EUROPEAN CENTRAL BANK

EUROSYSTEM

Euro area and national quarterly financial accounts

Quality Report 2017

June 2018

Contents

Executive summary

This annual report provides a quality review of the quarterly euro area and national financial accounts.[1] The report fulfils the formal requirement of the ECB Executive Board to inform the Governing Council of the quality of these statistics, as set out in Article 7(2) of Guideline ECB/2013/24 (hereafter the "ECB Guideline").[2] Furthermore, the report provides information supporting the Macroeconomic Imbalances Procedure (MIP) data quality assurance process as laid down in the "Memorandum of Understanding between Eurostat and the ECB/DG-S on the quality assurance of statistics underlying the MIP" ("the MoU").

The main principles and elements guiding the production of ECB statistics are contained in the statistics quality framework (SQF)[3] and quality assurance procedures, published on the ECB's website. On that account, this report provides an analysis of the statistical data output, covering the elements of: methodological soundness, timeliness, reliability and stability, internal consistency (completeness and validation of accounting restrictions) and external consistency with four other comparable statistical domains (non-financial quarterly sector accounts, b.o.p./i.i.p., monetary financial institutions (MFI) balance sheet items, and securities issues statistics).

The descriptive and quantitative indicators used throughout this report are based on quarterly data as available in line with the European system of accounts (ESA 2010). Data and revisions published up to 27 October 2017 are included. Supporting information/tables and detailed information on how the indicators are computed can be found, respectively, in Annexes 1 and 2.

Given the specificities of the MIP process and the responsibilities entrusted to the ECB in the context of the MoU, some indicators on the fitness for purpose of the data are presented in a box at the end of the report for all EU countries. The box draws on data up to end-2016 as transmitted in October 2017 and focuses on data availability, revisions, and sources and methods relevant for the financial accounts data underlying the MIP indicators.

Statistical developments between 2016 and 2017

The provision of national data and explanatory metadata improved in 2017. All euro area countries provided the mandatory data to the ECB and the data were generally timely and consistent. Countries provided quarterly so-called supplementary data at t+85 and full national financial accounts data at t+97 (since April 2017, previously at

---

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

2 Recast of Guideline ECB/2013/24, of 25 July 2013 (as amended).

3 The SQF is available here.

t+100) as required by the Guideline. The timeliness of the publication of the early release of integrated euro area accounts was improved from approximately t+102 to approximately t+94 from July 2017 onwards. Since October 2017 the ECB publishes additional national financial accounts backdata according to ESA 2010, starting in 1999Q1 (or the first quarter of the year in which a country became a member of the European Union) for all euro area countries. With the changes to data transmission and dissemination in 2017, all euro area countries have fully implemented the ECB Guideline and its revised transmission programme, which was adopted in 2013.

The mandatory metadata transmissions to the ECB governed by the Guideline cover revisions and major events. While all euro area countries generally provided metadata and additional explanations when requested, the quality of the metadata provided still differs considerably across countries. A new metadata template was introduced in 2016, together with a request for the enhanced metadata provision from smaller euro area countries as well for significant developments that are below the threshold set by the Guideline. Overall, 17 countries have regularly delivered metadata on revisions and 13 countries have delivered metadata on major events. One country did not provide metadata (either on revisions or major events) in two transmissions of national data. Countries are recommended to review and, if necessary, improve their current reporting practices. This is also necessary to enable the ECB to fulfil its tasks under the MIP quality assurance procedure.

Methodological soundness and statistical procedures

The national financial accounts are generally consistent with the requirements and conceptual framework of the ESA 2010. However the financial account statistics are derived statistics that rely on a wide range of data sources, which are not necessarily complete or fully sufficient in terms of conceptual requirements. In such cases source data are supplemented with estimations or residual calculations in order to ensure the completeness of the accounts.

General issues affecting many or all countries are for instance:

- securities held with non-resident custodians which are not covered by the national securities holdings statistics (see Table 1 – issue A1);
- coverage of the other financial institutions (OFI) sector, and in particular the timely coverage of newly established special-purpose entities (SPEs), due to a lack of primary statistics (issue A2);
- coverage of financial derivatives for all sectors, due to missing data sources and/or counterpart sector details (issue A3).

Known methodological issues and coverage gaps are shown in Table 1. The information is based on the regular data validation in the quarterly production rounds, discussions in the Working Group on Financial Accounts (WG FA) and the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) “level 3” quality reports that provide self-assessment on the national sources and methods.

Vertical consistency – that is, consistency with non-financial sector accounts – is a further issue with scope for improvement, requiring the cooperation of financial accounts and non-financial accounts compilers. Vertical discrepancies are particularly large in relation to GDP in Ireland and Greece, and in certain sectors in Germany and Slovenia.

On the basis of this report, a list of notable issues affecting euro area countries, alongside areas 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 description and statistical procedures (section 2)			
Securities holdings	A.1.1	Integrate third-party holdings from Securities Holding Statistics (SHS)	Concerns several countries – guidance to be developed by WG FA
	A.1.2	Develop data sources for securities held with custodians outside the euro area (not covered by SHS)	See A1.1
Coverage of OFIs	A.2.1	Continue improving coverage of OFIs	Concerns several countries – improving the quality of the data related to OFIs is a priority for the financial accounts
	A.2.2	Continue improving coverage of OFIs, in particular SPEs	Cyprus, Malta
	A.2.3	Estimate backdata for newly identified entities/SPEs	Luxembourg
Financial derivatives	A3	Enhance data sources and procedures to record financial derivatives for all sectors	General issue – guidance to be developed by WG FA.
Unlisted shares and other equity	A4	Enhance data sources and procedures to record unlisted shares and other equity	Concerns several countries – guidance to be developed by WG FA.
Intra-NFC Loans	A5	Develop timely and comprehensive data sources and/or grossing-up procedures for intra-NFC loans and improve directional reliability of first estimates	Concerns several countries – guidance to be developed by WG FA.
Sector classification	A6	Classification of head offices and holding companies Implementation of the recommendations of the Task Force on Head Offices, Holding Companies and Special-Purpose Entities (SPEs)	Concerns several countries – WG FA to take stock of practices and develop further guidance if needed.
Timeliness and punctuality (section 3)			
Timeliness	B1	No recommendations	n.a.
Data and metadata availability (section 4)			
Data completeness	C1	No recommendations	(issues resolved in recent transmissions)
Data accessibility	C2.1	Increase quality of pre-2002 backdata to allow publication	Ireland
	C2.2	Increase public availability of data	Cyprus

Metadata	C3	Provide metadata on revisions and single major events through the metadata template with the transmission of the full national data every quarter.	France
Accuracy and reliability (section 5)			
Revisions	D1	Investigate low directional stability of first estimates for FC liabilities	Cyprus
Internal consistency (section 6)			
Aggregation consistency	E1	Establish full consistency of sector and instrument aggregation	Ireland, France (for data prior to 2014).
Negative stock	E2	Ensure that values for loans (balance sheets) are non-negative for all who-to-whom details	Germany
Consistency with non-financial sector accounts (section 7.1)			
Vertical discrepancies	F1	Vertical discrepancies are large in relation to GDP	Germany (NFCs), Ireland (HHs, NFCs, FCs) Greece (HHs, NFCs, FCs) Slovenia (HHs)
External consistency with balance of payments (section 7.2)			
B.o.p/i.i.p with rest of the world FA data	G1	All countries should aim to follow the agreed implementation timetable of the Statistics Committee (STC) and CMFB for improving consistency	All countries
Comparison with other financial statistics (section 7.3)			
Securities issues statistics	G2	No recommendations	(issues resolved or explained in recent transmissions)

Statistical issues affecting MIP indicators

The financial accounts are an integrated statistical accounting framework, therefore most of the issues mentioned in the report are also relevant for assessing the quality of the data for MIP purposes. Furthermore, there are certain issues which affect the MIP data directly. In particular, items A5, A6 and G2 are important for private sector debt and credit flows, and items A2, A3, A4, D1, G1 and G2 are important for financial sector liabilities.

One area where the compilation of the financial accounts data underlying the MIP indicators is particularly affected by limited data sources is the full coverage of financial sector liabilities, in particular SPEs and more general ‘Other financial institutions’ (OFIs), for which there are generally no timely and comprehensive source statistics in place. This issue has been raised for several countries (Germany, Cyprus, Malta, the Netherlands and Sweden) but is of importance for most other euro area countries as well. Luxembourg has recently improved the timely coverage of newly identified SPEs and is encouraged to continue this good work. Overall, assessing and, where necessary, improving the quality of data related to OFIs is a priority for the work on financial accounts.

For MIP purposes the focus is on data for the last ten complete years. This data range was available for all EU countries except the Czech Republic, Denmark and Croatia, which are encouraged to increase the length of the relevant time series.

For more information, on assessing data quality for MIP purposes, please see the MIP box at the end of the main body of this report.

1 Introduction

This annual report provides a quality review of the quarterly euro area national financial accounts.[4] It fulfils the formal requirement of the ECB Executive Board to inform the Governing Council of the quality of these statistics, as set out in Article 7(2) of Guideline ECB/2013/24 (hereafter the "ECB Guideline").[5] Furthermore, the report is intended to provide information supporting the Macroeconomic Imbalances Procedure (MIP) data quality assurance 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) on the harmonisation of the "level 2" quality report for b.o.p./i.i.p. statistics.

1.1 Scope of data coverage and structure of the report

This report analyses a number of aspects by which data quality can be measured. This includes: (i) a review of methodological issues where national compilers may diverge from statistical standards or may need to enhance statistical procedures; (ii) an assessment of compliance by national central banks (NCBs) with their obligations to transmit data to the ECB, in terms of timeliness and coverage; (iii) the reliability of the statistics; (iv) the internal consistency of the statistics; and (v) the external consistency with other statistical domains/datasets, i.e. with non-financial sector accounts and b.o.p. and comparisons with related financial statistics, namely monetary financial institutions (MFI) balance sheet statistics and securities issues statistics.

The analysis focuses on quarterly financial accounts data transmitted and published in 2017. The dataset used throughout the report is the one available as of 27 October 2017, and the country coverage is the EU 28, although the main body of the report only addresses the quality of 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 this report), covering all EU countries. The box draws on data up to 2016 as transmitted in October 2017 and revisions up to 2015 and focuses on (i) data availability, (ii) revisions, (iii) consistency with non-financial sector accounts and sources and methods relevant for the financial accounts data underlying the MIP indicators, i.e. MIP-relevant quality dimensions. All indicators presented in the MIP box are in relation to the national

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

5 Guideline of the ECB of 25 July 2013 on the statistical reporting requirements of the ECB in the field of quarterly financial accounts (recast) (ECB/2013/24), OJ L 52, 7.1.2014, p.34 (as amended).

GDP or outstanding amounts and are intended to facilitate the analysis in relation to the actual MIP scoreboard indicators.

2 Methodological soundness and statistical procedures

The national financial accounts are generally consistent with the requirements and conceptual framework of the ESA 2010. However the financial account statistics are derived statistics that rely on a wide range of data sources, which are not necessarily complete or fully sufficient in terms of conceptual requirements. In such cases source data are supplemented with estimations or residual calculations in order to ensure the completeness of the accounts. An overview of the known methodological issues and coverage gaps is provided in Table 1 in the executive summary. The information is based on the regular data validation in the quarterly production rounds, discussions in the Working Group on Financial Accounts (WG FA) and the CMFB “level 3” quality reports that provide self-assessment on the national sources and methods.

Issues which concern many or all countries are described below. The WG FA has agreed on a tentative work plan to exchange best practices and develop guidance for these issues in 2018 and 2019.

2.1 Securities holdings

The coverage of securities holdings of the sectors previously not covered by statistical reporting requirements – the non-financial sectors and most other financial institutions (OFIs) – has generally improved with the introduction of securities holdings statistics collecting data from financial corporations and custodians. The national securities holdings statistics must be completed with data on securities holdings of residents with custodians resident in other euro area countries and custodians outside the euro area. Holdings with custodians in other euro area countries are available from the third-party holdings of the euro area securities holding statistics (SHS) and are increasingly integrated in the national data of the euro area countries. The WG FA agreed to assist compilers regarding the integration of the SHS third-party holdings in 2018.

Data from custodians outside the euro area are not generally available and countries have to use b.o.p./i.i.p data and other complementary sources. However, these data sources may not be sufficient and/or used consistently across countries. The WG FA has agreed to work on these issues in close cooperation with the WG ES in 2019.

2.2 Coverage of other financial institutions

Owing to the heterogeneity of the other financial institutions (OFIs), substantial parts of the OFI sector are not covered by euro area wide statistical reporting requirements. The WG FA has started to share information on the experience gained when trying to ensure a comprehensive and timely coverage of OFIs, and will continue work on this issue in 2018. While most countries have developed, albeit to varying degrees, national surveys and other data sources, for euro area countries it remains a challenge to ensure that the data for the OFI sector is of a high quality. Germany indicated in the level 3 self-assessment report that the recording of the sector is partly hampered by limited data availability in the main primary sources, particularly for certain instruments, and is complemented with additional balance sheet information and selected data from other sources. The Netherlands explained in the level 3 self-assessment report that coverage gaps may still affect intra-OFI transactions and positions. For countries with a dynamic population of special-purpose entities (SPEs) and similar entities, such as in Cyprus, Luxembourg, the Netherlands and Malta, a full coverage of the OFI sector is of particular relevance.

