



EUROPEAN CENTRAL BANK

EUROSYSTEM

Euro area and national quarterly financial accounts

Quality report 2020

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Executive summary

This report reviews the quality of the quarterly euro area and national financial accounts.¹ It fulfils the formal requirement for the Executive Board of the European Central Bank (ECB) to inform the Governing Council of the ECB regarding the quality of those statistics, as set out in Article 7(2) of Guideline ECB/2013/24² (hereinafter “the ECB Guideline”). Furthermore, this report also provides information supporting the data quality assurance process for the macroeconomic imbalance procedure (MIP), as laid down in the “[Memorandum of Understanding between Eurostat and the European Central Bank/Directorate General Statistics on the quality assurance of statistics underlying the Macroeconomic Imbalance Procedure](#)” (hereinafter “the MoU”).

The main principles and elements guiding the production of ECB statistics are set out in the ECB’s Statistics Quality Framework and quality assurance procedures, which are published on the ECB’s website. This report provides analysis of the relevant statistical output, looking at: (i) methodological soundness; (ii) timeliness; (iii) reliability and stability; (iv) internal consistency (completeness and compliance with validation rules); and (v) external consistency with four other comparable statistical domains – quarterly non-financial sector accounts, balance of payments (b.o.p.) and international investment position (i.i.p.) statistics, monetary financial institution (MFI) balance sheet items, and securities issues statistics.

The descriptive and quantitative indicators that are used in this report are based on quarterly data produced in accordance with the European System of Accounts (ESA 2010). They include all data and revisions published up to 29 October 2020. Supporting information and details of how the indicators are computed can be found in Annexes 1 and 2 respectively.

The coronavirus (COVID-19) pandemic has created new challenges for compilers of financial accounts, and Box 1 provides an overview of those issues.

Given the specific requirements relating to the MIP and the ECB’s responsibilities in the context of the MoU, Box 2 at the end of the report presents a number of indicators relating to the fitness for purpose of data for all EU countries. That box draws on data up to end-2019, as transmitted in October 2020, and focuses on data availability, revisions, and the sources and methods that are relevant for the financial accounts data underlying MIP indicators.

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](#), which were published in April 2008, build on that public commitment by the European System of Central Banks (ESCB).

² [Guideline 2014/3/EU of the European Central Bank of 25 July 2013 on the statistical reporting requirements of the European Central Bank in the field of quarterly financial accounts \(recast\) \(ECB/2013/24\)](#) (OJ L 2, 7.1.2014, p. 34).

Statistical developments between 2019 and 2020

All euro area countries transmitted all mandatory data to the ECB, and those data were generally timely and consistent. Countries provided selected (“supplementary”) quarterly data at t+85 and full national financial accounts data and metadata at t+97, as required by the ECB Guideline. Voluntary transmission of metadata by countries that do not usually exceed the thresholds set by the ECB Guideline is encouraged and was seen in several cases. Voluntary transmission of metadata is also encouraged for the supplementary data at t+85.

In terms of methodological soundness, the national financial accounts are generally consistent with the requirements and conceptual framework set out in ESA 2010. However, financial accounts data are derived statistics that are based on a wide range of data sources, and those sources 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 that the accounts are complete. Financial accounts data are, therefore, not necessarily the same as other datasets, and differences must be monitored and explained to users. The ECB encourages colleagues working on financial accounts to interact with their counterparts in order to reduce structural discrepancies and/or reconcile differences between the various datasets.

The methodological differences between the financial accounts and b.o.p./i.i.p. statistics were removed with the introduction of ESA 2010 and the sixth edition of the International Monetary Fund’s Balance of Payments and International Investment Position Manual (BPM6). It is critical that all countries follow the agreed steps to ensure full consistency with b.o.p./i.i.p. statistics. Since April 2020, full consistency between the two sets of statistics have been achieved for euro area financial transactions in recent years.

Within the ESCB, the Working Group on Financial Accounts and Government Finance Statistics (WG FGS³), the Working Group on External Statistics (WG ES) and other sub-structures of the Statistics Committee (STC) (such as the Working Group on Monetary and Financial Statistics (WG MFS) are working closely together on the following common issues:

- securities held with non-resident custodians that are not covered by national securities holdings statistics (with national compilers working to close that gap, particularly by using third-party holdings);⁴
- coverage of the other financial institution (OFI) sector (particularly the timely coverage of special-purpose entities (SPEs)), given the lack of primary statistics in that area (with several countries making significant efforts to close existing data gaps);

³ The WG FGS was established in October 2020 by merging the Working Group on Financial Accounts (WG FA) with the Working Group on Government Finance Statistics (WG GFS). For all periods prior to October 2020, this report uses the term “WG FA”.

⁴ In the context of ECB statistics on securities holdings by sector (SHSS), non-resident custodians are defined as custodians resident in other euro area countries.

- coverage of financial derivatives across all sectors, given the lack of timely and comprehensive data sources and information on counterpart sectors (with all countries drawing up action plans in order to address data quality issues).

In addition to the collaborative work detailed above, the WG ES and the WG FGS established a joint expert group working on the valuation of unlisted shares and other equity in January 2020.

Vertical consistency – i.e. consistency with non-financial sector accounts – is another area with scope for improvement, requiring cooperation between compilers of financial and non-financial accounts. Germany, Ireland, Greece and Finland have particularly large vertical discrepancies relative to GDP.

The COVID-19 pandemic caused challenges for the timely and reliable compilation of quarterly financial accounts in 2020. Box 1 provides a summary of its impact on the availability and quality of data and the various methodological challenges.

As in previous reports, known methodological issues and coverage gaps in the financial accounts of euro area countries are shown in Table 1. That information is based on the regular validation of data in the quarterly production rounds, discussions in the WG FGS and the WG ES, and the CMFB “level 3” quality reports (which detail national compilers’ assessment of their own sources and methods).

Table 1
Notable issues and scope for improvement (for euro area countries)

| Concept | Ref. | Description of recommendation | Applicable countries/national central banks (NCBs) |
|--|------------------------------|---|---|
| Methodological description and statistical procedures (Section 2) | | | |
| Securities held with non-resident custodians and other foreign assets (incl. deposits and real estate), particularly for households | A1 | Improve the estimation models for assets held abroad by residents, particularly for the household sector, in cooperation with the WG ES | All countries |
| | A1.1 | Securities: integrate third-party holdings from the securities holdings statistics (SHS), particularly for households | Ireland, Greece, Latvia, Malta, Netherlands, Austria, Portugal, Slovakia, Finland |
| | A1.2 | Deposits with non-euro area banks: integrate available mirror data provided by the Bank for International Settlements (BIS) | Germany, Estonia, Ireland, Greece, Latvia, Malta, Netherlands, Slovakia, Finland |
| Coverage of OFIs | A2.1 | Further improve coverage of OFIs | Germany Netherlands |
| | A2.2 | Improve quarterly data sources for OFIs | Germany Italy Portugal France (S.127 only) Malta (S.127 only) Slovakia (S.127 only) |
| | A2.2.1 | Further reduce the remaining coverage gap for quarterly OFI data | Luxembourg (S.127 only) |
| | Financial derivatives | A3 | Draw up national action plans with a view to enhancing data sources and procedures to record financial derivatives in all sectors |
| | A3.1 | Implement national action plans | All countries |
| Unlisted shares and other equity | A4 | Enhance data sources and procedures to record unlisted shares and other equity | Several countries – guidance to be developed by the joint WG ES/FGS expert group |
| Intra-non-financial corporation (NFC) loans and trade credits | A5.1 | Enhance data sources and procedures to ensure comprehensive coverage | Cyprus |
| | A5.2 | Enhance timeliness of data sources and procedures to reduce revisions | Cyprus Malta |
| Sectoral classification | A6 | Ensure comparable classification of OFIs, particularly holding companies versus head offices | Several countries – further guidance being developed by ESCB network of statistical experts on captive financial institutions |
| Availability of data and metadata (Section 4) | | | |
| Accessibility of data | C1.1 | Increase quality of pre-2002 backdata and pre-2019 counterpart sector data for securities to allow publication | Ireland |
| | C1.2 | Increase public availability of data | Ireland |
| Metadata | C2 | The sending of voluntary metadata by countries which – owing to their size – do not usually exceed the thresholds set by the ECB Guideline is encouraged. Voluntary transmission of metadata is also encouraged for the supplementary data. | All countries |
| Accuracy and reliability (Section 5) | | | |
| Revisions | D1 | Monitor revisions to data and the sources of revisions, and take action as needed | All countries |
| Internal consistency (Section 6) | | | |
| Aggregation consistency | E1 | Establish full consistency of sector and instrument aggregation | Ireland |
| Negative stocks | E2 | Ensure that values for deposits/loans (balance sheets) are non-negative for all who-to-whom details | Germany (loans) Ireland (deposits and loans) |

