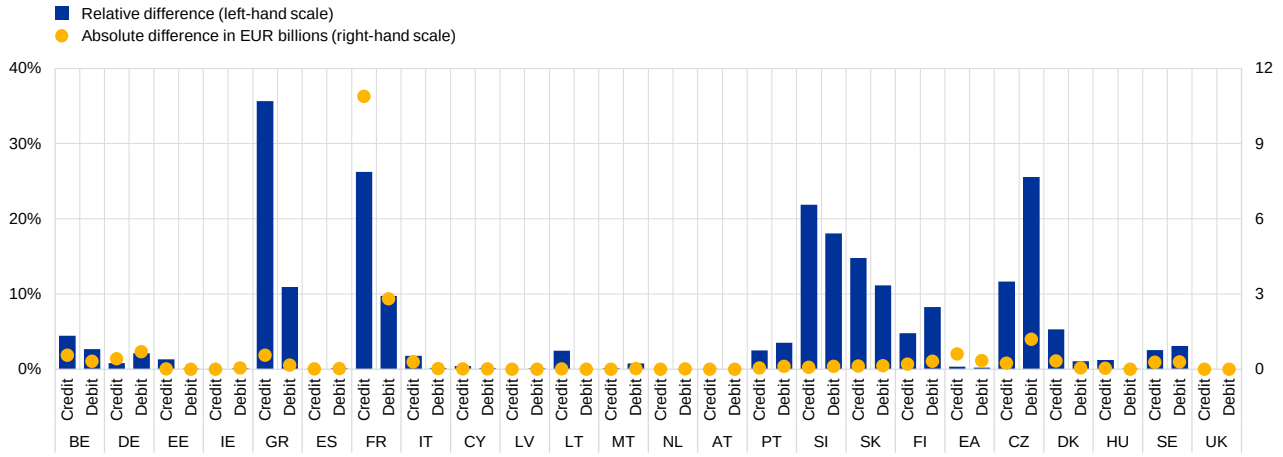
Source: ECB.

Chart A.9.3

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)

Q3 2015 to Q2 2018



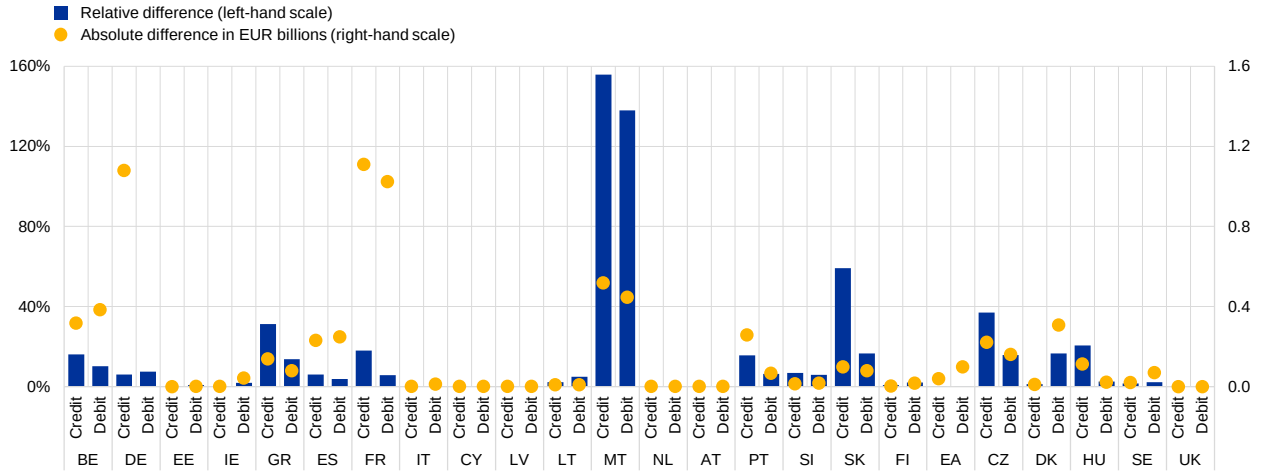
Source: ECB.

Chart A.9.4

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)

Q3 2015 to Q2 2018



Source: ECB.