Cyprus has revised considerably in 2017 the coverage of SPEs. Malta made some improvements in the coverage of its resident SPEs in 2015 with the implementation of the current statistical standards (ESA 2010 and BPM6). However, since then there have been no further improvements while b.o.p./i.i.p. data on positions vis-à-vis other euro area countries show a clear and systematic undercoverage.

2.3 Financial derivatives

The coverage of financial derivatives for sectors not covered by statistical reporting requirements, i.e. the private sectors and large parts of the OFI sector, is particularly difficult as these are generally not covered by custodian statistics. Financial accountants thus generally rely on counterpart sector information, which may not provide sufficient information. The WG FA agreed to follow up on this issue in cooperation with other statistical areas.

2.4 Unlisted shares and other equity

Data sources for unlisted shares and other equity are incomplete in many countries, as corporate balance sheet databases may not fully cover privately held corporations or quasi-corporations. Even when corporate balance sheet data are available, the valuation of unlisted shares and other equity is difficult in the absence of comparable corporations issuing listed shares. This is a potential explanation for the low values of unlisted shares and other equity in some countries relative to the distributed income of corporations. The WG FA has agreed on a stocktaking exercise to evaluate the comparability of the recording and valuation practices in 2018, and may develop further guidance.

2.5 Intra-NFC loans

Most countries lack a comprehensive and timely quarterly data source for loans between resident non-financial corporations (NFCs). Countries typically combine annual information from corporate balance sheet databases and business registers with more timely survey data and quarterly estimates, and the WG FA developed guidance for a comprehensive coverage of intra-NFC loans in 2011-12. However, owing to the combination of different data sources, intra-NFC loans are often prone to sizeable revisions, and low directional reliability of first estimates. The WG FA agreed to review the compilation practices in 2018.

2.6 Sector classification of head offices, holding companies and special-purpose entities

The ESA 2010 introduced a change to the sector classification of head offices, holding companies and special-purpose entities (SPEs), which also affects the sector delineation of the financial and non-financial corporations sector. In order to review the implementation of the new requirements and clarifications, the WG FA will take stock on the statistical treatment and identification of head offices and holding companies following the recommendations of the Task Force on Head Offices, Holding Companies and Special Purpose Entities (SPEs) and assess whether further guidance is needed in 2018.

3 Timeliness and punctuality

The ECB Guideline requires two transmissions: (i) the transmission of a sub-set of so-called supplementary financial accounts data at t+85 to allow for the compilation of an integrated set of quarterly euro area financial and non-financial accounts fit for monetary policy purposes, and (ii) the transmission of the full set of national financial accounts data at t+97 (t+100 prior to April 2017).

All euro area countries transmitted the supplementary data and the full set of national data before or by the respective deadlines.

Table 2 below shows the dates of the financial accounts transmissions and data releases. National data were released by the ECB at the time of the second release. NCBs may follow their own release policies.

Table 2

Transmission and release dates in 2017 for euro area aggregates and country data

Reference quarter	Supplementary financial accounts transmission T+85	Early release of euro area data with complete data on households and non-financial corporations	Calendar days after reference quarter	National financial accounts transmission T+97	Full release of euro area and country data	Calendar days after reference quarter
2016Q3	24 Dec. 2016	13 Jan.	105	8 Jan.	27 Jan.	120
2016Q4	25 March	12 April	102	7 April	28 April	118
2017Q1	24 June	6 July	97	6 July	28 July	119
2017Q2	23 Sept.	5 Oct.	97	5 Oct.	27 Oct.	119

4 Data and metadata availability

4.1 Completeness

The provision of national data and explanatory metadata improved in 2017. The data transmissions were complete except for minor issues which did not affect the compilation of either the euro area accounts or MIP indicators. While Ireland provided the combined sector households and non-profit institutions serving households (Households and NPISH), some of the mandatory series for the separate sectors were only provided after October 2017. The separate publication of the two sectors for the euro area is foreseen for 2018, when sufficient back data will become available.[6] All countries provided the additional back data which became mandatory with the October 2017 transmission starting in 1999Q1, or the first quarter of the year in which the respective country acceded to the European Union.[7]

The metadata transmissions governed by the Guideline cover revisions and major events. On a voluntary basis they also include information on major balancing adjustments and information for revisions and major events below the thresholds stipulated by the Guideline. A new metadata template was introduced in 2016, together with a request for the enhanced metadata to be also provided by smaller euro area countries for significant developments that are nonetheless below the threshold set by the Guideline. While all euro area countries generally provided metadata and additional explanations when requested, the provision of metadata should be improved. Countries are encouraged to make regular use of the metadata template when transmitting national financial accounts data to the ECB in order to increase the analytical value of the data. Overall, 17 countries have regularly delivered metadata on revisions and 13 countries have delivered metadata on major events. Given that metadata reporting is subject to a size threshold relative to the GDP of the euro area, a firm assessment of compliance with the Guideline is difficult regarding major events. No metadata (either on revisions or major events) were provided by France for 2016Q3 and 2017Q1.

4.2 Accessibility

Accessibility refers to the conditions by which users can obtain, use and interpret data, ultimately reflecting how straightforward it is to access the data and the extent to which confidentiality constraints do not allow certain data to be shared.

---

6 The separate provision of the household sector and NPISH is only mandatory from the reference quarter 2012Q4 onwards. However countries did provide on a voluntary basis additional backdata for this sector split in October 2017.

7 Article 2.6a of the ECB Guideline specifies an exemption from this backdata requirement: “NCBs are not required: (a) to transmit data relative to quarters prior to the first quarter of the year in which the relevant Member State acceded to the European Union.”

The ECB publishes euro area aggregates for transactions, outstanding amounts and revaluations for all euro area aggregates. As regards counterpart sector details information on the following are published: transactions and outstanding amounts for deposits, loans, debt securities, listed shares and investment funds shares. Revaluations are published for the holdings of shares and debt securities of the main resident sectors.

The ECB also publishes the national data made available by the NCBs. These include all transactions and outstanding amounts, and revaluations for listed shares and debt securities as well as for domestic counterpart sector details.

The publication of national data by the ECB is stipulated in Article 3(2) of the Guideline, which requires the publication of all quarterly national financial accounts data except to the counterpart sectors ‘residents in other euro area countries’ and ‘outside the euro area.[8]

In line with this legal framework, all data must be sent to the ECB with a flag indicating its confidentiality level. Table 3 below summarises the share of time series marked as “free for publication” as a ratio of the time series stipulated by the Guideline to be published. Two datasets are distinguished. The transmission of the first, “core” dataset is mandatory since October 2014 and comprises assets and liabilities by institutional sector (Guideline Annex Tables 1 and 2) as well as the who-to-whom (or “counterpart sector”) tables for deposits and short-term and long-term loans (Guideline annex tables 3 to 5). A minimum range of backdata starting with reference quarter 2012Q4 has been mandatory since October 2014. Additional backdata (1999Q1-2012Q3) became mandatory with the October 2017 transmission. The second dataset comprises the counterpart sector detail for securities (Guideline annex tables 6 to 9) starting with the first reference quarter 2013Q4; its transmission became mandatory in September 2016.

[8] “The ECB shall publish the euro area aggregates it compiles, as well as the ‘national data’ collected under Article 2, as described in paragraphs 3 to 5 thereof, as deemed relevant by the STC except for data relating to the cells in rows 12-21 of Tables 3 to 9 of Annex I (referring to the counterpart sectors ‘residents in other euro area countries’ and ‘euro area RoW’)”. The STC confirmed in 2014 that all national financial accounts data required by the Guideline must be published except as stated in the Guideline.

Table 3

Share of observations marked as “free for publication” per dataset for euro area countries, in %

Euro area country	Core dataset: assets, liabilities and counterpart sector detail for deposits and loans		Counterpart sector detail for securities
	1999Q1 - 2012Q3	2012Q4 - 2017Q2	2013Q4 - 2017Q2
BE	100	100	100
DE	100	100	100
EE	100	100	100
IE	78	99	100
GR	100	100	100
ES	100	100	100
FR	100	100	100
IT	100	100	100
CY	99	99	96
LV	100	100	100
LT	100	100	100
LU	100	100	100
MT	100	100	100
NL	100	100	100
AT	100	100	100
PT	100	100	100
SI	100	100	100
SK	100	100	100
FI	100	100	100

The majority of euro area countries make the entire datasets available for the public domain. Ireland releases the full counterpart sector detail for securities; however only 78% of the observations of the additional backdata for the core dataset are fully available, as parts of data prior to 2002Q1 (and the separate households and NPISH sub-sectors for 2012Q4) are flagged as not for publication. In the case of Cyprus, the partial non-availability of both datasets is due to the fact that a relative large number of observations are flagged as confidential, which is partially explained by constraints of confidentiality in b.o.p./i.i.p. source data.

4.3 Clarity

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 availability of background information on sources and methods considerably enhances the usability and clarity of the data.

The ECB publishes two press releases per quarter, outlining the latest data and relevant economic developments, on the ECB's website. The 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 quarterly financial accounts are in line with the international statistical standards and in particular the ESA 2010. Background information explaining the link between the financial accounts and the non-financial accounts and further methodological information are available at the Sector accounts section of the ECB's website.

The euro area aggregates and the national data can be accessed via the ECB's Statistical Data Warehouse or in the section in the Statistics Bulletin on sector accounts. Furthermore, the ECB publishes a large set of euro area and country charts for the household sector in the quarterly Household sector report.

The ECB has a Statistical Information Request facility for external users of statistics which helps users access and analyse the data.

A sub-set of the statistics produced under the ECB Guideline can also be accessed via the Euro area statistics website. The aim of this website is to facilitate the understanding, use and comparison of euro area and national statistics by presenting the statistics in a user-friendly manner. Another feature of the website is the possibility of easily viewing who-to-whom data in interactive graphics which can be downloaded onto other websites, in emails or on social media.

This quality report on financial accounts will be published every year starting from 2018. Previously, quality reports on euro area data were published on a biennial basis.

Table 1.1.1 in Annex 1.1 presents a summary of the national practices regarding data and metadata accessibility. All euro area countries allow users to download data in different formats. Belgium, Germany, Estonia, Ireland, Spain, France, Cyprus, Lithuania, the Netherlands, Portugal and Finland have a quarterly press release. The majority of euro area countries (all except Greece and Luxembourg) have Statistical and/or Economic Bulletins providing a visual representation of the data in the form of charts, graphs and tables. Countries should strive to provide a single contact point related to queries from the users of the data. This is not yet available in Cyprus and Slovakia.

The CMFB level 3 quality or "self-assessment" reports that provide metadata on national financial accounts (including descriptions on the compilation practices, sources and methods) are published on the national and/or the CMFB's website. The CMFB's section on Quality reports concerning statistics underlying the MIP indicators has links to the reports of all 28 EU countries.

5 Accuracy and reliability

This section reviews the stability of the data in terms of revisions to the initially compiled data (so-called first assessment or first vintage). In general, revisions are necessary to improve the accuracy of the data as an initial assessment may be based on incomplete, late or erroneous responses by reporting agents. However, large recurrent revisions may indicate the comparatively low quality of the data collection and/or compilation process, which needs addressing. On the other hand, the fact that there may be minimal or no revisions does not necessarily mean that the first assessment has been of high quality; it may simply indicate a national preference for not revising the data.

In this report, revisions for all euro area countries and for the euro area as a whole are assessed using indicators based on the comparison between the initial and the final assessment. Two basic types of indicators are used (more detailed information on revision indicators is available in Annex 1):

1. **Relative size indicators**, which measure the absolute differences between the first and the most recent data vintages. The absolute differences may be quantified relative to the underlying series when strictly positive or otherwise to a reference series such as GDP or underlying outstanding amounts. These indicators are the symmetric mean absolute percentage error (SMAPE) and mean absolute revisions shown as a percentage of GDP. In the case of transactions, revisions cannot be properly related to the series value itself because the observations may have different signs or the value of the series may often be close to zero. Therefore, absolute revisions in transactions are related to the underlying outstanding amounts or to the individual country's GDP.

2. **Directional stability and reliability indicators**, which measure how frequently initial assessments are revised in the same direction and whether the direction of change indicated by the initial assessment has correctly predicted the direction of change in the most recent data vintage.

All revision indicators are calculated using quarterly data from 2015Q2 to 2017Q1 for national and euro area aggregates, as shown in the charts throughout this section. The analysis is focused on main financial accounts indicators as commented on in the ECB's euro area accounts press releases related to household financial investment, and household and non-financial corporations financing. Financial sector liabilities are presented in addition, as this is the basis for the third MIP headline indicator. The revision indicators are presented for euro area aggregates and country data. The median values of the countries are presented to facilitate a comparison across countries. Detailed tables containing SMAPE, upward revisions and directional reliability indicators for the euro area aggregates and all EU countries are available for information purposes in Annex 1.3.

5.1 Household financial investment and loan financing

Revisions to household financial investment were more pronounced than revisions to household loan financing, as can be seen in Chart 1.

Euro area household financial investment (transactions) recorded revisions that are comparable to the median of revisions of euro area countries. The directional reliability (Annex table 1.3.4) was 75%. Cyprus and Latvia revised household financial investment data more extensively than did other countries; the median of all euro area countries for the reference period was 0.1%. Furthermore, the two countries show levels of directional reliability for household financial investment below 70%.