| | | | |
|---|----|--|---|
| | E3 | Review the recording of negative stocks of liabilities for other equity | Netherlands (loans) Estonia |
| Consistency with non-financial sector accounts (Section 7.1) | | | |
| Vertical discrepancies | F1 | Address reasons for vertical discrepancies which are large in relation to GDP | Germany (NFCs) Ireland (financial corporations) Greece (households, NFCs, financial corporations) Finland (households, NFCs) |
| | F2 | Contribute to the development of more comparable practices for vertical reconciliation of accounts | All countries |
| External consistency with balance of payments (Section 7.2) | | | |
| Consistency between b.o.p./i.i.p. data and rest of the world financial accounts data | G1 | Address, as soon as possible, the pending discrepancies as agreed in the context of the STC work programme | Germany, Greece, France, Italy, Malta, Portugal, Slovenia, Slovakia, Finland (see Charts 5 and 6 for more details) |

Statistical issues affecting MIP indicators

The ECB, in collaboration with Eurostat, has continued to monitor specific aspects of the quality of statistical output, as required under the MoU, covering both euro area countries and other EU countries. Given that the financial accounts are an integrated statistical accounting framework, most of the issues mentioned in the report are also relevant in terms of assessing the quality of data for MIP purposes. Furthermore, there are certain issues which directly affect MIP data. In particular, items A5 and A6 are important for private sector debt and credit flows, while items A2, A3, A4, A6 and G1 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 coverage of financial sector liabilities (particularly for SPEs (and OFIs in general), for which there are usually no timely and comprehensive source statistics available). Assessing and, where necessary, improving the quality of data on OFIs is a priority in the context of work on financial accounts. There are issues in many EU countries in relation to the coverage and quality of statistics on OFIs, despite recent improvements as part of the benchmark revisions made in 2019 (and in the years before in some countries where those entities are particularly significant). Germany, the Netherlands and Poland should improve cross-checking with business registers or use of other methods to ensure full coverage. And in Croatia and Sweden, it is difficult to determine the degree of coverage for particular OFI sub-sectors, groups of entities or instruments on the basis of existing data sources, which indicates that the source data require specific improvements.

In most countries, quarterly and annual financial accounts are fully consistent (see Table A.1.2.2 in Annex 1). Vintage differences may occur, as not all countries update

their annual data on a quarterly basis. Countries are encouraged to ensure that quarterly and annual data are consistent, particularly for data vintages that are used for MIP purposes in October of each year. Levels of consistency improved significantly in 2020, but minor differences persist in Ireland and Slovakia.

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

Last but not least, analysis shows that discrepancies between b.o.p./i.i.p. statistics and sectoral financial accounts persist for several countries. This negatively affects the analytical combination of the two datasets and signals a lack of reliability or adequacy in the methodology of at least one of the two sets of statistics. Compared with the previous quality report, the situation has improved slightly for financial transactions, but not for positions.

For more information on the assessment of data quality for MIP purposes, see Box 2.

1 Introduction

This report reviews the quality of the quarterly euro area and national financial accounts. It fulfils the formal requirement obliging the Executive Board to inform the Governing Council regarding the quality of those statistics, as set out in Article 7(2) of the ECB Guideline. Furthermore, this report also provides information supporting the data quality assurance process for MIP, as laid down in the MoU. The report follows the recommendations adopted by the CMFB with regard to the harmonisation of the “level 2” quality report for b.o.p./i.i.p. statistics.⁵

The report focuses mainly on national data for the 19 euro area countries, as well as euro area aggregates. Data for all EU Member States (the EU27) are commented on in Box 2 at the end of the report and are available in the annexed tables.

Until now, this report has been produced on an annual basis. From now on, however, it will be produced every two years.⁶ Thus, the next report will be released in spring 2023.

1.1 Scope of data coverage and structure of the report

This report analyses a number of aspects of data quality, including: (i) methodological issues caused by national compilers diverging from statistical standards or needing to enhance statistical procedures; (ii) NCBs’ compliance with their obligation to transmit data to the ECB in terms of timeliness and coverage; (iii) the reliability of statistical data; (iv) the internal consistency of statistics; and (v) external consistency with other statistical domains/datasets (i.e. with non-financial sector accounts and b.o.p. statistics) and related financial statistics (i.e. MFI balance sheet statistics and securities issues statistics).

The analysis focuses on the quarterly financial accounts data that were transmitted and published in 2020. The report is based on data available as at 29 October 2020, with the main body of the report looking only at data for the 19 countries of the euro area.

The COVID-19 pandemic has affected both the compilation of the quarterly financial accounts and the resulting data. Box 1 provides a summary of the impact on the availability and quality of data in 2020 and the various methodological issues affecting 2020 statistics.

Given the specificities of the MIP process, Box 2 at the end of the report presents a number of indicators looking at the fitness for purpose of data for all EU Member States. That box draws on data up to end-2019 as transmitted in October 2020 and

⁵ The CMFB proposed that harmonisation be extended to the financial accounts.

⁶ See the amendment to the frequency of quality reviews in [Guideline \(EU\) 2020/1553 of the European Central Bank of 14 October 2020 amending Guideline ECB/2013/24 on the statistical reporting requirements of the European Central Bank in the field of quarterly financial accounts \(ECB/2020/51\)](#).

focuses on (i) data availability, (ii) revisions, (iii) consistency with non-financial sector accounts, and (iv) sources and methods for financial accounts data underlying the MIP indicators (i.e. MIP-relevant aspects of quality). All indicators presented in Box 2 relate to national GDP or outstanding amounts and are intended to facilitate the analysis of MIP scoreboard indicators.

Box 1

Impact of the COVID-19 pandemic on the quarterly financial accounts

The onset of the COVID-19 pandemic in 2020 made collecting complete and timely source data more challenging as a result of the various measures that were adopted in order to tackle the virus (e.g. the various restrictions and lockdowns that were implemented in many countries). However, mitigation measures were put in place for official statistics,⁷ making it possible to produce reliable and comparable data. The ECB and Eurostat have monitored the situation closely, assessing the impact that the COVID-19 pandemic has had on statistical systems, in cooperation with the NCBs and national statistical institutes (NSIs). Information has been collected from data compilers on potential disruption to compilation processes and the steps taken to overcome it. Furthermore, several methodological notes have been published by the ECB⁸ and Eurostat,⁹ some of which are also relevant to quarterly financial accounts (QFA).

Availability and quality of QFA input data

NCBs (and, where relevant, NSIs) have confirmed that national data collection and statistical production systems proved to be both resilient and flexible in 2020. This allowed them to compile national QFA data for 2020 and send them to the ECB on time, maintaining high quality standards.