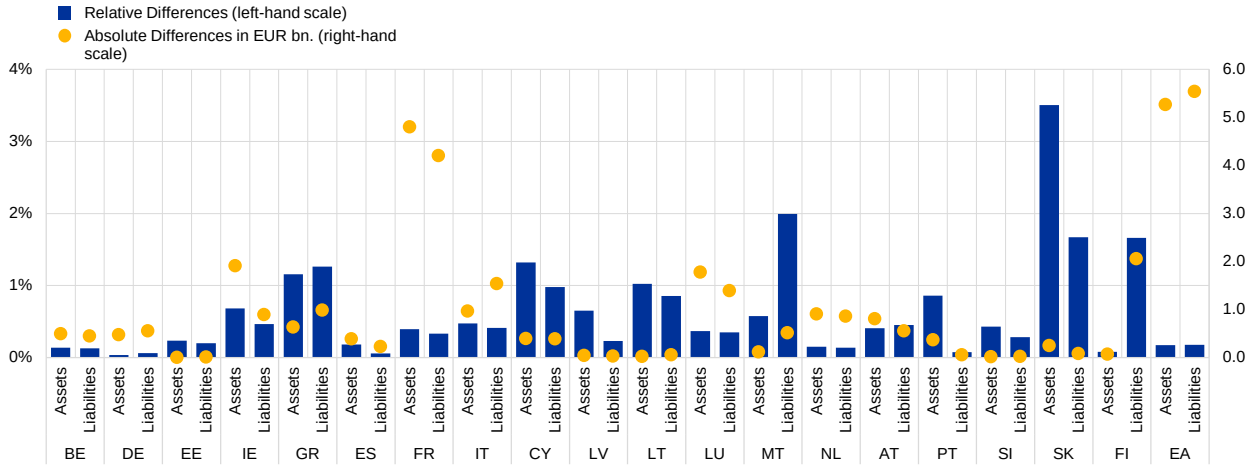
Coherence with MFI balance sheet data

Chart A.10.1

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 positions)

Q3 2015 to Q2 2018



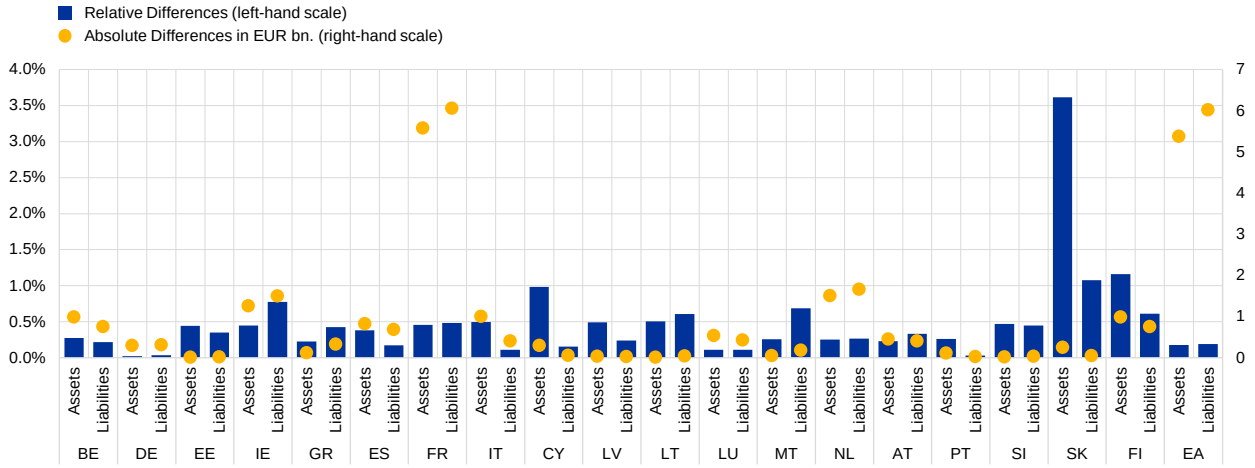
Source: ECB.

Chart A.10.2

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

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

Q3 2015 to Q2 2018



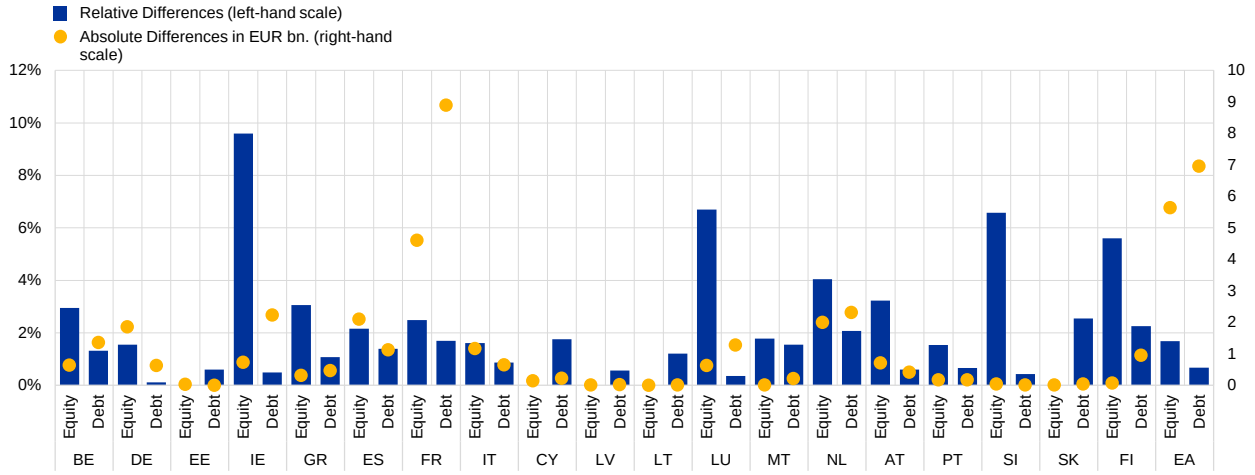
Source: ECB.