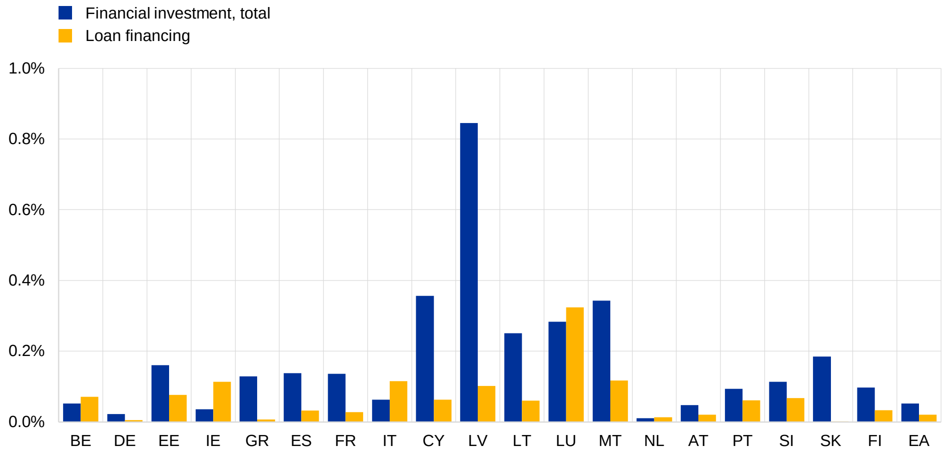
Euro area household loan financing (transactions) recorded lower revisions compared with the euro area countries' median and a directional reliability of 88%.

Luxembourg recorded higher revisions of household loan financing compared with other euro area countries; the median of all euro area countries for the reference period was 0.1%. The directional reliability is below 70% in the case of Luxembourg for household loan financing, while showing a balanced distribution of upwards and downwards revisions.

Chart 1

Revision to household financial investment and loan financing (transactions)

Symmetric mean absolute percentage error (SMAPE), 2015Q2 – 2017Q1



5.2 NFC financing

Among the components of NFC financing, the net issuance of debt securities was revised more than loan financing in a few countries, as can be seen in Chart 2.

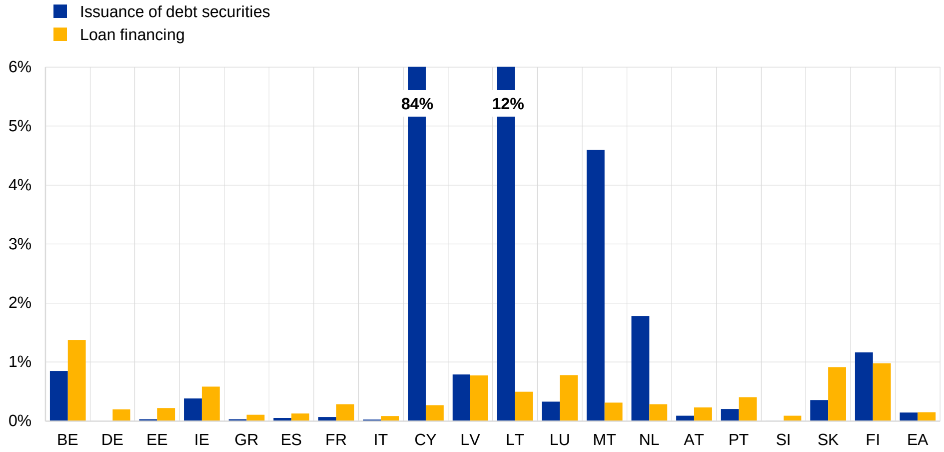
For both loans and debt securities the euro area as a whole exhibited lower revisions than the median of euro area countries. The directional reliability was 75% for debt securities and 63% for loan financing; the lower reliability for loan financing is mostly due to the revisions of intra-NFC loans. For the net issuance of debt securities, revisions were particularly large for Cyprus, Lithuania and Malta, with Cyprus and Malta exhibiting values below 70% for directional reliability.

Belgium, Slovakia and Finland recorded higher average revisions to NFC loan financing compared with the other euro area countries. The directional reliability indicator was below 70% only in the cases of Slovakia and Finland.

Chart 2

Revisions to NFC financing (transactions)

Symmetric mean absolute percentage error (SMAPE), 2015Q2 – 2017Q1



5.3 Financial corporations liabilities

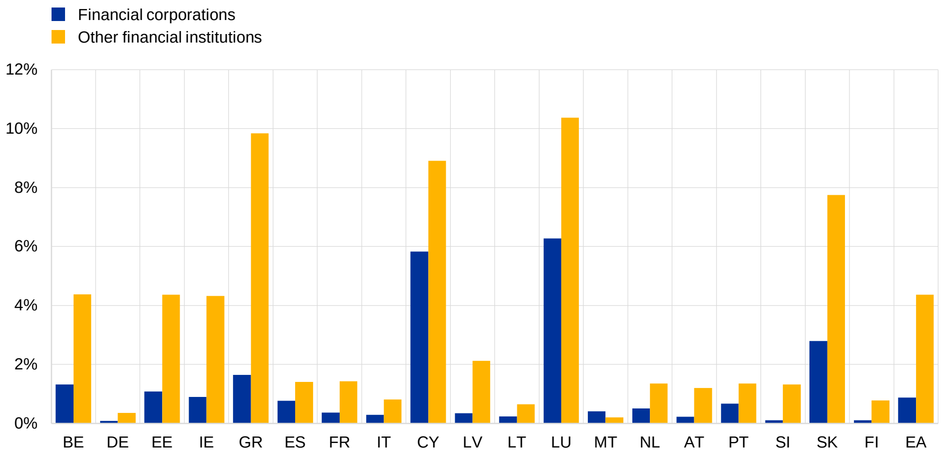
Regarding revisions to financial corporation (FC) liabilities (stocks), the euro area as a whole recorded revisions of 0.9% of the underlying stocks during the observed period, which is higher than the 0.5% median of the euro area countries, as some of the revisions were not only large but also from a small number of countries only (see Chart 3). The highest revisions were recorded for the OFI sector, for which the aggregated euro area revisions were 4.4% (while the euro area median was 1.4%). The directional reliability for FC liabilities stood at 88%.

Revisions for FC liabilities were highest for Cyprus and Luxembourg. Directional reliability was below 70% only in the case of Cyprus. Both Cyprus and Luxembourg consistently revised all first releases upwards, which was explained by ongoing improvements in the coverage of SPEs.

Chart 3

Revisions to financial corporation liabilities (stocks)

Symmetric mean absolute percentage error (SMAPE), 2015Q2 – 2017Q1



Detailed tables containing SMAPE, upward revisions, directional reliability indicator and mean absolute revisions as a percentage of GDP for all EU countries are available in Annex 1.3.

6 Internal consistency

Internal consistency refers to accounting identities and to hierarchical relationships between aggregates and components.[9] This includes horizontal consistency, which is defined as the equality between the sum of (transactions in) financial assets and the sum of (transactions in) liabilities for each financial instrument (i.e. the sum of listed shares issued by the resident sectors and the rest of the world equals the sum of listed shares purchased by the resident sectors and the rest of the world).

The euro area accounts are not the simple aggregation of the national data, as they need to be combined with other euro area statistics (in particular, euro area b.o.p./i.i.p. and MFI balance sheet statistics) to obtain genuine euro area accounts. Horizontal consistency is not generally maintained when all these components are put together, owing to discrepancies across data sources. Resulting imbalances between assets and liabilities for each transaction are then resolved by leaving data from the most reliable sources unchanged and amending data from less reliable sources where needed.

The apparent horizontal imbalances (before data sources are reconciled) in the euro area financial accounts continued to be significant. There are two underlying reasons for this: b.o.p./i.i.p. asymmetries[10] as well as differences between national financial accounts data and euro area building blocks. The latter occur mostly because national financial account compilers may adjust the statistics underlying the euro area building blocks or use different data sources. For example, loans granted by MFIs to general government as recorded in the financial accounts may differ from data in MFI balance sheet statistics because financial accounts compilers use government finance statistics, which are assumed to have a higher-quality counterpart sector assignment. (Where the sectoral classification is not obvious, reporting MFIs may sometimes misclassify entities such as local utilities.)

Table 4 shows the euro area horizontal imbalances resulting from the combination of the various data sources, i.e. before the balancing process, in the 27 October 2017 release.

---

[9] Internal consistency covers the following four elements: (i) aggregation consistency: total economy (transmitted sector total) = sum of sectors (sub-sectors); (ii) horizontal consistency: assets (sum of relevant sectors) = liabilities (sum of relevant sectors); (iii) balancing item consistency: transmitted net lending/net borrowing calculated from the financial accounts (B.9F) and net financial worth (BF.90) = assets (sum of relevant instruments) – liabilities (sum of relevant instruments); and (iv) counterpart sector consistency: totals (as reported in Tables 1-2) = sum of relevant counterpart sectors (as reported in Tables 3-7).

[10] In order to compile appropriate euro area rest-of-the-world accounts, cross-border transactions and positions between euro area countries have to be converted into domestic ones; for example, loans between non-financial corporations of two euro area countries are recorded as loans between non-financial corporations rather than loans to and from the rest of the world. However, in the national accounts of euro area countries, the bilateral transactions and positions do not always mirror each other. These “asymmetries” are eliminated in order to obtain a consistent set of euro area accounts.

Table 4

Internal consistency of input data for the euro area accounts by financial instruments

Horizontal imbalances

RMSE (EUR billions) broken down into bias component and variance component
Increase (↑), no change (↔) and decrease (↓) in the indicator compared with its value one year ago.

Financial instrument	Q4 2015 to Q2 2017	Q4 2014 to Q2 2016	Q4 2013 to Q2 2015
Gold and SDRs	1.7 ↓	2.7 ↑	2.3 ↑
Currency and deposits	10.1 ↓	15.2 ↓	19.8 ↓
Debt securities	24.2 ↓	47.3 ↑	27.6 ↓
Loans	12.5 ↓	15.1 ↓	33.1 ↑
Shares and other equity	37.6 ↓	48.6 ↓	65.4 ↑
Insurance and pension	2 ↔	2 ↑	0 ↔
Financial derivatives	15.9 ↑	12.6 ↑	7 ↓
Other accounts	44.1 ↓	45.4 ↑	31.7 ↓

The consistency of euro area aggregates before balancing improved for most instruments compared with the transmissions in the same quarters one year ago (second column). There was an increase in the inconsistency of transactions in financial derivatives while inconsistencies in transactions in the other financial instruments decreased or remained unchanged. The final, published euro area accounts are fully balanced.

The national financial account datasets as transmitted to the ECB are internally consistent, except for minor issues that do not affect main indicators.[11] Some internal inconsistencies remain for Ireland related to aggregation checks mostly for backdata pre-dating 2001Q3; and France related to aggregation checks mostly for backdata pre-dating 2014Q2 (see Annex table 1.2). Germany reports two time series with negative stock (balance sheets) data in the who-to-whom data for loans.

[11] Internal discrepancies of more than €10 million have been observed for a few countries but they were generally corrected in later transmissions.

7 External consistency

7.1 Consistency with non-financial sector accounts: vertical consistency

The ECB, in cooperation with Eurostat, produces integrated financial and non-financial accounts, which are published as the quarterly euro area accounts. Full coverage of instruments allows for the compilation of certain balancing items, such as net lending/net borrowing (from the non-financial accounts) and net financial transactions (net acquisition of financial assets minus net incurrence of liabilities, or "net lending/net borrowing as derived from the financial accounts"). It also enhances "vertical reconciliation" (equal balances for financial transaction accounts and non-financial accounts), both within euro area institutional sectors and with regard to the rest of the world. Currently, the euro area accounts comprise fully vertically integrated data for the FC and general government sectors, while, for the NFC and household sectors, and the rest of the world, there are vertical discrepancies between the financial and non-financial accounts.

Vertical imbalances arise because different data sources are used for the compilation of the financial and non-financial accounts. The discrepancy for the rest of the world is closely related to the "net errors and omissions" stemming from the b.o.p. For the euro area accounts, the vertical discrepancies resulting from the national data and euro area building blocks are reduced (and completely eliminated in the case of financial corporations and government) by the effect of source selection criteria (which is sensitive to consistency considerations) and data adjustments made on the basis of expert judgement and mathematical methods.

Some countries have established similar policies to eliminate the discrepancies, e.g. by adjusting financial and/or non-financial items for which the data sources are considered incomplete or of poor quality, while others do not make such full "reconciliation" adjustments, in order to preserve the information from the respective data sources. All countries, however, aim at reducing the sources for discrepancies, by improving source data and balancing processes. Furthermore, joint discussions by non-financial and financial account compilers at national and European level (WG FA and Task Force on Quarterly Sector Accounts) address the topic.

The charts below present the vertical discrepancies for the resident private sectors. For countries with a GDP below 1% of the EU total, the transmission of quarterly non-financial sector accounts is not mandatory for the resident sectors other than government. The vertical consistency of quarterly data can thus not be assessed for Estonia, Cyprus, Latvia, Lithuania, Luxembourg, Malta and Slovakia; Slovenia provides the quarterly data on a voluntary basis.

Charts 4.1.a, 4.2.a and 4.3.a present the absolute vertical discrepancies as of October following the respective years, in order to focus on the development over time (i.e. the vertical discrepancy for 2016 shows the data as available in October

2017, which is broadly comparable with the vertical discrepancy for 2013 as available in October 2014).