The main building blocks required to compile the euro area QFA (MFI balance sheets, data on issuance and holdings of securities, and insurance corporation statistics) were made available, compiled and published on time. Only in the case of pension fund statistics did the COVID-19 situation entail the postponement of remittance dates for reporting agents, which affected the first QFA compilation round for the first quarter of 2020. Some compilation challenges were observed for b.o.p. statistics, as explained in a [note](#) released with the monthly b.o.p. data for March 2020, but the impact was limited. Overall, the availability and quality of input data was such that high-quality QFA data could still be produced.

Methodological issues

Euro area governments used a wide range of national policy measures to mitigate the economic impact of COVID-19 in 2020, raising the question of how best to record those measures in government finance statistics and the statistics of sectors benefiting from government support programmes (particularly households and corporations). While methodological considerations are more pronounced in the non-financial accounts, they also have an indirect effect on financial accounts, since the two are integrated.

⁷ These included the upgrading of technical infrastructure and systems, the reviewing of alternative data sources and models, and remote working.

⁸ For example, the ECB published a [note detailing the impact that COVID-19 had had on the quarterly financial accounts](#).

⁹ See Eurostat's website for details of [guidelines and methodological notes relating to the COVID-19 crisis](#).

For example, several countries implemented temporary moratoria on loans, providing relief to households and corporations. Those measures varied in nature, affecting repayments of principal, interest payments or both. The recording of deferred and waived interest payments in national accounts was clarified by Eurostat in a [methodological note](#).

Another challenging issue relates to the estimation of missing infra-annual data (e.g. elements of corporate balance sheets (such as trade credits and other accounts payable) which are available with a substantial lag on an annual basis). While national compilers generally employ well-established estimation models as a routine component of quarterly statistical production, these may have yielded less reliable results given the exceptional economic developments in the first few quarters of 2020. Accordingly, a review of the models and methods used may be necessary. A full assessment will only be possible once more complete data have been reported in the coming quarters.

In addition, estimating the market value of unlisted shares and other equity is also particularly challenging in the current atypical economic situation, given that market prices for these instruments are not usually directly observable. In some countries, estimates are based on annual data sources available with a substantial time lag, and in others it is assumed that changes in the value of unlisted companies are related to those seen for similar listed companies. In the case of the latter, that relationship is based on long-term trends, so the resulting values may not accurately reflect short-term movements in financial markets. All in all, 2020 data on unlisted shares and other equity are subject to greater uncertainty.

Possible revisions to data in forthcoming quarters

Despite the robustness of the data sources and compilation methods that were employed in the QFA production process, more substantial revisions may be seen for 2020 data (particularly for the first two quarters), since: (i) more substantial revisions are expected for some source data, which may well affect certain sectors or instruments; (ii) the recently introduced government support programmes are difficult to record from a statistical perspective, as they are very broad in scope and size and are relatively complicated from the point of view of statistical methodology; (iii) the release of annual corporate balance sheet data and other low-frequency data for 2020 may make it necessary to re-estimate infra-annual data, potentially leading to more substantial revisions than usual, as the models that are normally used to derive quarterly data from lower-frequency data may yield less reliable estimates during the pandemic; and (iv) revisions to input data may affect the balancing of accounts and lead to further revisions for other instruments or sectors.

2 Methodological soundness and statistical procedures

The national financial accounts are generally consistent with the requirements and conceptual framework set out in ESA 2010. However, financial accounts data are derived statistics that are based on a wide range of data sources, and those sources are not necessarily complete or sufficient in terms of conceptual requirements. In such cases, source data are supplemented with estimations or residual calculations in order to ensure the accounts are complete. An overview of the known methodological issues and coverage gaps is provided in Table 1 in the executive summary. That information is based on the regular validation of data in the quarterly production rounds, discussions in the WG FGS, and the CMFB “level 3” quality reports (which detail national compilers’ assessment of their own national sources and methods).

This section describes various issues affecting large numbers of countries (and in some cases, all countries).

2.1 Assets held abroad

In 2020, the WG FA, in cooperation with the WG ES, continued its work on estimating the value of household assets held abroad, reaching broad agreement on a recommendation regarding the further development and use of data sources. Deposits held with non-resident banks, securities held with non-resident custodians and real estate owned in other countries were identified as the main issues.

For complete coverage of deposits held by households with non-resident banks, balance sheet statistics from other euro area countries and the BIS’s locational banking statistics are both valuable sources of information. Consequently, NCBs are encouraged (i) to report the breakdown vis-à-vis households by counterpart country to the BIS, and (ii) to gather available mirror data (as reported by other NCBs) for their country and incorporate that information into their national data where appropriate. This has not yet been implemented in Germany, Estonia, Ireland, Greece, Latvia, Malta, the Netherlands, Slovakia or Finland.

For securities held with non-resident custodians, national SHS data should be supplemented with data on residents’ securities held with custodians in other euro area countries and non-euro area countries. Holdings with custodians in other euro area countries can be obtained from the third-party holdings in the euro area SHS data and are increasingly being integrated into the national data of euro area countries. Ireland, Greece, Latvia, Malta, the Netherlands, Austria, Portugal, Slovakia and Finland have not yet integrated those third-party holdings into data for the household sector.

The BoP statistics were revised to cover the non-resident holdings of residences in Malta in the benchmark revisions in September 2020. The values of Maltese residents

owning residences abroad was deemed negligible as per Census 2011 and was not revised.

2.2 Coverage of other financial institutions

Owing to the heterogeneity of OFIs, most parts of the OFI sector are not covered by euro area-wide statistical reporting requirements under ECB regulations. The WG FA has continued to share information on ways of ensuring the comprehensive and timely coverage of OFIs. While most countries have developed national surveys and other data sources (albeit to varying degrees), it remains a challenge to ensure that data for the OFI sector have full coverage and are of high quality. A special questionnaire was administered by the WG FA in 2018 to gather information on the quality of the financial accounts for OFIs, and NCBs provided updates on their sources and methods in the 2020 CMFB “level 3” quality reports. Following a joint survey carried out by the WG MFS, the WG FA and the WG ES with a view to exploring data sources for the largest sub-sector – captive financial institutions and money lenders (S.127) – a network of statistical experts on captive financial institutions was established in October 2020 with a mandate to propose ways of improving the availability of data.

It is important to identify the complete population of existing entities in a country in order to report comprehensive data for OFIs. This may be done using the information in business registers (which means that those registers need to be complete and accessible by statistical compilers), or it may involve the use of other comprehensive databases (e.g. balance sheet databases). Germany should improve cross-checking with business registers or use of other methods to ensure full coverage. Luxembourg, meanwhile, has improved its coverage of captive financial institutions (S.127) to around 90% and is working on other ways of enhancing its coverage ratio. The Netherlands already has a high degree of coverage, and work is ongoing with a view to achieving full coverage.

Another common issue is the availability of timely quarterly data sources for OFIs that are suitable for compiling financial accounts. Direct data sources are needed for instruments not covered by counterpart sector information (e.g. unlisted shares and loans). With that in mind, Germany, Italy and Portugal are encouraged to improve their quarterly direct data sources. The same applies to France (financial auxiliaries (S.126) and captive financial institutions (S.127) only), Malta (S.127 only) and Slovakia (S.127 only).

Where quarterly data coverage is not complete for specific OFI sub-sectors, groups of entities or instruments, full coverage may be achieved by estimating or grossing-up the missing data using information obtained from existing annual data sources.