Chart A.10.3

Equity and debt securities assets 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 positions)

Q3 2015 to Q2 2018



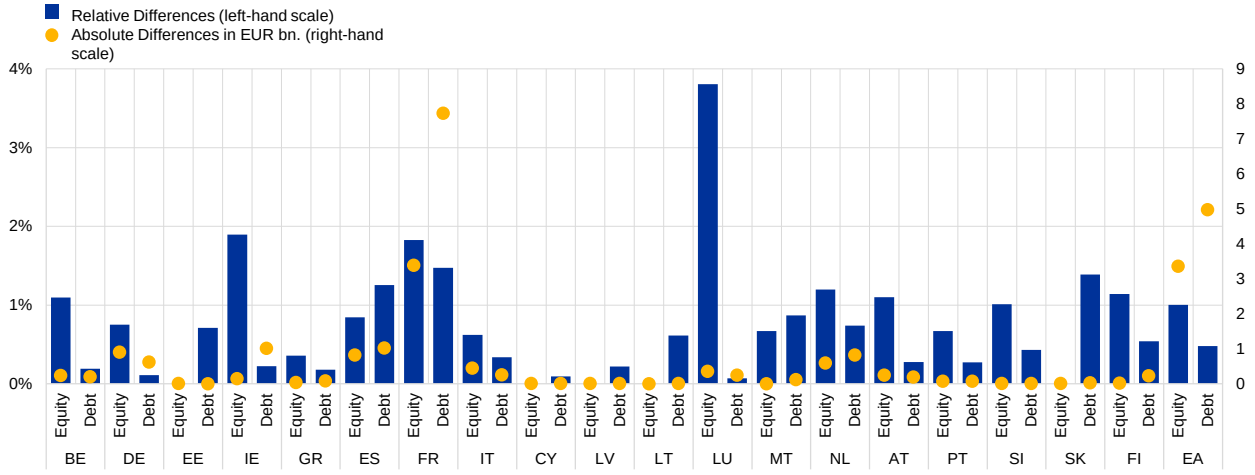
Source: ECB.

Chart A.10.4

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

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

Q3 2015 to Q2 2018



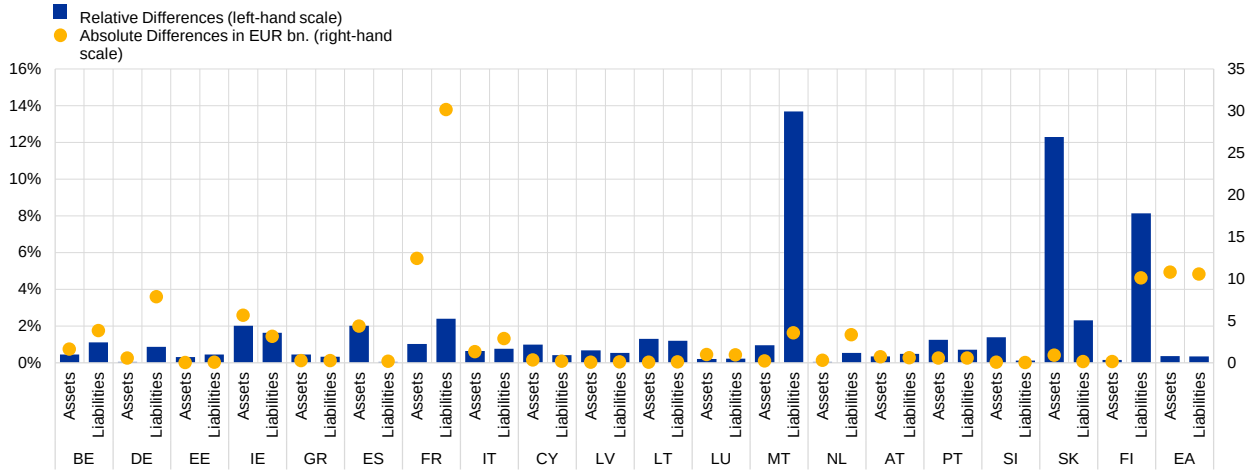
Source: ECB.

Chart A.10.5

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

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

Q3 2015 to Q2 2018



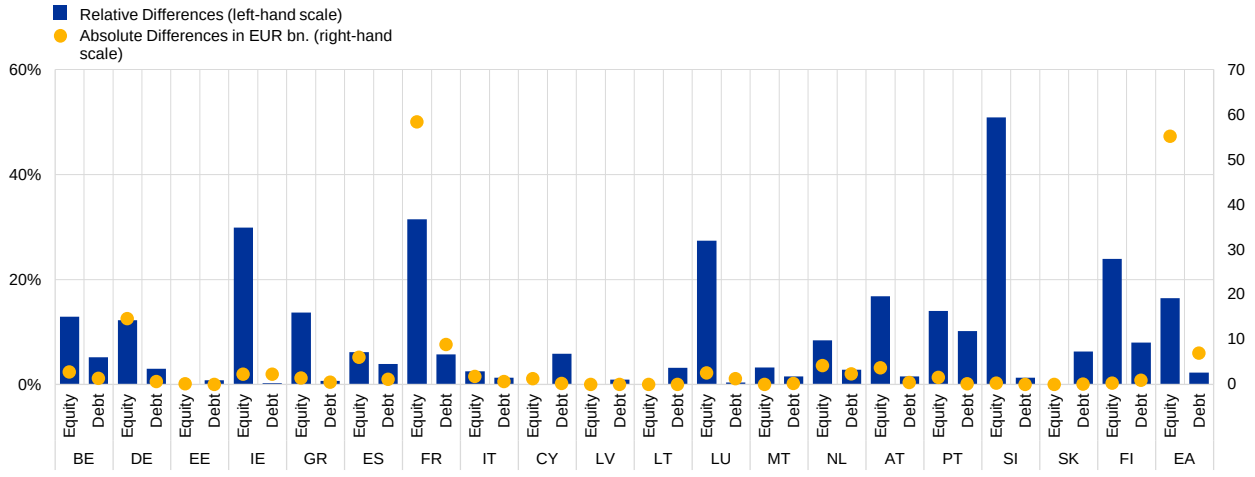
Source: ECB.