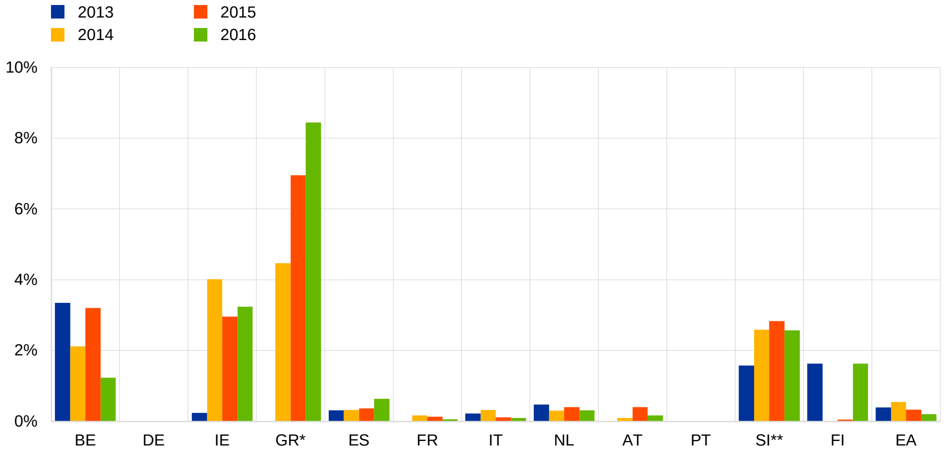
Charts 4.1.b, 4.2.b and 4.3.b present the cumulative vertical discrepancies as available in October 2017 in order to show whether vertical discrepancies balance out or accumulate over time. Accumulating vertical discrepancies indicate a persistent bias in the accounts.

For households, there was a decrease in the differences between the financial and non-financial accounts for the euro area (see Chart 4.1.a). The differences were in all four years small (only in 2014 was it above 0.5% of GDP). Some countries reconcile the household sector for example by adjusting financial and/or non-financial items for which the data sources are considered incomplete or of relatively low quality; other countries do not make such reconciliation adjustments. In France, the reconciliation exercise is conducted once a year, as balance sheet data are revised on an annual basis. In many countries, vertical discrepancies tend to largely offset each other over time and, as a result, the four-quarter averages are small in most countries. Discrepancies relative to country GDP for 2016 were particularly high for Ireland, Greece and Slovenia.

Chart 4.1a

Vertical discrepancies, households

Absolute vertical discrepancies relative to GDP



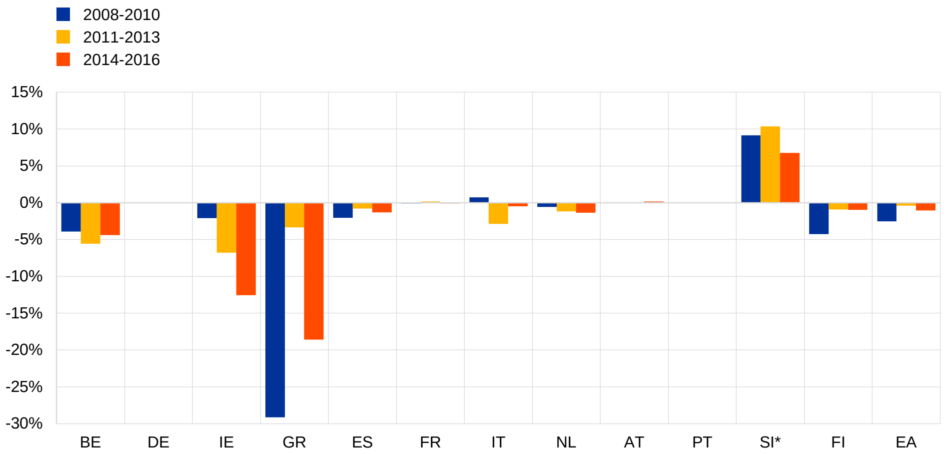
* 2013 net lending/net borrowing was not available in October 2014 for Greece due to derogations.
** Slovenia provides data on a voluntary basis.

The sign persistency of the vertical discrepancies is also a relevant quality measure, as it helps to identify biases in the accounts (neglecting short-term volatility and recording issues between consecutive quarters). Chart 4.1.b below displays the cumulative vertical discrepancies for the household sector in relation to GDP. The euro area household sector displays a very small negative bias. The countries with high absolute discrepancies also exhibit persistent biases in the accounts; a negative bias is shown for Ireland and Greece, whereas a positive bias is observed for Slovenia. A positive bias indicates a continued excess of net lending as derived from the non-financial accounts (and vice versa for a negative bias).

Chart 4.1b

Bias in vertical discrepancies, households

Cumulated vertical discrepancies relative to GDP



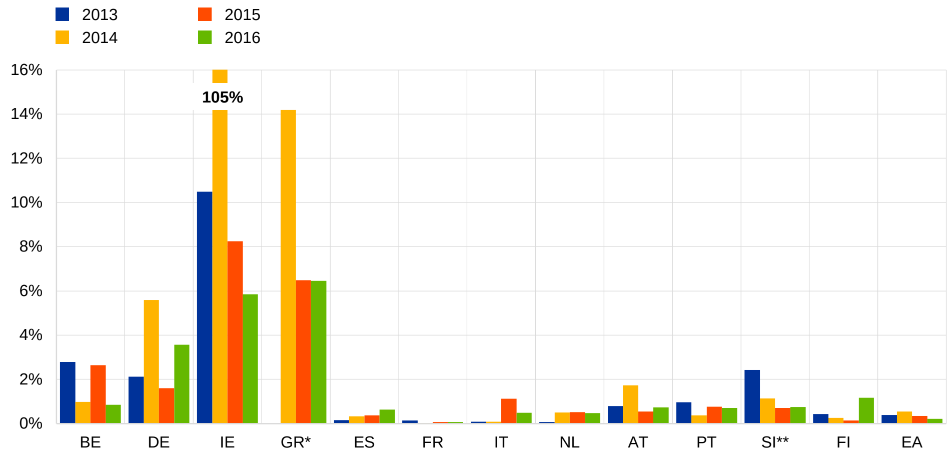
* Slovenia provides data on a voluntary basis.

For NFCs, there was a decrease in the differences between the financial and non-financial accounts for the euro area (see Chart 4.2.a). For some countries, the discrepancies are significantly larger, in part because this sector is generally not reconciled (see Chart 4.2.a). In some countries (e.g. Germany), this sector has been chosen to offset the “net errors and omissions” stemming from the b.o.p. Compared with previous years there have been significant improvements in Ireland, which has a large NFC sector relative to GDP owing to the presence of large multinational corporations. Discrepancies relative to country GDP for 2016 were particularly high for Germany, Ireland and Greece.

Chart 4.2a

Vertical discrepancies, non-financial corporations

Absolute vertical discrepancies relative to GDP

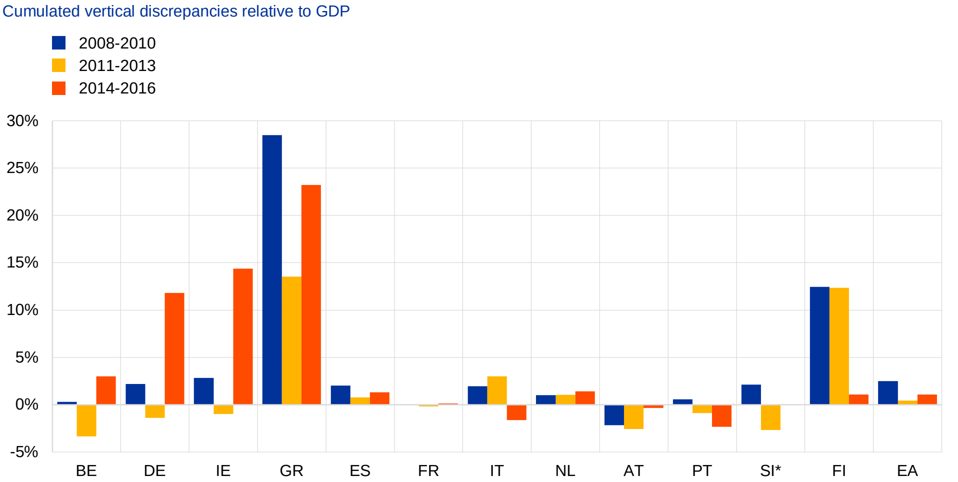


* 2013 net lending/net borrowing was not available in October 2014 for Greece due to derogations.
** Slovenia provides data on a voluntary basis.

The euro area NFC sector displays a small positive bias (see Chart 4.2.b). Germany and Ireland display a positive bias in the most recent period, and Greece for all periods.

Chart 4.2b

Bias in vertical discrepancies, non-financial corporations

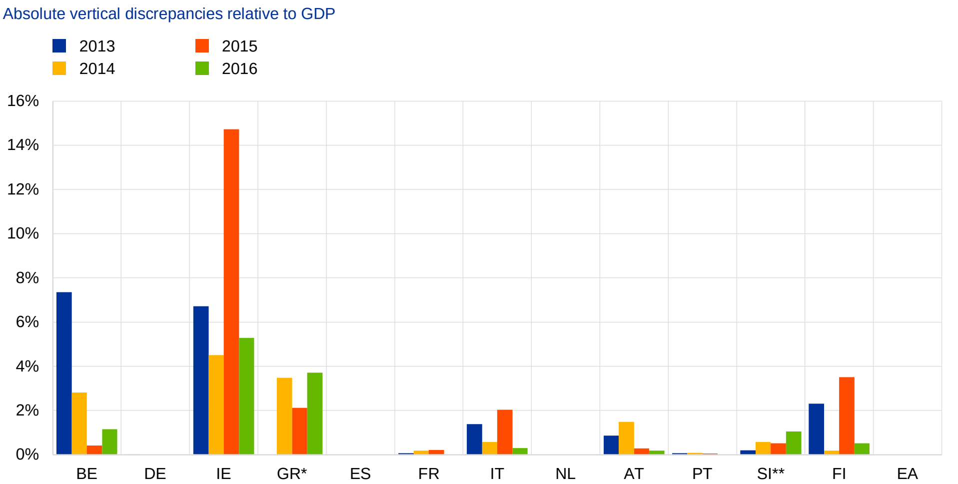


*Slovenia provides data on a voluntary basis.

The euro area financial corporations sector is fully reconciled (see Chart 4.3.a). For this sector, the data availability is typically better than for the non-financial sectors, and many countries usually achieve consistency. Discrepancies relative to country GDP for 2016 were particularly high for Ireland and Greece.

Chart 4.3a

Vertical discrepancies, financial corporations

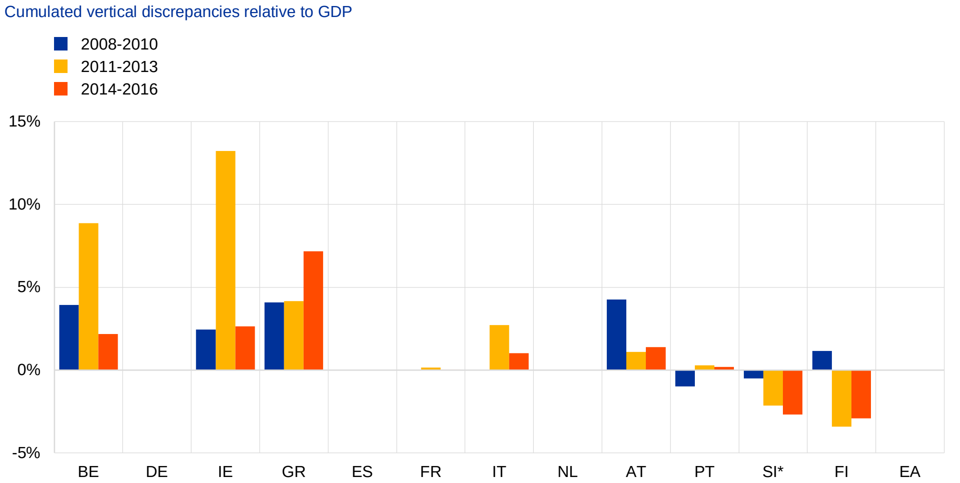


* 2013 net lending/net borrowing was not available in October 2014 for Greece due to derogations.
** Slovenia provides data on a voluntary basis.

The countries with high absolute discrepancies also exhibit persistent biases in the accounts, as both Ireland and Greece (and, to a lesser extent, Belgium) display a positive bias (see Chart 4.3.b).

Chart 4.3b

Bias in vertical discrepancies, financial corporations



* Slovenia provides data on a voluntary basis.

7.2 Consistency with balance of payments and international investment position statistics

The euro area b.o.p. and i.i.p. constitute one of the so-called building blocks for euro area financial accounts and are widely used at national level for the compilation of the rest-of-the-world (RoW) account. Alternatively, some countries compile the two statistics in one joint process.

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[12]. However, the analysis shows that in several Member States the inconsistencies between the two statistical domains persist, affecting negatively the combined use of these two datasets, as well as the confidence in the two statistics that should display the same figures given that they are measuring the same phenomena. Acknowledging this, the European System of Central Banks (ESCB) worked on the precise identification of the differences and on the elaboration of national medium-term work plans to be in general observed by September 2019.[13]

7.2.1 Financial transactions

Chart 5 shows the differences between b.o.p. and the RoW account for financial transactions. In this case, discrepancies may be accounted for by the volatile pattern of the underlying series, as well as the reconciliation of the national sectoral accounts; both, the "vertical" reconciliation (correction for errors and omissions) and

[12] The harmonised EU revisions policy reinforces this assessment.