2.3 Financial derivatives

It is particularly difficult to achieve full coverage of financial derivatives for sectors that are not covered by direct statistical reporting requirements (i.e. the private sector and

large parts of the OFI sector), as these are not generally covered by custodian statistics. Consequently, compilers of financial accounts generally rely on counterpart sector information, which may not provide sufficient information. In October 2018 a joint WG FA-WG ES Task Force on Financial Derivatives was formed, and in October 2020 that task force produced a report providing guidance on the compilation of data on financial derivatives in macroeconomic statistics. The STC approved the task force's recommendation that countries should draw up national action plans with a view to improving data sources and compilation methods by end-2021 and implement them on a step-by-step basis. Non-structural adjustments (reviews of data collection and compilation practices without a major structural impact) should be implemented in the near future (by September 2022), whereas structural adjustments (e.g. changes to major data sources) should ideally be implemented with the next benchmark revision (in 2024).

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 owned corporations or quasi-corporations. Even if corporate balance sheet data are available, it is difficult to value unlisted shares and other equity in the absence of comparable corporations issuing listed shares. In 2019 the WG FA undertook a stocktaking exercise and prioritised work streams on (i) data sources, (ii) the estimation of market values, (iii) the derivation of transactions and other changes, and (iv) the distinction between unlisted shares and other equity. That work is being continued by a joint WG FGS and WG ES expert group, which will produce recommendations on the recording of unlisted shares and other equity in the course of 2021.

2.5 Intra-NFC loans and trade credits

Most countries lack a comprehensive and timely quarterly data source for loans and trade credits between resident 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 on comprehensive coverage of intra-NFC loans in 2011-12. Several countries do not have a fully comprehensive direct data source or access to business registers facilitating the grossing-up procedures needed to achieve full coverage of intra-NFC loans. Cyprus should improve cross-checking with business registers or the use of other methods to ensure full coverage. Another common issue is the availability of timely quarterly data, with Cyprus and Malta being encouraged to improve their timely direct data sources and procedures in order to reduce the revisions that are needed when comprehensive data become available.

2.6 Sectoral classification of OFIs, particularly holding companies versus head offices

ESA 2010 introduced a change to the sectoral classification of holding companies and head offices, which also affects the sectoral delineation of the financial and non-financial corporation sector. The WG FA agreed that in the context of the breakdown of OFIs by ESA sector, proposed as part of the medium-term strategy for financial accounts, further guidance was needed to ensure the harmonised recording of holding companies and other captive financial institutions. Operational guidance on holding companies, other captive financial institutions and SPEs will be provided by the ESCB's network of statistical experts on captive financial institutions (see also Section 2.2).

3 Timeliness and punctuality

The ECB Guideline requires (i) transmission of a subset of supplementary financial accounts data at t+85 to enable compilation of an integrated set of quarterly euro area financial and non-financial accounts, and (ii) transmission of the full set of national financial accounts data at t+97.

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

Table 2 shows the dates for the transmission and publication of financial accounts data. National data are released by the ECB at t+108. NCBs follow their own release policies.

Table 2

Transmission and release dates in 2019 and 2020 for euro area aggregates and country data

| Reference quarter | Transmission of supplementary financial accounts data (t+85) | Early release of euro area data with complete data on households and NFCs | Calendar days after reference quarter | Transmission of national financial accounts data (t+97) | Release of national financial accounts (t+108) | Calendar days after reference quarter | Full release of euro area data | Calendar days after reference quarter |
|-------------------|--|---|---------------------------------------|---|--|---------------------------------------|--------------------------------|---------------------------------------|
| Q3 2019 | 24 Dec. (2019) | 14 Jan. | 106 | 5 Jan. | 16 Jan. | 108 | 28 Jan. | 120 |
| Q4 2019 | 25 March | 7 April | 98 | 6 April | 14 April* | 105 | 29 April | 120 |
| Q1 2020 | 24 June | 3 July | 94 | 6 July | 13 July | 106 | 28 July | 119 |
| Q2 2020 | 23 Sept. | 2 Oct. | 94 | 5 Oct. | 12 Oct.* | 106 | 29 Oct. | 121 |

Source: ECB.

* Excluding the general government sector.

4 Availability of data and metadata

4.1 Completeness

All data transmissions were complete and carried out in accordance with the deadlines specified in the ECB Guideline.

All countries regularly delivered metadata on revisions and major events governed by the ECB Guideline at t+97. The voluntary transmission of metadata by countries which do not usually exceed the thresholds set by the ECB Guideline is encouraged. Voluntary transmission of metadata is also encouraged for the supplementary data at t+85. Less than half of all countries currently provide such metadata.

4.2 Accessibility

“Accessibility” refers to the conditions under which users can obtain, use and interpret data. This is ultimately a measure of how straightforward it is to access data and the extent to which confidentiality constraints prevent certain data from being shared.

The ECB publishes euro area aggregates for transactions and outstanding amounts, as well as revaluations for all euro area aggregates. Details of counterpart sectors are published for transactions in and outstanding amounts of deposits, loans, debt securities, listed shares and investment fund shares. Revaluations are published for listed shares and debt securities held by the main resident sectors.

The ECB also publishes the national data made available by NCBs. This includes all transactions and outstanding amounts, revaluations for listed shares and debt securities, and details of domestic counterpart sectors.

The ECB publishes national data in accordance with Article 3(2) of the ECB Guideline, which requires the publication of all quarterly national financial accounts data, with the exception of information for the counterpart sectors “resident in other euro area countries” and “resident outside the euro area”.¹⁰

Under that legal framework, all data must be sent to the ECB and their confidentiality level must be flagged. Table 3 shows observations that are marked as “free for publication” as a percentage of all observations that must be published under the ECB Guideline. It distinguishes between two different datasets: the “core” dataset¹¹ and a

¹⁰ Article 3(2) of the ECB Guideline reads: “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 ‘euro area other than domestic’ and ‘residents outside the euro area’).” In 2014, the STC confirmed that all national financial accounts data required by the ECB Guideline had to be published, except as stated in the Guideline.

¹¹ This has been mandatory since October 2014 and includes assets and liabilities broken down by institutional sector (Tables 1 and 2 in Annex I to the ECB Guideline), as well as who-to-whom (or “counterpart sector”) tables for deposits and both short and long-term loans (Tables 3 to 5). A minimum set of backdata, starting from the reference quarter Q4 2012, has been mandatory since October 2014. Additional backdata (Q1 1999 to Q3 2012) became mandatory in October 2017.

second dataset containing details of counterpart sectors for securities (see the tables in Annex I to the ECB Guideline)¹².

Table 3

Observations marked as “free for publication” as a percentage of all observations for euro area countries

| Country | Core dataset: assets, liabilities and counterpart sector details for deposits and loans | | Counterpart sector details for securities |
|---------|---|-----------------|---|
| | Q1 1999-Q3 2012 | Q4 2012-Q2 2020 | Q4 2013-Q2 2020 |
| BE | 100 | 100 | 100 |
| DE | 100 | 100 | 100 |
| EE | 100 | 100 | 100 |
| IE | 78 | 93 | 81 |
| GR | 100 | 100 | 100 |
| ES | 100 | 100 | 100 |
| FR | 100 | 100 | 100 |
| IT | 100 | 100 | 100 |
| CY | 100 | 99 | 97 |
| LV | 100 | 100 | 100 |
| LT | 100 | 100 | 100 |
| LU | 97 | 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 |

Source: ECB.

Most euro area countries make their entire datasets publicly available by transmitting them and publishing them in the ECB’s Statistical Data Warehouse. Ireland currently releases only 81% of the required counterpart sector details for securities (a very slight improvement on the 79% seen in last year’s report). Furthermore, only 78% of the additional backdata for the core dataset are fully available, as some of the data prior to Q1 2002 – and separate data on households and non-profit institutions serving households (NPISHs) from Q4 2012 – are flagged as “not for publication”. In addition, only 93% of the core dataset is accessible, unchanged from last year’s report. In the case of Cyprus, the partial unavailability of more recent data and counterpart sector details is due to primary and secondary confidentiality constraints in the b.o.p. and i.i.p. source data. In the case of Luxembourg, meanwhile, a small amount of backdata for the core dataset (for the insurance corporation and pension fund sub-sectors and counterpart sectors) continue to be unpublished, owing to confidentiality constraints.