Chart A.10.6

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

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

Q3 2015 to Q2 2018



Source: ECB.

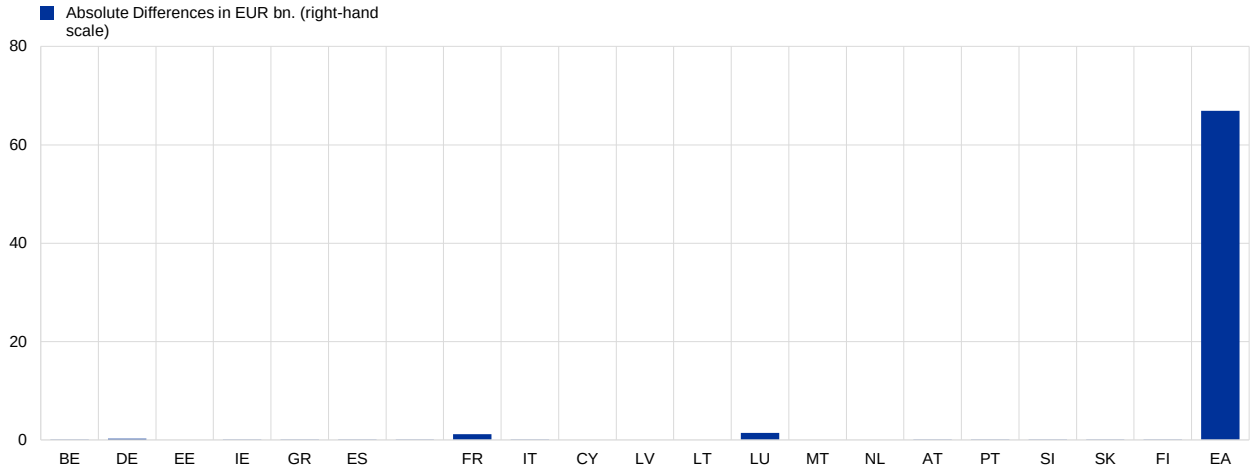
Coherence with money market fund statistics

Chart A.11.1

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

Average absolute difference

Q3 2015 to Q2 2018



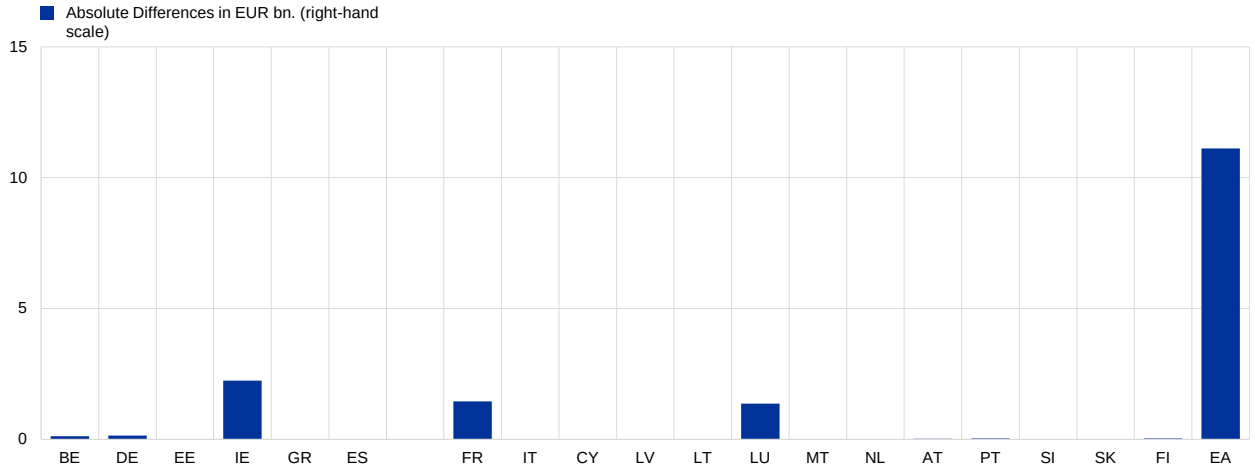
Source: ECB.

Chart A.11.2

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

Average absolute difference

Q3 2015 to Q2 2018



Source: ECB.