[13] Or at the time of the next European benchmark revision.

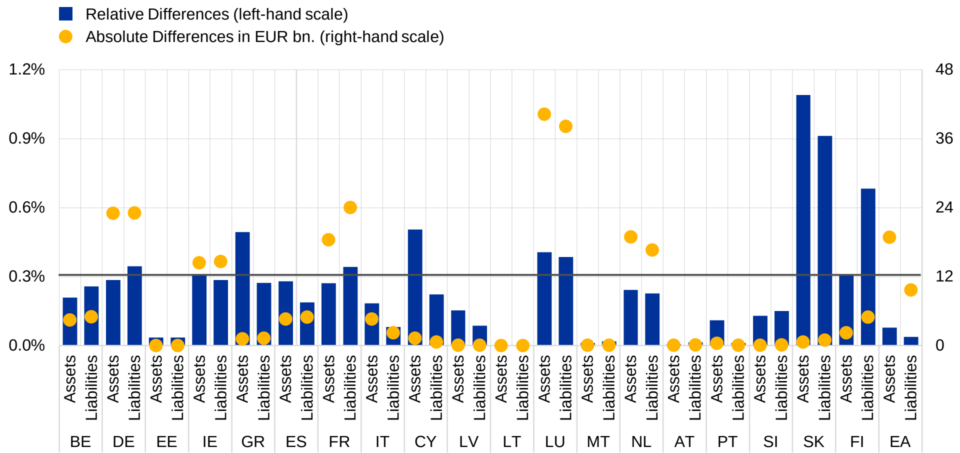
"horizontal" reconciliation (assets/liabilities equality across sectors) may entail larger adjustments in the financial transactions of the RoW account. Nonetheless, according to a convention agreed by balance of payment compilers, the relative differences should not exceed 0.3% of the average value of underlying stocks for b.o.p. and RoW account as agreed by the WG ES.

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

Chart 5

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

Average absolute and relative difference (as a percentage of respective b.o.p and RoW stocks of financial assets/liabilities) for the period 2014Q3-2017Q2 (b.o.p. vs euro area accounts)



7.2.2 Financial positions

Chart 6 below presents the differences between the i.i.p. and the RoW account for financial assets and liabilities (balance sheets/stocks). As expected, the differences between the two datasets are larger for stocks. According to a convention agreed by balance of payment compilers, relative differences should be below 0.5% of the average financial assets/liabilities totals in the i.i.p. and sectoral accounts.

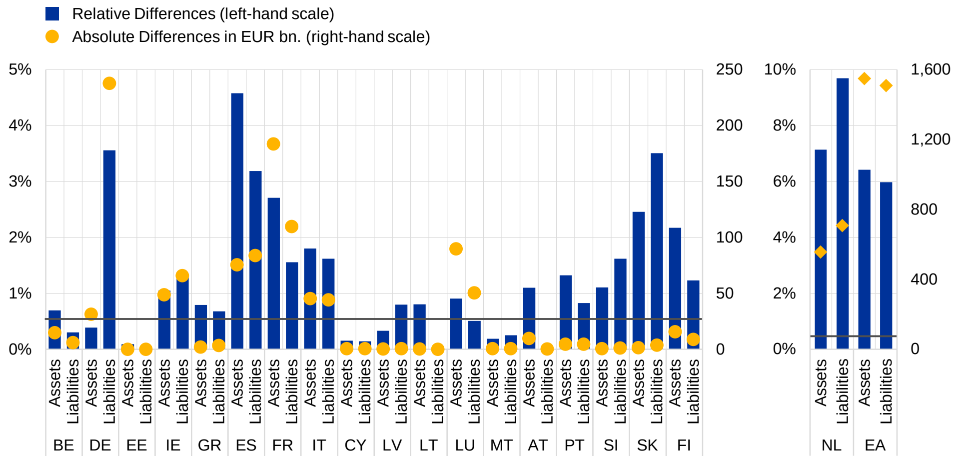
The euro area as a whole recorded significant discrepancies of 6% both for assets and liabilities. These discrepancies arise mostly from differences in the compilation and reconciliation processes for euro area i.i.p. and EAA. At the country level, differences above 0.5% were recorded for all countries except Belgium (liabilities), Germany (assets), Estonia, Cyprus, Latvia (assets), Lithuania (liabilities), Malta and Austria (liabilities)[14]. The highest discrepancies were recorded by Spain (assets)[15] (mainly due to the fact that positions of some derivatives are recorded in net terms in the FA, as permitted by ESA 2010, and gross in i.i.p.) and the Netherlands (both assets and liabilities), with values exceeding 4%.

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

Chart 6

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

Average absolute and relative difference (as a percentage of respective b.o.p and RoW stocks of financial assets/liabilities) for the period 2014Q3-2017Q2 (b.o.p vs euro area accounts)



7.3 Comparison with other financial statistics

Deviations from other financial statistics may well be justified as financial accountants may choose to amend the primary data sources in order to align with ESA concepts, or enrich the data with alternative or supplementary data sources. However, identifying, comparing and explaining differences may be the starting point for a more thorough analysis and, furthermore, explaining major differences of the national data to other related statistics provides valuable information for the users of euro area accounts and MIP data.

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

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

7.3.1 Comparison of MFI loans by counterpart sector with MFI balance sheet statistics

Conceptual differences arise for MFI loans owing to the fact that MFI balance sheet statistics (BSI) do not record the accrued interest with the loan. While unilateral write-downs may be recognised in MFI balance sheet statistics, loans are recorded at nominal value in the financial accounts until completely written off.

Loans granted by MFIs to general government as recorded in the financial accounts may differ from data in MFI balance sheet statistics because financial accounts compilers use government finance statistics, which are assumed to have a higher-quality counterpart sector assignment. (Where the sectoral classification is not obvious, reporting MFIs may sometimes misclassify entities such as local utilities.) Mostly as a consequence of this, the loans granted by MFIs to NFCs may also differ in the financial accounts from BSI in a number of countries (see Annex table 1.5). A further reason can be the recording on accrued interest, for which in the financial accounts preferred recording is with the respective instrument, whereas in BSI it is recorded under remaining assets/liabilities). The differences are below 2% of stocks in most countries. In Germany and Austria the financial accounts data differ by more than 2% owing to the different sector allocation of MFI loans.

7.3.2 Comparison of securities issuance with ECB Securities issues statistics

Conceptual differences between securities issuance in the financial accounts and the securities issues statistics (SEC) relate to different valuation (nominal in SEC, market valuation in the financial accounts) and the recording of transactions received against payments other than cash. The latter can have a significant impact, in particular in the case of share swaps related to mergers and acquisitions. While share swaps are generally recorded in financial accounts as transactions, SEC does not record such transactions.

In some Member States securities issued without an International Securities Identification Number (ISIN), which are not generally captured in SEC, are non-negligible. Financial accounts compilers thus supplement the SEC for non-ISIN securities.

These methodological differences and the supplementation of securities issuance data with additional information can explain why the FA values for stocks are mostly higher than the SEC values (see Annex Table 1.5). However for Greece, Cyprus and the Netherlands, the financial accounts values for debt securities issued by NFCs were much lower than the SEC values in the data transmissions of 2017 considered in this report. In the case of Greece, the difference was due to securities which are not covered by securities holdings statistics; this issue was resolved in the January 2017 transmission. In the case of Cyprus, the difference is due to a number of companies reclassified from the NFC sector to the OFI sector. In the financial accounts these reclassifications were also implemented for backdata resulting in a revision for the end-2016 outstanding amounts, whereas SEC data were not revised, owing to a different revision policy. In the case of the Netherlands, the difference is due to reclassifications from the NFC sector to the OFI sector which were implemented in SEC data only recently, in 2017.

Box 1
Quality indicators on financial accounts statistics underlying the Macroeconomic Imbalance Procedure

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

The financial accounts are the main input for the following three headline indicators:

- private sector debt, consolidated as a percentage of GDP;
- private sector credit flow, consolidated as a percentage of GDP;
- financial sector liabilities, non-consolidated, 1-year percentage change (11 years of data necessary);

and two auxiliary indicators:

- private sector debt, non-consolidated as a percentage of GDP;
- financial sector leverage, non-consolidated, % debt to equity.

Institutional set-up

Quarterly financial accounts are provided to the ECB on the basis of Guideline ECB/2013/24. Non-euro area EU Member States provide the data on a voluntary basis. Annual financial accounts are provided to Eurostat on the basis of the ESA 2010 transmission programme (Regulation (EU) No 549/2013).The indicators used for the MIP are provided by Eurostat on the basis of statistics compiled in the Member States by national central banks (NCBs) or, in some cases, by national statistical institutes (NSIs). Therefore, 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 signed at the beginning of November 2016. In the MoU (and the exchanged letters), the European Commission and the ECB mutually recognise the quality assurance frameworks in place in the European Statistical System (ESS) and the European System of Central Banks (ESCB) and establish practical working arrangements for cooperation on the quality assurance of statistics underlying the MIP.

The MoU specifies that Eurostat and the ECB/DG-S regularly conduct assessments of the quality of the datasets. In particular the ECB/DG-S runs its quality procedures for the datasets reported by

NCBs and provides Eurostat with the quality assured datasets and/or information on the quality of the data after the regular data transmission in September/October each year.[16] The MoU also foresees visits by the ECB/DG-S and Eurostat to NCBs and/or NSIs to help assess the output quality of the MIP-relevant data.

To ensure full transparency with respect to the quality of the MIP-related statistics, a three-level quality reporting system has been set up in the last few years with the support of the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB). The system is made up of national self-assessment reports (Level 3). These national reports, in turn, feed into the domain-specific quality reports (Level 2) – including this report – which are coordinated between the 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

All EU Member States provide quarterly financial accounts data, which can be used to compile the MIP indicators on a non-consolidated basis (as these do not requiring who-to-whom data). The United Kingdom has not provided separate data for the financial sub-sectors insurance corporations (ICs) and pension funds (PFs), but does provide the data for the total financial corporation sector. As of October 2017 all euro area countries provided backdata dating from 1999Q1 (or the first quarter of the year in which the respective country acceded to the European Union). Most non-euro area EU countries have provided additional backdata since October 2017 as well. For MIP purposes the focus is on data for the last ten complete years. For the calculation of the financial sector liabilities, 1-year percentage change, 11 years are necessary. This data range was available for all EU countries except the Czech Republic, Denmark and Croatia. Longer-time series (15 years) are preferable. However, for quarterly financial accounts these are not required from countries which joined the European Union in 2004 or later; of these countries, only Hungary provides quarterly back data dating from 1999.

The availability of consolidated private sector debt and private sector credit flow (i.e. debt transactions) is more limited, as consolidation – i.e. the exclusion of intra-sector debt – requires who-to-whom data. Intra-sector debt consists mainly of loans between non-financial corporations (NFCs) resident in the country. Intra-NFC loans (as well as intra-NFC debt securities) are not available for the United Kingdom; thus the consolidated private sector debt and credit flow cannot be compiled on a quarterly basis.

Croatia does provide intra-NFC loans, but not intra-NFC debt securities. Intra-NFC debt securities are of much lower importance than intra-NFC loans in all EU countries for which both are available.

All EU Member States make the entire dataset foreseen for publication available to the general public, except for minor exceptions not affecting the compilation of the MIP indicator on a quarterly basis. Ireland releases the full counterpart sector detail for securities; however parts of data pre-dating 2002Q1 (and the separate households and non-profit institutions serving households, or

[16] The ECB runs its quality procedure on the quarterly financial accounts received from all EU Member States. According to the MoU it is then for Eurostat to assess whether the quarterly data are comparable to the annual data it receives from the Member State. For a large majority of Member States, the quarterly and annual accounts are the results of one and the same compilation system. The derivation of the MIP indicators by Eurostat is based on the annual financial accounts.

NPISH, sub-sectors for 2012Q4) are flagged not for publication. In the case of Cyprus, the partial non-availability of both datasets is due to the fact that a relative large number of observations are flagged as confidential, including sectors with typically a significant number of individual statistical units, i.e. cases for which confidentiality concerns typically do not apply.

Sources and methods

The national financial accounts are generally consistent with the requirements and conceptual framework of the ESA 2010. However the financial account statistics are derived statistics that rely on a wide range of data sources, which are not necessarily complete or fully sufficient in terms of conceptual requirements.

One area where the compilation of the financial accounts data underlying the MIP indicators is affected by limited data sources is the full coverage of financial sector liabilities, in particular special-purpose entities (SPEs) and more general Other financial institutions (OFIs), for which there are generally no timely and comprehensive source statistics in place. This issue is particularly relevant in Germany, Cyprus, Malta, the Netherlands and Sweden.

A second area is the timely recording of intra-NFC loans affecting the compilation of the auxiliary indicator of non-consolidated debt which is particularly relevant for Germany, France, Luxembourg, the Netherlands and Denmark.

Accuracy and reliability

Revisions to the data underlying the MIP headline indicators are relatively low for most of the countries, as can be seen in the MIP Annex Table A.