Finland, France, Lithuania, Luxembourg and Spain also provide data for periods preceding the mandatory period under the ECB Guideline, starting from Q1 1995.

¹² This dataset (Tables 6 to 9 in Annex I to the ECB Guideline) starts from the reference quarter Q4 2013 and became mandatory in September 2016.

Within the framework of the G20 Data Gaps Initiative (following up, for example, on the work of the Task Force on International Data Cooperation), the ECB facilitates the sharing of quarterly financial accounts data for EU countries with other international organisations (such as the OECD, the IMF and the World Bank).

4.3 Clarity

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

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

The ECB publishes two press releases per quarter on [its website](#), outlining the latest data and relevant economic developments. The dissemination dates for all press releases are announced at the beginning of each calendar year in the ECB’s [statistical calendars](#).

The concepts and definitions used in the quarterly financial accounts are in line with international statistical standards (including ESA 2010). Background information explaining the link between the financial and non-financial accounts and providing further methodological details is available in the [sector accounts section of the ECB’s website](#).

The euro area aggregates and national data can be accessed via the ECB’s [Statistical Data Warehouse](#) or the [sector accounts](#) section of the Statistics Bulletin. Furthermore, the ECB also publishes a large set of euro area and country charts for the household sector in its quarterly [Household Sector Report](#).

The ECB has a [Statistical Information Request](#) facility for external statistics users which helps them to access and analyse data.

A subset of the statistics produced under the ECB Guideline can also be accessed via the [euro area statistics website](#). That website aims to facilitate the understanding, use and comparison of euro area and national data by presenting statistics in a user-friendly manner. It also allows who-to-whom data to be easily viewed in interactive graphics, which can be downloaded for use in other websites, emails or social media.

Table A.1.1.1 in Annex 1 presents a summary of national practices as regards the accessibility of data and metadata. All euro area countries allow users to download data in a number of different formats. Belgium, Germany, Estonia, Ireland, Spain, France, Cyprus, Lithuania, the Netherlands, Portugal and Finland all publish a quarterly press release. Most euro area countries (except Greece and Luxembourg) also publish statistical and/or economic bulletins, providing a visual representation of

data in the form of charts, graphs and tables. In that context, countries should provide a single point of contact for queries from data users.

The CMFB “level 3” quality – or “self-assessment” – reports, which provide metadata on national financial accounts (including descriptions of compilation practices, sources and methods), are published on national websites and/or the CMFB’s website. The [CMFB’s website](#) provides links to reports on all EU countries (in the section on quality assurance for statistics underpinning the MIP scoreboard). All countries that needed to update their reports in 2020 did so.

5 Accuracy and reliability

This section reviews the stability of data in terms of revisions to the initially compiled data (the “first assessment” or “first vintage”). In general, revisions are needed to improve the accuracy of data, as an initial assessment may be based on incomplete, late or erroneous responses from reporting agents. However, large recurrent revisions may indicate that the data collection and/or compilation process is of comparatively low quality – a situation which needs to be addressed. On the other hand, if there are minimal revisions or none at all, this does not necessarily mean that the first assessment was of high quality; it may simply indicate a national preference for not revising the relevant data.

In this report, revisions for individual euro area countries and the euro area as a whole are assessed by comparing the initial and final vintages. Two basic types of indicator are used (see Annex 1 for more details):

1. **Relative size indicators** measure the absolute difference between the first vintage and the most recent vintage. Absolute differences may be quantified relative to the underlying series when strictly positive, or they may be calculated relative to a reference series such as GDP or underlying outstanding amounts. These indicators are symmetric mean absolute percentage errors (SMAPEs) 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, as observations may have different signs or be close to zero. Consequently, absolute revisions to transactions are related to the underlying outstanding amounts or the relevant country’s GDP.
2. **Directional stability and reliability indicators** 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 national and euro area data for reporting periods from Q2 2018 to Q1 2020, as shown in the charts throughout this section. The analysis focuses on the main financial accounts indicators, as commented on in the ECB’s euro area accounts press releases in relation to households’ financial investment and the financing of households and non-financial corporations. Financial sector liabilities are also presented, as they are the basis for the third MIP headline indicator. Revision indicators are shown for both euro area aggregates and country data. The median values for the countries are presented in order to facilitate a comparison across countries. Detailed tables containing SMAPEs, upward revision ratios and directional reliability indicators for the euro area aggregates and all EU countries are available in Annex 1 for information purposes. When comparing revisions to country data and euro area aggregates, due consideration should be given to the fact that revisions to country data may offset each other, implying smaller revisions at euro area level.

5.1 Households' financial investment and loan financing

In 2020, revisions to household financial investment were larger than revisions to household loan financing in all euro area countries except Belgium, Greece, the Netherlands, Austria and Finland (as can be seen in Chart 1).

Revisions to euro area household financial investment (transactions) were smaller than the median for revisions by individual euro area countries. Directional reliability was 88% (see Table A.1.3.4 in Annex 1). Cyprus, Luxembourg and Malta revised household financial investment data more extensively than other countries, mainly in order to include additional or improved data sources and estimations, to reduce vertical discrepancies, or to ensure consistency between rest of the world (RoW) data and b.o.p./i.i.p. statistics. In Luxembourg, this was mainly the result of a large one-off revision to the equity liabilities of NFCs. The median for all euro area countries was 0.1%. Furthermore, Cyprus showed levels of directional reliability of less than 70%, with data mostly being revised upwards (75% upward revision ratio).

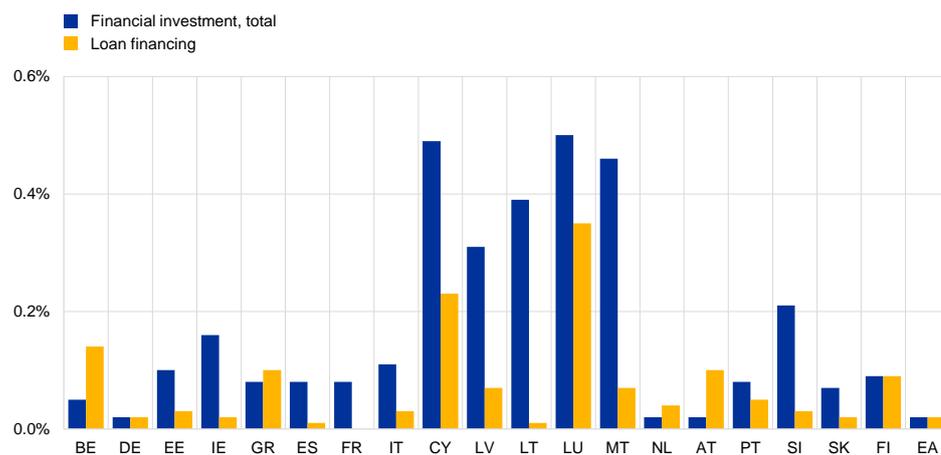
Revisions to euro area household loan financing (transactions) were smaller than the median for euro area countries, with directional reliability of 100%.

Cyprus, Luxembourg and Finland revised household loan financing data more extensively than other euro area countries, mainly owing to the revision of source data, with the median for all euro area countries standing at 0.04%. Directional reliability was below 70% for Luxembourg, and Cypriot data were mostly revised upwards (75% upward revision ratio).