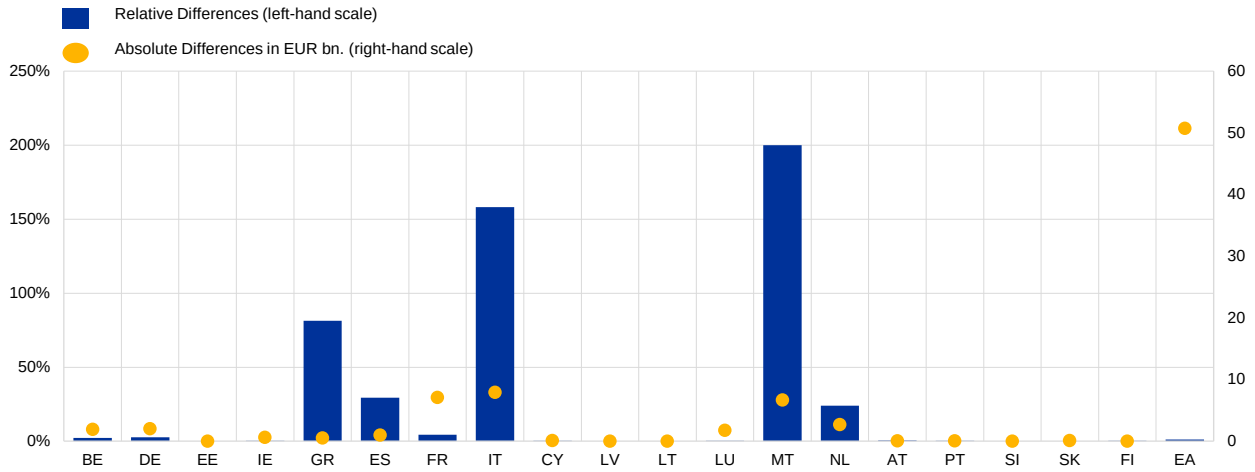
Coherence with investment fund statistics

Chart A.12.1

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

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

Q3 2015 to Q2 2018



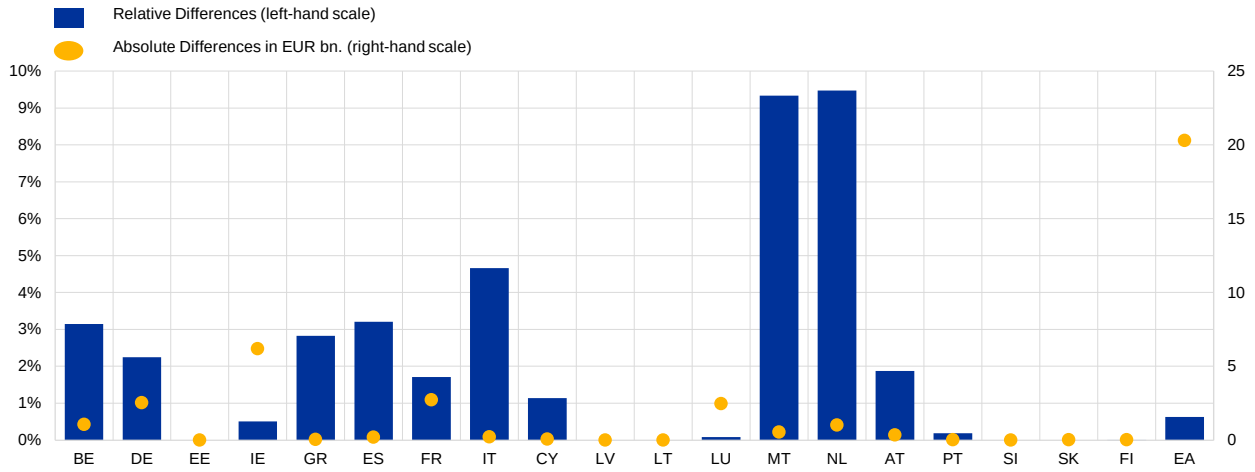
Source: ECB.

Chart A.12.2

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

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

Q3 2015 to Q2 2018



Source: ECB.

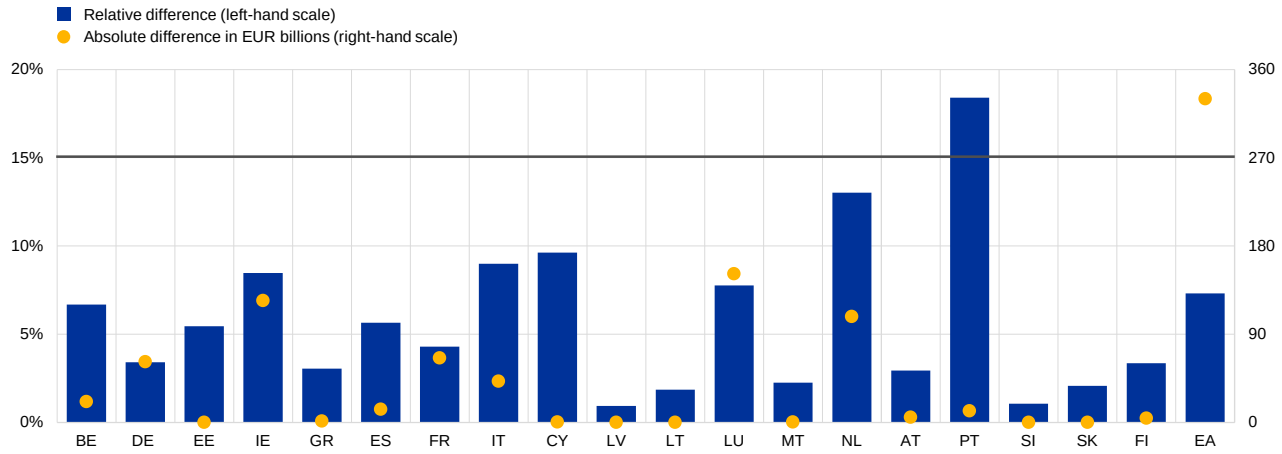
Coherence with securities holdings statistics