For consolidated private sector debt and credit flow, revisions are mostly due to revisions to non-financial corporation (NFC) loan financing, whereas revisions to household loan financing and NFC debt securities issuance are generally low.

For consolidated private sector debt, revisions are relatively large in Belgium, Latvia, Luxembourg, Malta, Slovakia, Finland and the United Kingdom, while the rest of the countries have revisions lower than 2% of national GDP.

For consolidated private sector credit flow, revisions are relatively large in Belgium, Ireland, Luxembourg, Malta and Finland, while the rest of the countries have revisions below 1% of national GDP.

For total financial sector liabilities, revisions are in most cases lower than 2%, measured as one year percentage change. Larger revisions are observed for Spain, Cyprus, Luxembourg, Slovakia, Denmark and the United Kingdom. Financial sector liabilities continued to be revised upwards due to the recording of additional SPEs in several countries. The size of these revisions differs between countries, which partly reflects different economic realities and in particular the restructuring of multinationals.

For the auxiliary indicators, revisions are mostly higher than for the headline indicators. For non-consolidated private sector debt the revisions are relatively high in Belgium, Ireland, Latvia, Finland and the United Kingdom, while the rest of the countries have revisions lower than 4% of country GDP. The difference between the consolidated and non-consolidated private debt indicators comes primarily from the intra-NFC loans, which have on average a tendency for larger revisions than other underlying data. Financial sector leverage revisions appear particularly high as the indicator is expressed as a ratio of debt to equity. This ratio reacts strongly to revisions to the typically smaller equity in the nominator. The largest revisions are recorded for Greece, Slovakia, Denmark and the United Kingdom.

Internal consistency

Most countries fulfil all validation (accounting) rules, with minor exceptions for Ireland, France, the Czech Republic, Denmark, Croatia, Hungary, Romania, Sweden and the United Kingdom (see Annex Table 2.2.1). In the case of Ireland and the United Kingdom, observed inconsistencies are related to incomplete transmissions.

Consistency of quarterly and annual financial accounts

In most countries quarterly and annual financial accounts are fully consistent (see Annex table 1.2.2). Vintage differences may occur, as not all countries update the annual data on a quarterly basis. Structural differences may signal quality issues in quarterly and/or annual accounts. Differences are relatively large in Slovakia, Bulgaria, the Czech Republic and Denmark. In countries where the NCB is responsible for the quarterly financial accounts and the NSI is responsible for the annual frequency, close cooperation between the institutions usually allows the differences to be limited.

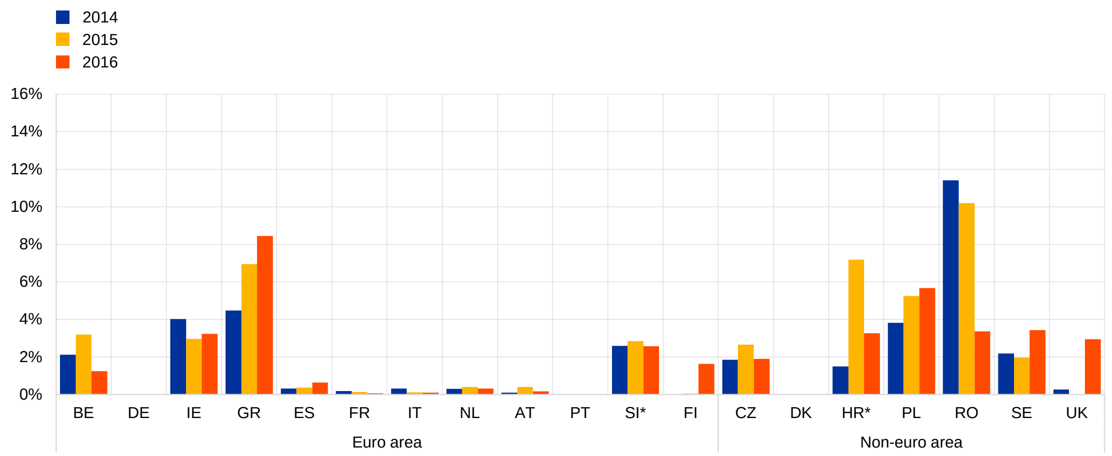
Consistency with non-financial sector accounts

An important quality aspect for users of financial accounts is the consistency with the non-financial accounts by institutional sectors. Conceptually the net lending/net borrowing derived from the financial and the non-financial accounts should be identical for all sectors, but in practice this is often not the case. High and persistent differences signal quality issues in the financial and/or non-financial accounts.

MIP Chart A

Vertical discrepancies, households

Absolute vertical discrepancies relative to GDP



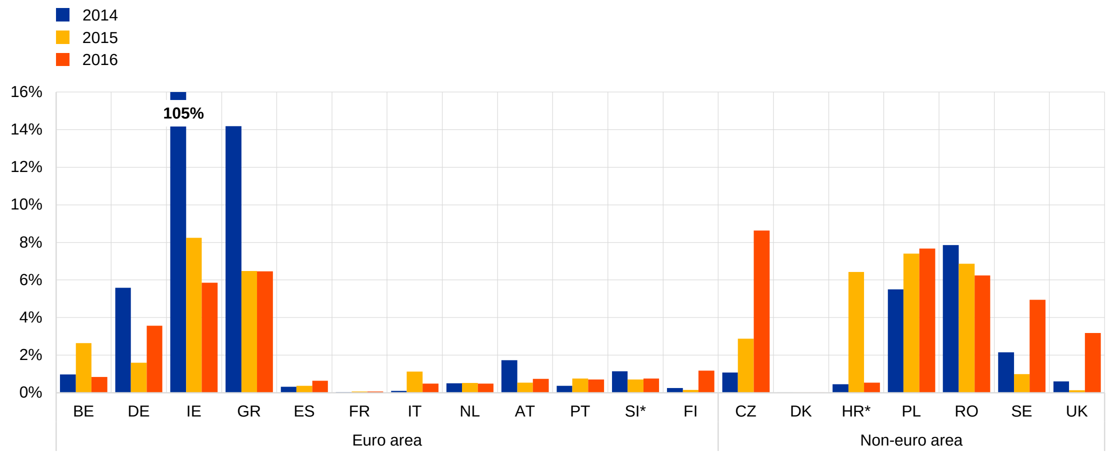
Notes: * Quarterly non-financial sector accounts for this sector are provided by Slovenia and Croatia on a voluntary basis.

For the household sector, vertical discrepancies for 2016 were above 2% of GDP in Ireland, Greece, Slovenia, the Czech Republic, Croatia, Poland, Romania, Sweden and the United Kingdom (see MIP Chart A).

MIP Chart B

Vertical discrepancies, non-financial corporations

Absolute vertical discrepancies relative to GDP



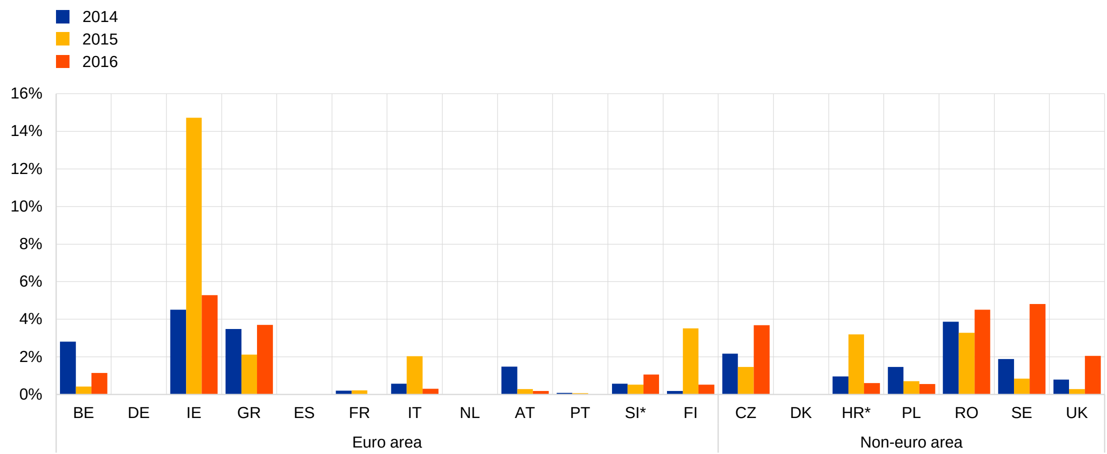
Notes: * Quarterly non-financial sector accounts for this sector are provided by Slovenia and Croatia on a voluntary basis.

For the NFC sector vertical discrepancies for 2016 were above 2% of GDP in Germany, Ireland, Greece, the Czech Republic, Poland, Romania, Sweden and the United Kingdom (see MIP Chart B).

MIP Chart C

Vertical discrepancies, financial corporations

Absolute vertical discrepancies relative to GDP



Notes: * Quarterly non-financial sector accounts for this sector are provided by Slovenia and Croatia on a voluntary basis.

For the Financial corporations sector, vertical discrepancies for 2016 were above 2% of GDP in Ireland, Greece, the Czech Republic, Romania, Sweden and the United Kingdom (see MIP Chart C).

MIP Annex Table A

Revisions

Revisions of financial accounts data underlying MIP indicators for 2015 (October 2017 transmission compared with October 2016 transmission)

	Private sector debt consolidated Revision as % of GDP	**Private sector credit flow consolidated** Revision as % of GDP	**Total financial sector liabilities non-consolidated** Revision as % of 2016 transmission	**Private sector debt non-consolidated** Revision as % of GDP	**Financial sector leverage non-consolidated, debt-to- equity ratio** Revision in pp
BE	12.32	7.50	-1.99	-4.58	-0.18
DE	0.50	0.16	0.25	0.33	0.58
EE	-0.79	-0.31	0.57	-2.78	10.70
IE	0.23	2.69	0.85	6.00	-0.91
GR	0.17	-0.21	-1.89	0.17	-16.18
ES	1.18	0.85	3.08	2.15	-2.10
FR	0.21	0.44	1.06	1.29	2.08
IT	-1.32	0.04	-1.05	-1.25	-1.28
CY	1.87	-0.22	7.39	1.87	-6.49
LV	2.32	-0.04	-0.20	4.26	-9.60
LT	-0.03	-0.03	-0.32	1.13	0.90
LU	11.41	1.72	-2.48	1.37	-1.91
MT	-5.62	-2.16	-0.66	3.74	-0.33
NL	-1.41	0.76	0.84	2.11	-6.65
AT	-0.32	0.25	0.24	-0.43	-1.91
PT	-1.42	0.50	-1.75	0.11	7.07
SI	0.18	0.08	-0.30	0.18	7.06
SK	2.92	0.04	6.30	2.92	-297.83
FI	-2.38	-2.53	-0.46	8.37	3.55
BG	-1.32	-0.23	0.20	-1.32	-3.73
CZ	-0.22	-0.17	-0.16	1.21	1.24
DK	-0.58	-0.07	2.32	-3.54	-12.83
HR	0.02	-0.10	-0.49	0.06	0.76
HU	1.17	0.49	0.87	1.36	-4.67
PL	0.39	-0.30	-0.13	0.44	-4.93
RO	0.00	0.00	-0.06	0.00	-0.76
SE	0.57	0.91	-0.12	0.49	1.83
UK	5.06	0.51	-3.90	5.06	17.42

In several EU countries, work to ensure a good alignment between financial and non-financial accounts is carried out, and regular meetings are held between the compilers. At European level, the issue is addressed in the relevant working fora (WG FA, Eurostat and Task Force on Quarterly Sector Accounts).