Chart 1

Revisions to household financial investment and household loan financing (transactions)

(symmetric mean absolute percentage errors; Q2 2018-Q1 2020)



Source: ECB.

Note: EA = euro area.

5.2 NFC financing

Looking at the various components of NFC financing, there were nine euro area countries where data on the net issuance of debt securities were revised more than data on loan financing (as can be seen in Chart 2).

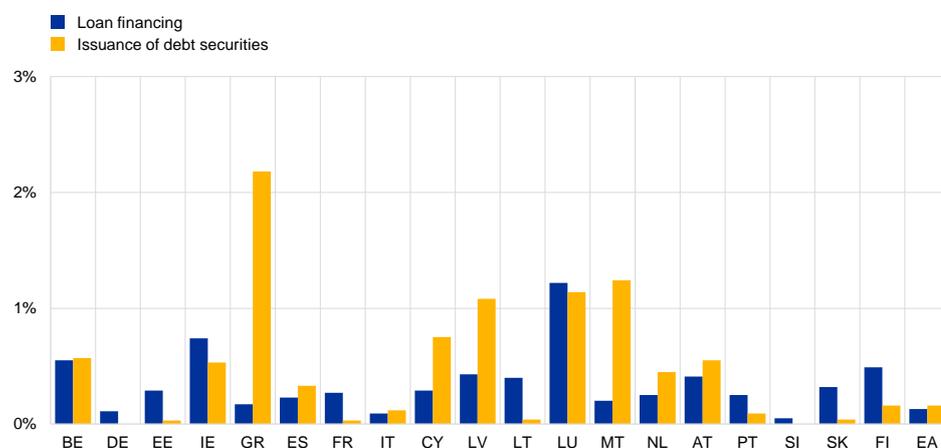
For both loans and debt securities, revisions for the euro area as a whole were slightly smaller than the median for euro area countries. Directional reliability was 88% for debt securities and 100% for loan financing. For the net issuance of debt securities, revisions in Greece, Luxembourg and Malta were larger than in other euro area countries, mainly owing to alignment with other ESCB data sources (such as the SHS dataset) or revisions to primary source data. The median for all euro area countries was 0.33%. Greece, Luxembourg and Malta all recorded directional reliability of more than 70% and upward revision ratios of less than 75%.

Luxembourg, Ireland and Belgium revised NFC loan financing data more extensively than other euro area countries, with directional reliability of less than 70% being recorded in both Belgium and Luxembourg. Luxembourgish data were mostly revised upwards (75% upward revision ratio).

Chart 2

Revisions to NFC financing (transactions)

(symmetric mean absolute percentage errors; Q2 2018-Q1 2020)



Source: ECB.
Note: EA = euro area.

5.3 Financial corporations' liabilities

As regards revisions to financial corporation liabilities (stocks), the euro area as a whole recorded revisions totalling 0.5% of underlying stocks during the review period, which was slightly higher than the median for individual euro area countries (0.4%), as a large number of countries recorded lower than average revisions (see Chart 3). Revisions were relatively low for all sub-sectors of the financial corporation sector, with the largest revisions being seen in the OFI sub-sector (where revisions to the euro area aggregate totalled 2.0%, compared with a median of 1.2% for individual euro

area countries). Directional reliability for euro area financial corporation liabilities stood at 100%.

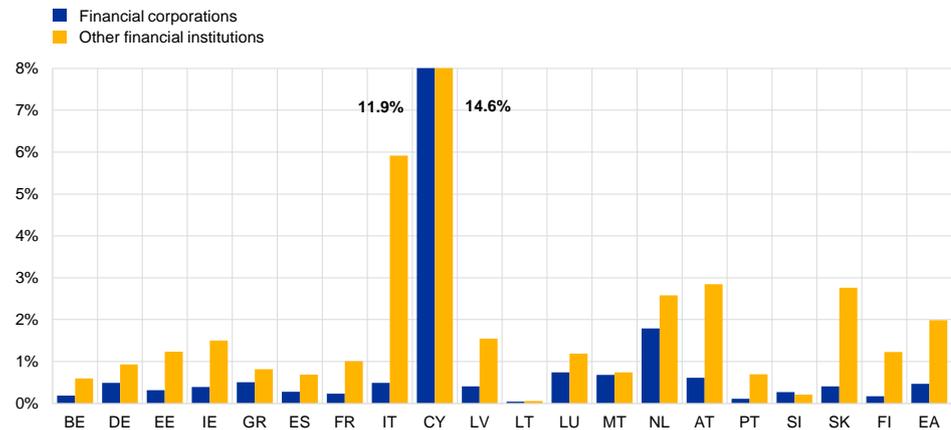
Revisions to financial corporation liabilities were exceptionally large in Cyprus as a result of a significant increase in SPE coverage following the improvements made in the benchmark revision of September 2019. Revisions in excess of 1% were also seen in the Netherlands, with Dutch data mostly being revised upwards (75% upward revision ratio).

For most countries, revisions to OFI liabilities were smaller than those reported in last year's quality report. Cyprus and Italy recorded the largest revisions to OFI liabilities, with directional reliability of less than 70% and upward revision ratios of 75% being seen in both countries.

Chart 3

Revisions to financial corporation liabilities (stocks)

(symmetric mean absolute percentage errors; Q2 2018-Q1 2020)



Source: ECB.

Note: EA = euro area.

Detailed tables containing SMAPEs, upward revision ratios, directional reliability indicators and mean absolute revisions as a percentage of GDP for all EU countries are available in Annex 1.

6 Internal consistency

“Internal consistency” concerns accounting identities and hierarchical relationships between aggregates and components.¹³ This includes horizontal consistency, which is defined as 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 resident sectors and the RoW equals the sum of listed shares purchased by resident sectors and the RoW).

The euro area accounts are not a simple aggregation of the national data, as they need to be combined with other euro area statistics (particularly b.o.p. and i.i.p. data and MFI balance sheet statistics) in order to obtain genuine euro area accounts. Horizontal consistency is not generally maintained when all of these components are put together, owing to discrepancies across data sources. The 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, as appropriate.

Horizontal imbalances in the euro area financial accounts (prior to the reconciliation of data sources) continue to be significant. The two underlying causes of this are b.o.p./i.i.p. asymmetries¹⁴ and differences between national financial accounts data and euro area building blocks. The latter mainly occur because national compilers of financial accounts 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 the data in MFI balance sheet statistics because compilers of financial accounts use government finance statistics. These are assumed to be better at identifying borrowing entities in the government sector (with reporting MFIs sometimes misclassifying entities such as local utilities providers as part of the government).

Table 4 shows the horizontal imbalances for euro area financial transactions that result from the combination of the various data sources (i.e. before the balancing process for the 29 October 2020 release).

¹³ 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 derived 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 and 2) = sum of relevant counterpart sectors (as reported in Tables 3 to 7).

¹⁴ In order to compile appropriate RoW accounts for the euro area, cross-border transactions and positions between euro area countries must be converted into domestic ones. For example, loans between the 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 data of euro area countries, 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 instrument****Horizontal imbalances**

(root mean squared errors (RMSEs); EUR billions)

| Financial instrument | Q4 2018 to Q2 2020 | Q4 2017 to Q2 2019 | Q4 2016 to Q2 2018 |
|-------------------------------|--------------------|--------------------|--------------------|
| Gold and SDRs | 2.4 ↑ | 1.8 ↑ | 1.5 ↓ |
| Currency and deposits | 12.9 ↑ | 5 ↓ | 10.9 ↑ |
| Debt securities | 32.9 ↓ | 39.5 ↑ | 26.3 ↑ |
| Loans | 30.5 ↑ | 10.9 ↓ | 14.9 ↑ |
| Shares and other equity | 41.2 ↑ | 40.4 ↓ | 43.8 ↑ |
| Insurance and pension schemes | 4 ↓ | 5.4 ↑ | 2 ↔ |
| Financial derivatives | 12.9 ↓ | 19.1 ↔ | 19.1 ↑ |
| Other accounts | 50.6 ↓ | 61.6 ↑ | 55.8 ↑ |

Source: ECB.