Chart A.13.1

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

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

Q3 2015 to Q2 2018



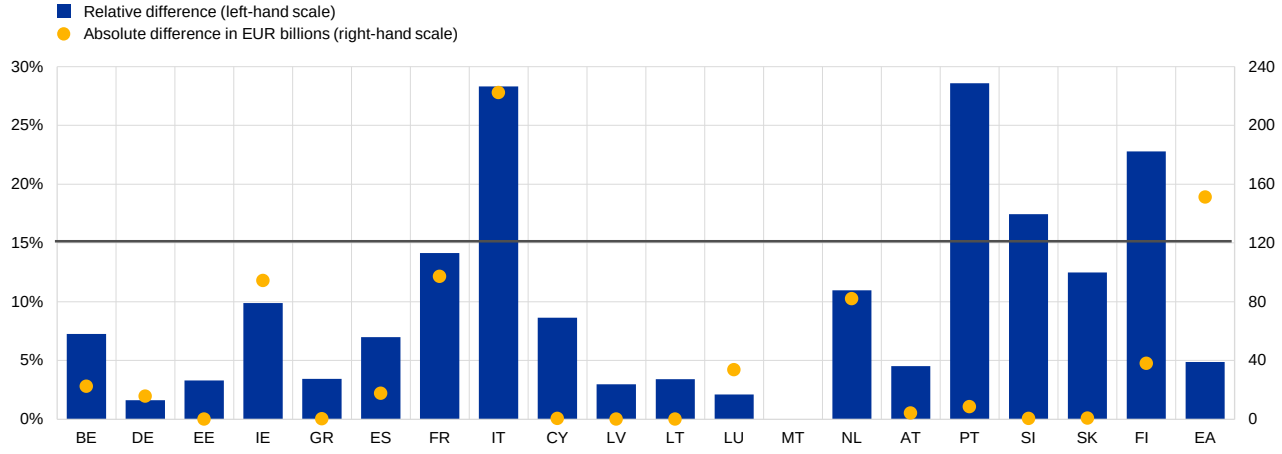
Source: ECB.

Chart A.13.2

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

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

Q3 2015 to Q2 2018



Source: ECB.

Summary indicators on bilateral asymmetries

Table A.14.1

Internal geographical quality indicator, foreign direct investment transactions

Q3 2015 to Q2 2018

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2015	0.59	0.38	0.88	0.62	0.36	0.27	0.35	0.51	0.50	0.63		0.15	0.68	0.72	0.27	0.55		0.18	
Q4 2015	0.47	0.22	0.94	0.41	0.73	0.48	0.69	0.63	0.76	0.65		0.65	0.52	0.51	0.68	0.41		0.59	
Q1 2016	0.46	0.34	0.79	0.44	0.72	0.59	0.54	0.71	0.81	0.60	0.80	0.59	0.54	0.52	0.49	0.40		0.61	
Q2 2016	0.77	0.54	0.79	0.49	0.76	0.36		0.60	0.58	0.76		0.59	0.83	0.71	0.34	0.59		0.70	
Q3 2016	0.71	0.78	0.84	0.63	0.72	0.43	0.74	0.56	0.68	0.50		0.78	0.53	0.55	0.58	0.75		0.67	
Q4 2016	0.27	0.45	0.82	0.48	0.82	0.43	0.67	0.45	0.81	0.96	0.88	0.52	0.62	0.76	0.61	0.65		0.55	
Q1 2017	0.50	0.46	0.88	0.24	0.58	0.38	0.54	0.54	0.71	0.70	0.84	0.58	0.63	0.32	0.35	0.50		0.42	
Q2 2017	0.64	0.63	0.91	0.46	0.27	0.26	0.69	0.18	0.58	0.80	0.84	0.63	0.64	0.51	0.78	0.39		0.56	
Q3 2017	0.36	0.58	0.94	0.38	0.57	0.67	0.70	0.53	0.62		0.89	0.60	0.79	0.49	0.62	0.64		0.61	
Q4 2017	0.48	0.52	0.53	0.40	0.68	0.66	0.74	0.29	0.91	0.86	0.87	0.59	0.49	0.56	0.46	0.57		0.48	
Q1 2018	0.61	0.63	0.98	0.59	0.64	0.83	0.66	0.65	0.61	0.56	0.69	0.36	0.70	0.62	0.66	0.45		0.66	
Q2 2018	0.63	0.47	0.99	0.36	0.66	0.32	0.68	0.69	0.66	0.86	0.69	0.44	0.72	0.54	0.55	0.56		0.75	

Source: ECB.