Annexes

Annex 1
Detailed tables

Annex 1.1
Accessibility and clarity

Table 1.1.1
Accessibility to financial accounts data

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

Source: ECB

Annex 1.2
Internal consistency

Table 1.2.1

Indicator on validation rules, ratio of satisfied validation rules in percent

Period: 2012Q4 to 2017Q2

Country	Consistency rate
Euro area	100
BE	100
DE	100
EE	100
IE	99
GR	100
ES	100
FR	97
IT	100
CY	100
LV	100
LT	100
LU	100
MT	100
NL	100
AT	100
PT	100
SI	100
SK	100
FI	100
Non-euro area	
BG	100
CZ	99
DK	95
HR	96
HU	99
PL	100
RO	99
SE	98
UK	86

Table 1.2.2

Consistency across frequencies, 2016

Country	Private sector debt consolidated	Private sector credit flow consolidated	Total financial sector liabilities non-consolidated	Private sector debt non-consolidated	Financial sector leverage non-consolidated, debt-to-equity ratio
	% difference (QFA-AFA)/QFA				difference in pp (QFA-AFA)
Euro area					
BE	-0.00	0.00	0.00	0.00	0.00
DE	-0.14	-0.02	0.00	0.00	0.00
EE	0.00	-0.00	0.00	-0.00	-0.00
IE	-0.60	0.52	-0.16	-0.50	-5.73
GR	-0.00	-0.00	0.00	-0.00	0.00
ES	0.00	0.00	-0.00	0.00	0.00
FR	0.00	-0.00	-0.00	0.00	0.00
IT	-1.07	-0.65	-0.49	-1.05	-4.88
CY	-0.00	0.00	-0.07	0.00	-0.11
LV	1.83	-0.16	0.13	0.05	-6.53
LT	0.00	-0.00	0.00	0.00	-0.00
LU	-0.02	0.00	0.01	-0.02	-0.01
MT	-0.00	0.00	-0.00	-0.00	-0.00
NL	0.00	0.00	0.00	0.00	0.00
AT	-0.00	0.00	0.82	-0.00	2.37
PT	-0.00	-0.00	-0.00	0.00	0.00
SI	-0.00	0.00	-0.00	-0.00	0.02
SK	-8.45	-1.32	0.33	0.67	-0.02
FI	0.00	0.00	0.00	0.00	0.00
Non-euro area					
BG	0.35	-0.75	-2.18	-2.06	20.49
CZ	12.12	-2.67	1.62	11.58	0.13
DK	-4.22	6.06	7.52	0.92	-5.38
HR	0.00	-0.00	0.00	0.00	-0.00
HU	0.00	0.00	0.00	0.00	0.00
PL	-0.00	-0.00	-0.00	-0.00	0.00
RO	-0.00	-0.00	-0.00	-0.00	-0.00
SE	0.00	0.00	0.00	0.00	0.00
UK	0.05	0.05	0.00	0.00	-1.48

Annex 1.3
Revision indicators

Table 1.3.1
Symmetric mean absolute percentage error (SMAPE*) for period: 2015Q2 to 2017Q1, in percent

(for non-EA countries for the period 2015Q4 to 2016Q4))

	Households (including NPISH)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFI	IVF	OFI	IC	PF
	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Transactions	Stocks					
Euro area																	
BE	0.18	0.07	1.68	0.05	4.62	0.85	1.90	1.37	13.58	5.26	0.35	1.32	5.82	0.24	4.38	0.32	3.93
DE	0.03	0.01	0.10	0.02	0.00	0.00	0.38	0.20	2.75	0.56	0.19	0.09	0.06	0.00	0.35	0.07	0.74
EE	0.14	0.08	2.19	0.16	1.79	0.03	0.97	0.22	7.42	1.36	0.09	1.08	0.37	0.38	4.36	1.77	0.00
IE	0.42	0.11	0.29	0.04	3.24	0.38	10.95	0.58	13.87	2.65	0.08	0.90	0.44	0.57	4.32	0.58	1.39
GR	0.03	0.01	1.86	0.13	0.53	0.03	0.61	0.11	NA	NA	0.24	1.64	1.75	0.78	9.84	0.08	1.06
ES	0.02	0.03	0.88	0.14	0.07	0.05	0.78	0.13	1.57	0.69	0.06	0.77	1.12	0.01	1.40	0.59	0.28
FR	0.04	0.03	0.44	0.14	0.30	0.07	1.59	0.29	4.00	0.70	0.02	0.36	0.35	3.35	1.43	0.18	NA
IT	0.08	0.11	1.21	0.06	4.85	0.02	0.65	0.09	2.97	0.36	0.04	0.30	0.35	0.00	0.81	0.20	1.18
CY	0.56	0.06	0.77	0.36	86.86	84.41	0.57	0.27	0.03	0.04	0.20	5.83	0.51	0.13	8.91	2.11	7.88
LV	0.14	0.10	1.05	0.85	0.83	0.79	0.89	0.77	3.93	2.57	0.10	0.35	0.13	0.03	2.12	4.20	0.08
LT	0.06	0.06	1.85	0.25	11.27	11.53	1.19	0.50	8.32	2.89	0.13	0.24	0.07	5.41	0.65	4.46	0.10
LU	2.23	0.32	10.19	0.28	1.55	0.33	1.92	0.78	8.63	0.92	0.29	6.28	0.10	0.39	10.36	0.91	13.21
MT	1.10	0.12	0.96	0.34	13.42	4.59	2.44	0.31	6.73	0.71	0.07	0.41	1.03	7.35	0.21	0.66	NA
NL	0.12	0.01	0.44	0.01	16.83	1.78	2.89	0.29	12.02	1.02	0.13	0.51	0.28	0.52	1.35	1.61	0.60
AT	0.31	0.02	0.33	0.05	0.19	0.09	0.81	0.23	3.49	0.73	0.18	0.23	0.10	0.05	1.20	0.37	0.33
PT	0.28	0.06	0.45	0.09	0.45	0.21	0.84	0.40	3.42	2.15	0.06	0.67	0.74	0.30	1.36	1.16	0.61
SI	0.09	0.07	0.29	0.11	0.03	0.00	0.87	0.09	0.00	0.00	0.01	0.10	0.00	0.00	1.31	0.00	0.00
SK	0.00	0.00	0.93	0.18	16.67	0.36	0.54	0.91	0.25	0.24	0.27	2.79	2.55	0.01	7.75	7.77	0.00
FI	0.06	0.03	0.39	0.10	4.78	1.17	2.88	0.98	7.70	4.83	0.04	0.10	0.08	0.41	0.78	0.39	1.93
Euro area	0.27	0.02	0.43	0.05	1.47	0.15	1.04	0.15	1.01	0.40	0.06	0.88	0.74	0.52	4.37	0.94	0.19
Median	0.12	0.06	0.88	0.13	1.79	0.33	0.89	0.29	3.97	0.83	0.10	0.51	0.35	0.30	1.40	0.59	0.61
Non-euro area																	
BG	0.59	0.24	1.66	0.42	1.27	0.81	0.96	0.35	4.86	0.63	0.20	0.91	0.64	4.78	2.45	4.60	0.14
CZ	0.12	0.01	0.55	0.08	0.43	0.58	1.13	0.55	5.45	2.43	0.17	0.23	0.26	0.05	1.89	0.03	0.00
DK	0.25	0.04	0.23	0.20	1.06	0.33	0.85	0.23	5.16	1.37	0.07	0.74	0.12	0.21	3.36	0.48	1.62
HR	0.04	0.00	1.38	0.12	0.01	0.00	0.49	0.14	1.53	0.37	0.02	0.17	0.01	0.00	0.34	0.01	1.38
HU	0.14	0.07	1.11	0.05	2.05	0.44	3.04	0.52	12.34	0.67	2.36	2.84	0.17	0.07	6.11	0.16	0.25
PL	0.07	0.13	0.43	0.15	1.62	0.73	0.70	0.36	0.66	1.00	0.17	0.38	0.61	0.06	1.90	0.21	0.21
RO	0.16	0.34	0.62	1.35	4.56	1.02	1.29	0.25	16.15	2.08	0.08	0.12	0.09	0.00	2.15	1.26	0.10
SE	0.02	0.01	1.15	0.06	8.34	0.63	0.63	0.35	0.79	0.67	0.03	0.17	0.33	0.96	2.17	43.08	25.97
UK	0.26	0.13	2.06	0.09	2.39	0.63	6.73	0.68	NA	NA	NA	NA	0.77	NA	NA	NA	NA

NA – no revisions (in case of the United Kingdom data are not available for the October 2017 transmission).
*In the case of transactions – underlying stocks in the denominator (mean absolute comparative error – MACE).

Table 1.3.2

Mean absolute revision for the period 2015Q2 to 2017Q1, as a percentage of GDP

(for non-EA countries for the period 2015Q4 to 2016Q4))

	Households (including NPISH)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFI	IVF	OFI	IC	PF
	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Transactions	Stocks					
Euro area																	
BE	0.21	0.08	10.18	0.31	1.28	0.24	5.45	3.93	10.54	4.08	4.01	15.03	31.89	0.16	15.90	0.46	0.47
DE	0.03	0.01	0.36	0.08	0.00	0.00	0.36	0.19	0.38	0.08	1.68	0.78	0.32	0.00	0.20	0.08	0.23
EE	0.11	0.06	4.90	0.36	0.25	0.00	1.50	0.34	1.64	0.30	0.35	4.31	1.05	0.02	3.10	0.19	0.00
IE	0.45	0.12	0.77	0.09	0.34	0.04	47.48	2.53	5.10	0.97	2.81	29.78	3.61	7.56	37.88	1.15	1.15
GR	0.04	0.01	5.38	0.37	0.00	0.00	0.79	0.14	0.00	0.00	1.36	9.36	9.26	0.05	1.49	0.01	0.01
ES	0.03	0.04	3.21	0.50	0.00	0.00	1.55	0.26	0.58	0.25	0.51	6.11	6.30	0.00	1.56	0.33	0.07
FR	0.04	0.03	1.96	0.60	0.17	0.04	3.12	0.56	3.08	0.54	0.23	4.52	2.86	3.82	1.04	0.37	0.00
IT	0.07	0.09	5.93	0.31	0.89	0.00	0.86	0.12	0.16	0.02	0.27	2.08	1.73	0.00	0.54	0.18	0.13
CY	1.37	0.16	3.85	1.78	0.37	0.36	2.52	1.21	0.00	0.00	6.34	187.0	4.66	0.04	194.4	0.96	2.62
LV	0.07	0.05	2.17	1.74	0.01	0.01	1.28	1.11	0.62	0.40	0.42	1.47	0.43	0.00	1.09	0.29	0.02
LT	0.03	0.03	3.29	0.45	0.09	0.09	0.91	0.38	0.97	0.34	0.33	0.58	0.14	0.13	0.18	0.36	0.01
LU	2.62	0.38	30.92	0.86	1.42	0.30	11.45	4.65	11.92	1.27	143.21	3,104	4.71	54.22	3,133	6.06	1.08
MT	1.16	0.12	4.62	1.65	1.70	0.58	6.32	0.81	8.55	0.90	3.61	20.30	10.95	7.76	7.30	1.68	0.00
NL	0.27	0.03	2.86	0.07	4.85	0.51	6.27	0.62	2.03	0.17	3.94	14.86	2.05	1.16	19.66	2.29	2.22
AT	0.32	0.02	1.17	0.17	0.05	0.02	1.25	0.36	1.24	0.26	1.50	1.90	0.52	0.05	1.69	0.24	0.04
PT	0.41	0.09	1.86	0.39	0.16	0.07	1.61	0.77	0.92	0.58	0.55	5.75	4.19	0.09	2.51	0.74	0.12
SI	0.05	0.04	0.57	0.23	0.00	0.00	1.08	0.11	0.00	0.00	0.03	0.33	0.00	0.00	0.33	0.00	0.00
SK	0.00	0.00	1.44	0.29	2.13	0.05	0.48	0.81	0.02	0.02	0.79	8.04	5.69	0.00	1.06	1.29	0.00
FI	0.07	0.04	1.08	0.27	1.49	0.36	5.63	1.91	4.32	2.71	0.31	0.86	0.50	0.41	0.44	0.24	0.06
Euro area	0.31	0.02	1.77	0.21	0.35	0.03	1.89	0.27	0.48	0.19	0.78	11.51	4.49	0.97	14.98	1.24	0.08
Median	0.07	0.04	2.86	0.36	0.25	0.04	1.55	0.62	0.97	0.30	0.79	5.75	2.86	0.05	1.56	0.36	0.06
Non-euro area																	
BG	0.27	0.11	4.31	1.07	0.09	0.06	1.69	0.62	0.84	0.11	0.69	3.21	1.79	0.09	0.85	0.68	0.03
CZ	0.07	0.00	1.18	0.16	0.06	0.08	1.12	0.55	0.98	0.44	0.70	0.94	0.82	0.01	0.78	0.01	0.00
DK	0.59	0.10	1.37	1.20	0.21	0.06	1.63	0.45	2.35	0.63	1.26	12.58	0.94	0.42	10.56	1.09	2.47
HR	0.03	0.00	3.24	0.29	0.00	0.00	0.89	0.25	0.73	0.18	0.08	0.64	0.02	0.00	0.09	0.00	0.63
HU	0.06	0.03	2.73	0.12	0.07	0.02	4.49	0.76	4.11	0.22	13.12	15.80	0.42	0.02	15.50	0.02	0.02
PL	0.05	0.09	0.84	0.28	0.22	0.10	0.57	0.29	0.04	0.05	0.52	1.17	1.32	0.02	0.40	0.05	0.03
RO	0.05	0.11	0.86	1.88	0.01	0.00	1.02	0.20	0.52	0.07	0.14	0.22	0.13	0.00	0.26	0.07	0.01
SE	0.03	0.01	6.39	0.35	3.11	0.23	1.56	0.87	0.63	0.53	0.33	1.86	2.06	1.43	2.66	36.31	34.18
UK	0.44	0.22	13.48	0.60	0.94	0.25	7.55	0.77	NA	NA	NA	NA	8.98	NA	NA	NA	NA

NA – no revisions (in case of the United Kingdom data are not available for the October 2017 transmission).

Table 1.3.3

Upward revision ratio for period: 2015Q2 to 2017Q1, in percent

(for non-EA countries for the period 2015Q4 to 2016Q4))

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

NA – no revisions (in case of the United Kingdom data are not available for the October 2016 transmission).