Note: RMSE is broken down into bias component  and variance component . Arrows indicate an increase (↑), no change (↔) and decrease (↓) in the indicator compared with its value one year ago.

The inconsistency of euro area aggregates before balancing increased for half of the eight instruments (four increased; four decreased) relative to the same quarters one year previously (second column). Those inconsistencies broadly averaged out over time for all instruments except financial derivatives (and, to a lesser extent, shares and other equity). The inconsistency of financial derivatives is biased owing to an excess of assets over time, which stems from the fact that net assets vis-à-vis the rest of world are larger in the national financial accounts than they are in the euro area balance of payments (both of which are sources for the aggregate euro area financial accounts).

The national financial accounts datasets as transmitted to the ECB (i.e. the country datasets after balancing by national compilers) are internally consistent, except for minor issues that do not affect the main indicators.¹⁵ There are still some internal inconsistencies relating to aggregation checks for Ireland, mostly for other changes in volume for data before 2013 (see Table A.1.2.1 in Annex 1). However, in October 2020 Ireland corrected the inconsistencies in data after Q1 2018. Following the implementation of a new IT system in 2021, Ireland will also be able to correct the inconsistencies in earlier data.

Ireland reported six who-to-whom series with negative stock (balance sheet) data: two for deposits and four for loans. Germany and the Netherlands also reported who-to-whom time series with negative stock data for loans (two and four series respectively).

Estonia reported one other equity series with negative values in line with the data recorded in external statistics (i.i.p.). That recording is consistent with b.o.p./i.i.p. statistics, as the data are affected by the recording of negative equity relating to foreign branches of domestic companies. This issue may be tackled by the joint WG FGS and WG ES virtual group on unlisted shares and other equity.

¹⁵ Internal discrepancies of more than €10 million were observed for a few countries in 2020, but these were generally corrected in later transmissions.

7 External consistency/coherence

7.1 Coherence 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 facilitates the compilation of the balancing items net lending/net borrowing (from the non-financial accounts) and net financial transactions (net acquisition of financial assets minus the net incurrence of liabilities, or net lending/net borrowing as derived from the financial accounts). It also enhances “vertical reconciliation” (equal balances for the financial and non-financial accounts), both within euro area institutional sectors and relative to the RoW. Currently, the euro area accounts comprise fully vertically integrated data for the financial corporation and general government sectors, while the NFC sector, the household sector and the RoW feature 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 RoW is closely related to the “net errors and omissions” stemming from the b.o.p. In the euro area accounts, the vertical discrepancies resulting from the national data and euro area building blocks are reduced (and almost entirely 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. For the euro area RoW, the discrepancy is identical to the “net errors and omissions” in the euro area b.o.p. for periods after Q1 2013, since the two sets of statistics are fully reconciled as of that quarter (see Section 7.2).

At country level, approaches to vertical reconciliation vary. Some countries have established similar policies with a view to eliminating discrepancies (e.g. by adjusting financial and/or non-financial items for which data sources are considered to be incomplete or of poor quality), while others do not carry out such full “reconciliation adjustments” to preserve the information from the various data sources. All countries, however, are seeking to address the causes of discrepancies by improving source data and balancing processes. Furthermore, discussions among compilers of financial and non-financial accounts at national and European level (in the context of the WG FGS and the Expert Group on Sector Accounts) have sought to address this issue, with the objective of developing, by mid-2021, a first set of recommendations on vertical reconciliation practices.

The charts below show vertical discrepancies for resident private sectors. For countries where GDP is less than 1% of the EU total, the transmission of quarterly non-financial sector accounts is not mandatory for resident sectors other than government. Consequently, the vertical consistency of quarterly data cannot be assessed for Estonia, Cyprus, Latvia, Lithuania, Luxembourg, Malta or Slovakia, while

Slovenia provides quarterly data on a voluntary basis. For Ireland, the comparison is based on the quarterly financial accounts compiled by the NCB while noting that the annual financial accounts compiled by the NSI may yield different results in terms of vertical consistency.

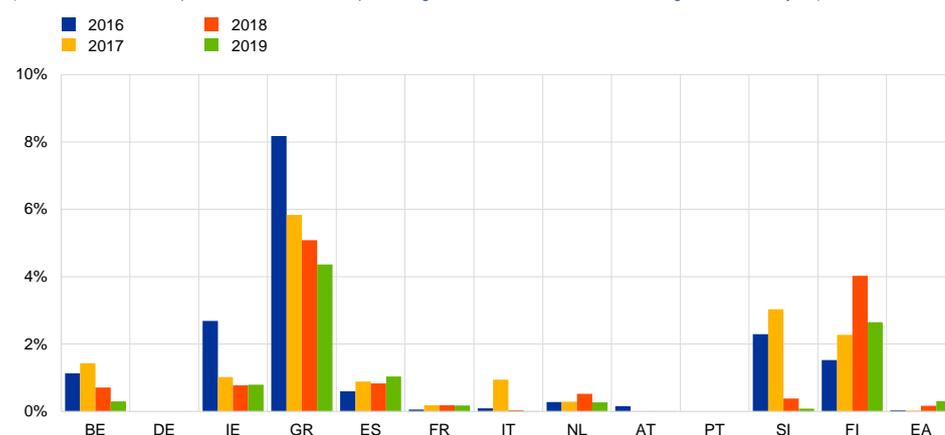
Charts 4.1a, 4.2a and 4.3a show absolute vertical discrepancies as at October of the following year (i.e. the vertical discrepancy for 2019 is based on data available as at October 2020). These charts provide a snapshot of the data that are available about six months after the relevant year's Q4 data have been compiled for the first time, and further revisions to data for previous years are not shown, despite several countries taking steps to reduce vertical discrepancies for previous periods.

Charts 4.1b, 4.2b and 4.3b show cumulative vertical discrepancies as at October 2020, in order to show whether vertical discrepancies balance out or accumulate over time. An accumulation of vertical discrepancies indicates a persistent bias in the accounts.

For euro area households, the differences between the financial and non-financial accounts were small in all four years (see Chart 4.1a). Two countries (Germany and Portugal) reconcile the household sector (e.g. by adjusting financial and/or non-financial items where data sources are considered incomplete or of relatively low quality), but 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, so four-quarter averages are low in most countries. Discrepancies relative to GDP for 2019 were particularly large in Greece and Finland.

Chart 4.1a
Vertical discrepancies for households

(absolute vertical discrepancies relative to GDP; percentages; data as at the October following the reference year)



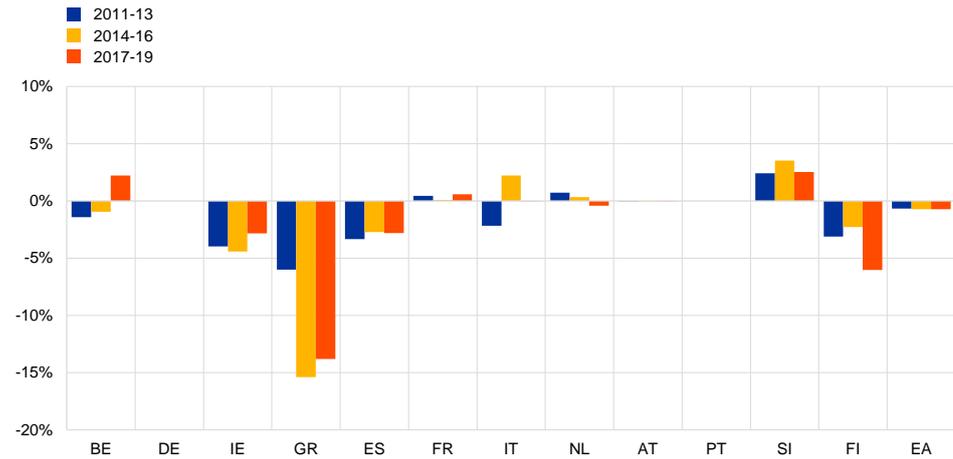
Source: ECB.
Notes: EA = euro area. Slovenia provides data on a voluntary basis.