Table A.14.2

External geographical quality indicator, foreign direct investment transactions

Q3 2015 to Q2 2018

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2015	0.56	0.15	0.49	0.12	0.10	0.16	0.17	0.20	0.14	0.28		0.10	0.66	0.59	0.20	0.28		0.07	
Q4 2015	0.19	0.03	0.19	0.32	0.18	0.19	0.64	0.38	0.23	0.30		0.32	0.24	0.18	0.49	0.17		0.51	
Q1 2016	0.32	0.13	0.24	0.19	0.10	0.45	0.47	0.38	0.40	0.26	0.52	0.18	0.35	0.19	0.18	0.18		0.32	
Q2 2016	0.53	0.13	0.50	0.25	0.29	0.22		0.30	0.16	0.33		0.42	0.48	0.37	0.22	0.47		0.38	
Q3 2016	0.35	0.43	0.29	0.30	0.61	0.29	0.43	0.12	0.25	0.11		0.31	0.37	0.07	0.11	0.31		0.27	
Q4 2016	0.21	0.17	0.50	0.20	0.27	0.24	0.28	0.33	0.32	0.34	0.36	0.18	0.43	0.15	0.48	0.09		0.14	
Q1 2017	0.06	0.30	0.34	0.09	0.30	0.13	0.44	0.24	0.39	0.35	0.54	0.28	0.43	0.11	0.29	0.12		0.27	
Q2 2017	0.30	0.39	0.33	0.24	0.06	0.00	0.45	0.05	0.09	0.49	0.40	0.34	0.37	0.24	0.26	0.13		0.24	
Q3 2017	0.26	0.11	0.42	0.03	0.03	0.30	0.17	0.23	0.22		0.28	0.23	0.31	0.20	0.09	0.43		0.24	
Q4 2017	0.10	0.18	0.05	0.22	0.49	0.59	0.60	0.15	0.09	0.50	0.79	0.16	0.15	0.12	0.32	0.20		0.23	
Q1 2018	0.20	0.18	0.48	0.34	0.20	0.41	0.54	0.31	0.38	0.06	0.34	0.13	0.51	0.39	0.16	0.18		0.58	
Q2 2018	0.17	0.18	0.14	0.23	0.41	0.23	0.32	0.12	0.25	0.34	0.51	0.19	0.58	0.30	0.18	0.40		0.61	

Source: ECB.

Table A.14.3

Internal geographical quality indicator, foreign direct investment positions

Q3 2015 to Q2 2018

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2015	0.15	0.08	0.41	0.09	0.43	0.06	0.16	0.10	0.36	0.38	0.95	0.09	0.09	0.45	0.20	0.06		0.10	
Q4 2015	0.17	0.08	0.41	0.09	0.44	0.05	0.19	0.13	0.38	0.39	0.95	0.11	0.09	0.42	0.20	0.06		0.13	
Q1 2016	0.13	0.08	0.39	0.08	0.36	0.06	0.19	0.10	0.27	0.38	0.42	0.11	0.14	0.26	0.21	0.06		0.12	
Q2 2016	0.12	0.09	0.39	0.07	0.36	0.07	0.21	0.10	0.26	0.38	0.42	0.10	0.15	0.26	0.18	0.07		0.14	
Q3 2016	0.12	0.10	0.38	0.08	0.37	0.06	0.21	0.10	0.26	0.38	0.38	0.11	0.16	0.26	0.19	0.07		0.13	
Q4 2016	0.13	0.10	0.36	0.08	0.37	0.05	0.22	0.10	0.33	0.40	0.45	0.12	0.18	0.27	0.17	0.06		0.14	
Q1 2017	0.15	0.10	0.36	0.09	0.36	0.06	0.19	0.11	0.29	0.41	0.48	0.11	0.17	0.26	0.15	0.06		0.13	
Q2 2017	0.14	0.10	0.36	0.09	0.36	0.05	0.23	0.11	0.29	0.37	0.49	0.11	0.17	0.25	0.29	0.07		0.13	
Q3 2017	0.14	0.09	0.36	0.10	0.36	0.06	0.23	0.11	0.29	0.37	0.48	0.11	0.18	0.26	0.25	0.07		0.12	
Q4 2017	0.15	0.09	0.40	0.11	0.35	0.05	0.30	0.10	0.29	0.36	0.50	0.11	0.19	0.27	0.15	0.08		0.15	
Q1 2018	0.16	0.09	0.40	0.10	0.34	0.05	0.28	0.11	0.30	0.38	0.50	0.11	0.17	0.27	0.16	0.08		0.14	
Q2 2018	0.16	0.09	0.39	0.10	0.35	0.05	0.26	0.11	0.29	0.41	0.51	0.11	0.17	0.26	0.18	0.07		0.15	

Source: ECB.