Table 1.3.4

Directional reliability indicator for period: 2015Q2 to 2017Q1, in percent

(for non-EA countries for the period 2015Q4 to 2016Q4))

	Households (including NPISH)				Non-financial corporations						Financial corporations						
	Loans		Total assets		Debt securities		Loans		Intra-NFC loans		Total	Total	MFI	IVF	OFI	IC	PF
	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Transactions	Stocks					
Euro area																	
BE	75	75	75	88	63	88	50	75	25	0	88	63	63	88	38	75	63
DE	88	88	88	88	88	88	63	75	50	75	88	88	75	88	88	88	88
EE	88	50	88	50	50	88	38	75	25	38	88	75	88	88	88	75	88
IE	75	75	75	75	63	75	63	88	38	63	88	75	88	88	63	75	63
GR	88	88	75	75	88	88	75	50	88	88	75	75	75	75	75	88	88
ES	88	88	88	88	88	88	50	63	75	75	75	63	88	88	50	75	63
FR	88	63	88	75	88	88	50	88	75	63	38	38	50	88	75	63	38
IT	88	75	63	88	63	88	75	88	75	88	88	63	75	88	88	75	63
CY	63	63	38	63	38	50	63	63	88	88	75	63	63	88	75	50	38
LV	75	63	75	63	75	88	50	50	50	63	88	75	63	88	75	63	88
LT	88	88	63	75	88	88	75	63	50	75	63	88	88	63	75	75	88
LU	88	50	63	50	88	75	63	38	50	50	75	88	88	88	88	63	75
MT	75	63	75	63	38	63	88	63	63	75	88	63	88	63	88	75	88
NL	75	75	63	75	63	63	50	88	50	75	75	88	88	88	88	50	75
AT	75	88	63	75	88	88	50	75	63	50	63	75	88	88	38	75	63
PT	75	63	50	88	63	50	75	25	50	63	88	75	75	88	50	50	75
SI	88	88	63	75	88	88	75	88	88	88	88	88	88	88	88	88	88
SK	88	88	88	88	25	88	63	63	88	88	38	88	88	88	75	75	88
FI	88	75	75	88	75	88	38	25	63	25	88	88	88	75	63	75	63
Euro area	75	88	88	75	63	75	75	63	50	63	75	88	75	88	88	75	75
Non-euro area																	
BG	75	50	100	75	75	75	100	75	25	100	50	100	100	100	100	50	100
CZ	100	100	100	100	75	50	50	25	75	75	100	100	75	100	100	100	100
DK	75	50	75	25	75	75	50	75	25	50	75	75	100	100	75	75	75
HR	100	100	75	100	100	100	75	100	25	100	100	100	100	100	100	100	75
HU	75	100	100	100	75	100	75	100	25	50	50	100	100	100	75	75	100
PL	75	75	50	50	75	50	75	50	75	100	75	75	75	75	100	75	75
RO	100	75	100	100	100	100	75	50	75	75	75	100	100	100	25	75	100
SE	100	100	75	100	50	75	50	75	50	50	100	100	100	100	75	25	75
UK	75	50	75	50	50	75	75	25	NA	NA	NA	NA	100	NA	NA	NA	NA

Annex 1.4
Vertical discrepancies, four quarter cumulative vertical discrepancies

Table 1.4.1

	EUR millions*				As a percentage of GDP			
	2016Q3	2016Q4	2017Q1	2017Q2	2016Q3	2016Q4	2017Q1	2017Q2
Households Euro Area								
BE	-5,096	-5,413	-2,337	5,223	-1%	-1%	-1%	1%
DE	0	0	0	0	0%	0%	0%	0%
IE	-10,570	-9,584	-12,429	-12,738	-4%	-3%	-5%	-5%
GR	-13,113	-15,001	-14,327	-13,065	-8%	-9%	-8%	-8%
ES	-7,239	-7,400	-24,143	-13,489	-1%	-1%	-2%	-1%
FR	3,657	-1,376	15,238	36,854	0%	0%	1%	2%
IT	-10,357	-1,662	4,566	8,163	-1%	0%	0%	0%
NL	3,811	-2,278	-4,046	-8,452	1%	0%	-1%	-1%
AT	-3,974	615	-329	-709	-1%	0%	0%	0%
PT	0	0	0	0	0%	0%	0%	0%
SI	1,154	1,112	907	1,565	3%	3%	2%	4%
FI	-497	-3,657	-4,610	-5,717	0%	-2%	-2%	-3%
EA	-21,288	-3,954	13,591	35,377	0%	0%	0%	0%
Households Non-Euro Area								
CZ	-88,743	-96,218	-113,356	-128,086	-2%	-2%	-2%	-3%
DK	0	0	0	0	0%	0%	0%	0%
HR	18,680	11,865	8,840	4,304	5%	3%	3%	1%
PL	-103,547	-112,413	-124,768	-89,308	-6%	-6%	-7%	-5%
RO	72,894	28,796	15,647	-2,066	10%	4%	2%	0%
SE	115,377	157,970	142,840	161,253	3%	4%	3%	4%
UK	-64,236	-59,995	-59,621	-61,075	-3%	-3%	-3%	-3%
Non-financial corporations Euro Area								
BE	-1,902	3,695	606	-3,341	0%	1%	0%	-1%
DE	103,235	116,349	22,532	-8,389	3%	4%	1%	0%
IE	-2,612	17,335	18,052	29,610	-1%	6%	7%	11%
GR	16,397	11,469	10,047	10,392	9%	7%	6%	6%
ES	7,239	7,400	24,143	13,489	1%	1%	2%	1%
FR	13,622	1,605	-13,385	-63,841	1%	0%	-1%	-3%
IT	-19,627	-8,306	-9,446	19,020	-1%	0%	-1%	1%
NL	1,280	3,499	4,759	8,261	0%	0%	1%	1%
AT	-4,045	-2,719	605	-908	-1%	-1%	0%	0%
PT	-1,167	-1,356	-1,110	-905	-1%	-1%	-1%	0%
SI	495	324	236	-148	1%	1%	1%	0%
FI	2,018	2,620	5,087	9,443	1%	1%	2%	4%
EA	21,509	4,316	-13,648	-35,467	0%	0%	0%	0%

	EUR millions*				As a percentage of GDP			
	2016Q3	2016Q4	2017Q1	2017Q2	2016Q3	2016Q4	2017Q1	2017Q2
Non-financial corporations Non-Euro Area								
CZ	-151,604	-437,156	-132,878	-97,625	-3%	-9%	-3%	-2%
DK	2	-2	-2	0	0%	0%	0%	0%
HR	-13,691	-1,966	14,159	20,329	-4%	-1%	4%	6%
PL	155,131	152,036	144,173	98,685	8%	8%	8%	5%
RO	-101,271	-53,583	-43,419	-19,900	-13%	-7%	-6%	-3%
SE	-58,813	-227,643	-40,611	-126,329	-1%	-5%	-1%	-3%
UK	65,009	64,746	58,960	38,766	3%	3%	3%	2%
Financial corporations Euro Area								
BE	7,227	5,024	3,823	-882	2%	1%	1%	0%
DE	4	1	3	0	0%	0%	0%	0%
IE	11,817	-15,639	-27,230	-30,991	4%	-6%	-10%	-11%
GR	8,937	6,584	4,395	5,371	5%	4%	3%	3%
ES	0	0	0	0	0%	0%	0%	0%
FR	17,658	311	15,579	-16,225	1%	0%	1%	-1%
IT	12,478	-5,079	-16,224	-35,397	1%	0%	-1%	-2%
NL	0	0	0	0	0%	0%	0%	0%
AT	5,224	-681	1,769	-385	1%	0%	1%	0%
PT	84	36	-95	-65	0%	0%	0%	0%
SI	-299	-459	-443	-410	-1%	-1%	-1%	-1%
FI	-3,287	-1,155	-200	877	-2%	-1%	0%	0%
EA	0	0	0	0	0%	0%	0%	0%
Financial corporations Non-Euro Area								
CZ	-20,684	186,089	-16,869	63,865	0%	4%	0%	1%
DK	0	1	1	0	0%	0%	0%	0%
HR	1,214	2,168	-3,470	-7,665	0%	1%	-1%	-2%
PL	10,645	10,931	22,668	8,594	1%	1%	1%	0%
RO	36,598	38,707	31,482	22,473	5%	5%	4%	3%
SE	151,110	221,611	46,961	23,917	3%	5%	1%	1%
UK	24,472	27,962	31,613	26,539	1%	1%	2%	1%

*For non-euro area countries the results are shown in the national currency.

Annex 1.5
Comparison with MFI balance sheet data (BSI) and securities issues statistics (SEC), in percent

Table 1.5.1

	External Comparison					
	MFI loans to NFCs and HHs: FA - BSI statistics 2016		NFC debt securities: FA - SEC statistics 2016			
	Stocks	Transactions*	Stocks		Transactions*	
	% difference (QFA-BSI)/QFA		% difference (QFA-SEC)/QFA	difference as % of GDP	% difference (QFA-SEC)/QFA	difference as % of GDP
Euro area						
BE	1.10	-0.22	15.41	2.42	0.15	0.02
DE	-2.28	-0.66	14.09	0.82	-0.03	0.00
EE	-1.12	-0.54	2.05	0.14	0.06	0.00
IE	-0.05	1.52	20.20	1.53	38.48	2.91
GR	0.71	-0.03	-2045.56	-1.33	-185.29	-0.12
ES	0.01	0.34	1.66	0.05	-0.07	0.00
FR	0.35	-0.04	7.85	2.26	-0.19	-0.06
IT	0.01	0.02	14.86	1.28	-0.13	-0.01
CY	0.62	0.19	-36500.00	-2.01	-111310.00	-6.14
LV	-0.41	-0.23	2.81	0.03	3.44	0.03
LT	0.00	-0.11	93.24	0.3	15.10	0.06
LU	0.00	-0.08	-3.74	-1.54	13.53	5.59
MT	0.52	-2.22	11.39	0.79	14.72	1.03
NL	-1.43	0.23	-44.32	-6.02	-5.02	-0.68
AT	4.68	-0.19	10.30	1.32	0.37	0.05
PT	0.21	0.15	-0.13	-0.02	0.05	0.01
SI	0.22	0.01	3.05	0.07	-0.64	-0.02
SK	0.49	0.28	42.02	3.31	3.77	0.30
FI	0.45	1.54	10.35	1.59	7.98	1.23
Non-Euro area						
CZ	-0.24	.	-5.63	-0.39	.	.
DK	1.06	.	9.63	0.94	.	.
HR	0.64	.	-18.77	-0.90	.	.
HU	0.52	.	13.03	0.28	.	.
PL	0.64	.	24.52	1.83	.	.
RO	1.43	.	27.04	0.02	.	.
SE	0.10	.	3.55	0.76	.	.
UK	NA	.	-0.97	-0.20	.	.

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

Annex 2
Methodological documentation of revision indicators

Descriptive measures

Upward revision ratio

The upward revision ratio is the ratio between the number of upward revisions and the number of observations considered (N) – total number of revisions over time and across vintages, excluding zero values.

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

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

Directional reliability indicator

To assess whether the information on the sign of the changes over time as contained in the earlier assessments has been systematically altered by revisions, a 2 by 2 contingency table can be set up. In this table, the columns consist of positive and negative first difference 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 assessment:

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

Table 2.1
Contingency table for directional realiability

	$\Delta x_t^I > 0$	$\Delta x_t^I \leq 0$	**Subtotal**
$\Delta x_t^L > 0$	n11	n12	n11 + n12
$\Delta x_t^L \leq 0$	n21	n22	n21 + n22
Subtotal	**n1 1+ n21**	**n12 + n22**	**N**

Sources & Notes

The directional reliability indicator (Q) is defined as:

$$\text{Q} = \frac{\text{n}_{11} + \text{n}_{22}}{\text{N}}\ (\%)$$

This indicator (Q) expresses the percentage of cases in which earlier and later assessments move in the same direction. It is equal to 1 (100%) if the changes following the first and the final assessment always have the same sign, while it is equal to 0 if that is never the case. High values of this indicator are optimal in terms of confirming the reliability of the data.

Size measures

Mean absolute percentage error (MAPE)

For strictly positive data, the relative measure of revisions equals the percentage change over the initial assessment:

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

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

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

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

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

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

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

The second has an advantage over the first one – if a single data point of the denominator is close to zero, the indicator calculated as an average of ratios will be artificially magnified, which is not necessarily the case with the second one. MAPE calculated as the ratio of averages is preferred over the first version.

To overcome the fact that transactions can be both positive and negative and therefore not useable in the denominator, MAPE for transactions is calculated as a percentage of the underlying stocks. If calculated in that way, the resulting indicator is usually called a mean absolute comparative error (MACE), as revisions in series containing observations with different signs or close to zero cannot be properly related to the series value itself but to the alternative measure as outstanding amounts or GDP.

Symmetric mean absolute percentage error (SMAPE)

MAPE is an asymmetric indicator; if revisions are on average positive, MAPE would be lower than if those revisions are on average negative. In the case of the denominator being identified in terms of the latest assessments, the results would be the opposite. SMAPE fixes the issues of asymmetry and it is bounded between 0 and 1 (100%), while MAPE is not bounded on the upper side. In other words, SMAPE gives relevance to the initial observation while MAPE does not.

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

As with MAPE, this indicator for transactions is again calculated as a percentage of underlying stocks which is again usually referred to as a MACE.

Additional notes:

Whenever the GDP is used, it is the latest value available (in this case 2016).

For revisions, all figures are calculated as the difference between the data from the October 2017 and the October 2016 transmissions.

For the rest of the tables and charts, unless specified otherwise, the figures are calculated using the data from the October 2017 transmission.

Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.ecb.europa.eu

For terminology and abbreviations, please refer to the ECB glossary

PDF	ISBN 978-92-899-3396-4,	ISSN 2363-0191 (pdf),	doi:10.2866/30798	QB-AV-18-001-EN-N
HTML	ISBN 978-92-899-3397-1	ISSN 2363-0191 (html),	doi:10.2866/71616	QB-AV-18-001-EN-Q