Table A.14.4

External geographical quality indicator, foreign direct investment positions

Q3 2015 to Q2 2018

Date	AT	BE	CY	DE	EE	ES	IE	IT	LT	LV	MT	NL	PT	SI	FI	FR	GR	LU	SK
Q3 2015	0.10	0.03	0.37	0.02	0.18	0.01	0.13	0.07	0.16	0.17	0.87	0.05	0.05	0.27	0.15	0.04		0.06	
Q4 2015	0.14	0.03	0.36	0.03	0.19	0.01	0.18	0.08	0.17	0.18	0.87	0.04	0.06	0.22	0.13	0.04		0.09	
Q1 2016	0.07	0.04	0.35	0.03	0.27	0.01	0.19	0.09	0.18	0.25	0.11	0.05	0.11	0.21	0.13	0.04		0.08	
Q2 2016	0.09	0.05	0.34	0.03	0.27	0.01	0.21	0.09	0.17	0.25	0.12	0.05	0.12	0.20	0.10	0.05		0.09	
Q3 2016	0.09	0.05	0.33	0.04	0.29	0.01	0.17	0.09	0.16	0.24	0.14	0.06	0.13	0.20	0.11	0.05		0.09	
Q4 2016	0.08	0.05	0.32	0.04	0.28	0.01	0.18	0.09	0.15	0.20	0.13	0.07	0.13	0.22	0.09	0.04		0.11	
Q1 2017	0.08	0.05	0.31	0.05	0.28	0.01	0.17	0.09	0.15	0.22	0.14	0.05	0.13	0.21	0.07	0.04		0.09	
Q2 2017	0.09	0.03	0.31	0.05	0.28	0.01	0.21	0.10	0.15	0.26	0.15	0.04	0.13	0.21	0.10	0.04		0.09	
Q3 2017	0.09	0.03	0.31	0.05	0.28	0.01	0.22	0.10	0.15	0.26	0.17	0.05	0.14	0.22	0.11	0.04		0.08	
Q4 2017	0.07	0.03	0.33	0.06	0.25	0.00	0.28	0.08	0.13	0.22	0.24	0.05	0.15	0.22	0.01	0.05		0.10	
Q1 2018	0.06	0.03	0.34	0.06	0.25	0.00	0.24	0.09	0.15	0.22	0.26	0.06	0.12	0.23	0.02	0.05		0.09	
Q2 2018	0.06	0.03	0.33	0.06	0.25	0.01	0.21	0.09	0.13	0.23	0.26	0.07	0.12	0.21	0.03	0.05		0.10	

Annex 2: Methodological documentation for quality indicators

Data availability

Completeness

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

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

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

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

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 to which confidentiality constraints hamper data availability. Council Regulation No 2533/98 concerning the collection of statistical information by the ECB defines the ESCB statistical confidentiality regime. In addition, the so-called ECB Confidentiality Guideline[1] defines the common rules and minimum standards to protect the confidentiality of the individual statistical information collected by the ECB assisted by the NCBs.

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

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

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

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

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

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

Accuracy and reliability (including stability)

Upward revisions ratio

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

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

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

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

Directional reliability indicator

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

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

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

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

Table A.2.1

Contingency table for directional reliability

	$\Delta x_{t_I} > 0$	$\Delta x_{t_I} \leq 0$	***Subtotal***
$\Delta x_{t_L} > 0$	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 (see previous section on upward revisions).

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

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

Relative size: mean absolute percentage error (MAPE)

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

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

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

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

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

The existing research oscillates between two alternative definitions of the indicator: (a) an average of the ratios and (b) a ratio of averages. This second definition has a significant advantage over the first: if a single data point of the denominator is close to zero, the indicator according to definition (a) will be artificially magnified, but not necessarily in the case of definition (b). An additional advantage of using the ratio of averages is, according to van Kempen and van Vliet[2], that its expectation is asymptotically unbiased, while the average of the ratio is biased.

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

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

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

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

Relative size: symmetric mean absolute percentage error (SMAPE)

MAPE is an asymmetric indicator. Consider the example used by Makridakis[3] for forecast errors: if the actual value is 150 and the forecast is 100, MAPE would yield a result of 33.33%; however, if the actual value is 100 and the forecast is 150, MAPE would yield a result of 50% (MAPE is defined over the actual value). If, on average, revisions are positive, MAPE would be higher than if those revisions were negative. In the case of the denominator being defined in terms of the latest estimates, the result would be the opposite.

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

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

Compared with MAPE, this indicator fixes the previous issue of asymmetry and is bounded between 0 and 1 (or 100%), while MAPE is not bounded on the upper side. However, SMAPE shows a different class of asymmetry. Following Goodwin and Lawton[4], if the actual value is 100 (again using forecast errors as an example) and the

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

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

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

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

Relative size: mean absolute comparative error (MACE)

To overcome the fact that transactions in financial assets and liabilities can be positive and negative, and therefore not usable in the denominator, revisions to financial assets and liabilities can be related to the respective i.i.p. item for assessing their relative size. The indicator will be expressed as $\frac{\mathrm{R}}{\mathrm{P}}$, 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.

Mean absolute comparative error (MACE) is defined as:

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

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

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

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

Relative size: indicators assessing revisions for balance/net items

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

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

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

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:

Table A.2.2

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

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

Internal consistency

Validation/integrity rules

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Consistency across frequencies

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

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

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 position series as a denominator (similar to the MACE indicator for revisions).

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

Reconciliation between positions and flows

The position/flow reconciliation equation[5] ensures that b.o.p. and i.i.p. data are consistent. In order to ensure comparability between countries, the average relative explained changes can be expressed as a percentage of the corresponding i.i.p. item.

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

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 WG BOP) with the rest of the world ("W1") as the counterpart area.

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

Net errors and omissions

Average relative error for current account

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

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

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

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

Average relative error for i.i.p.

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

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

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

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

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

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

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

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

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

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

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

Asymmetries

Bilateral asymmetries

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

1. internal country geographical indicator (ICQG), providing information on the quality of the pure bilateral data;

2. external country geographical quality indicator (XCGQ), providing information on country totals vis-à-vis the overall mirror data.

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

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

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

The ICGQ is expressed as follows:

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

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

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

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

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

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For specific terminology please refer to the ECB glossary (available in English only).

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