The sign persistence of vertical discrepancies is also a useful indicator of quality, as it helps to identify bias in the accounts (ignoring short-term volatility and recording issues in consecutive quarters). Chart 4.1b shows cumulative vertical discrepancies for household sectors in relation to GDP. The euro area household sector displays a

very small negative bias. Countries with large absolute discrepancies also exhibit persistent biases in the accounts (with a negative bias being seen for Greece and Finland). A positive bias indicates a persistent excess of net lending, as derived from the non-financial accounts (with a negative bias indicating the opposite).

Chart 4.1b
Bias in vertical discrepancies for households

(cumulative vertical discrepancies relative to GDP; percentages)



Source: ECB.

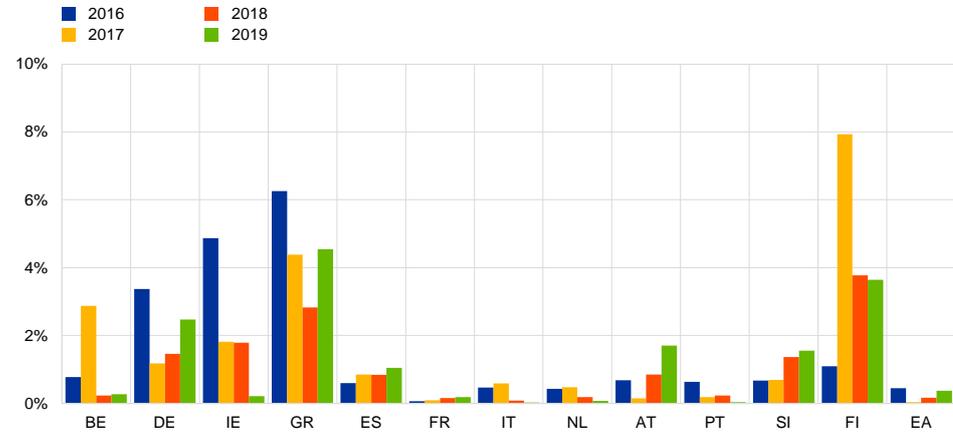
Notes: EA = euro area. Slovenia provides non-financial accounts for this sector on a voluntary basis.

For euro area NFCs, the differences between financial and non-financial accounts remain low overall at 0.4% of GDP (see Chart 4.2a). For some countries, however, the discrepancies are significantly greater, partly because sources for NFCs are less complete (so it is more difficult to achieve consistent results) and partly because the NFC sector is not generally reconciled. In some countries, this sector is also used to offset the “net errors and omissions” stemming from b.o.p. data. Ireland – which has a large NFC sector relative to its GDP, owing to the presence of large multinational corporations – has made significant improvements in this area in recent years, mirroring similar improvements in the household sector. Discrepancies relative to GDP for 2019 were particularly large in Germany, Greece and Finland.

Chart 4.2a

Vertical discrepancies for non-financial corporations

(absolute vertical discrepancies relative to GDP; percentages; data as at the October following the reference year)



Source: ECB.

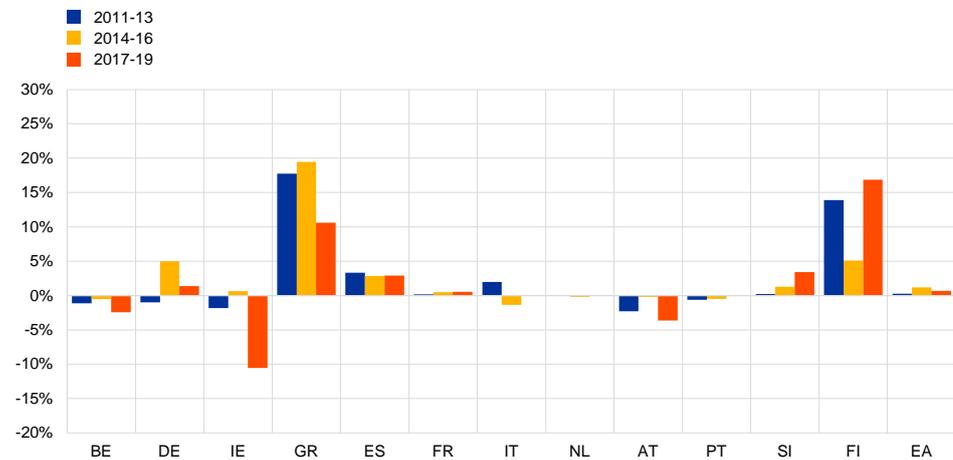
Notes: EA = euro area. Slovenia provides non-financial accounts for this sector on a voluntary basis.

The euro area NFC sector displays a small positive bias (see Chart 4.2b); Germany displays no bias; and Greece and Finland show a significant positive bias for all periods.

Chart 4.2b

Bias in vertical discrepancies for non-financial corporations

(cumulative vertical discrepancies relative to GDP; percentages)



Source: ECB.

Notes: EA = euro area. Slovenia provides non-financial accounts for this sector on a voluntary basis.

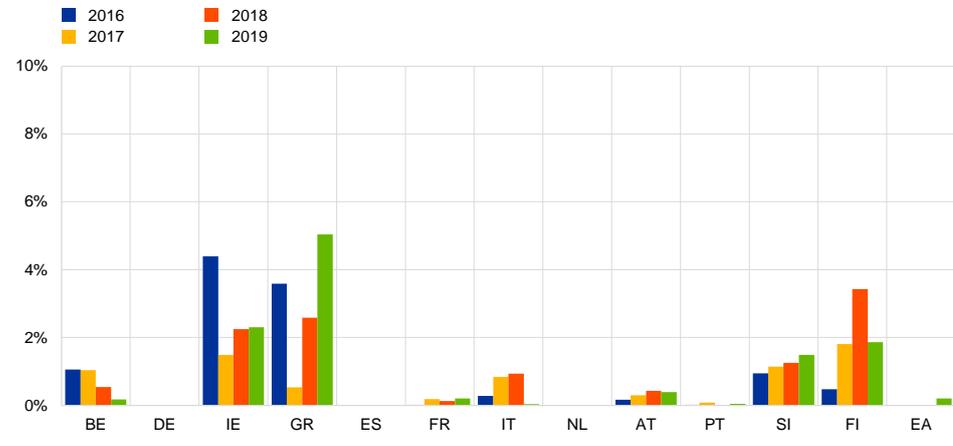
The euro area financial corporation sector is almost fully reconciled (see Chart 4.3a).¹⁶ Data availability is typically better in that sector than it is in non-financial sectors, and many countries usually achieve consistency. Discrepancies relative to GDP for 2019 exceeded 2% in Ireland and Greece.

¹⁶ With the introduction of a new common balancing mechanism applied to the RoW sector in both the euro area financial accounts and the euro area b.o.p. (see Section 7.2), the reconciliation of the financial corporation sector was reviewed. Small discrepancies remain in order to maintain consistency with source data.

Chart 4.3a

Vertical discrepancies for financial corporations

(absolute vertical discrepancies relative to GDP; percentages; data as at the October following the reference year)



Source: ECB.

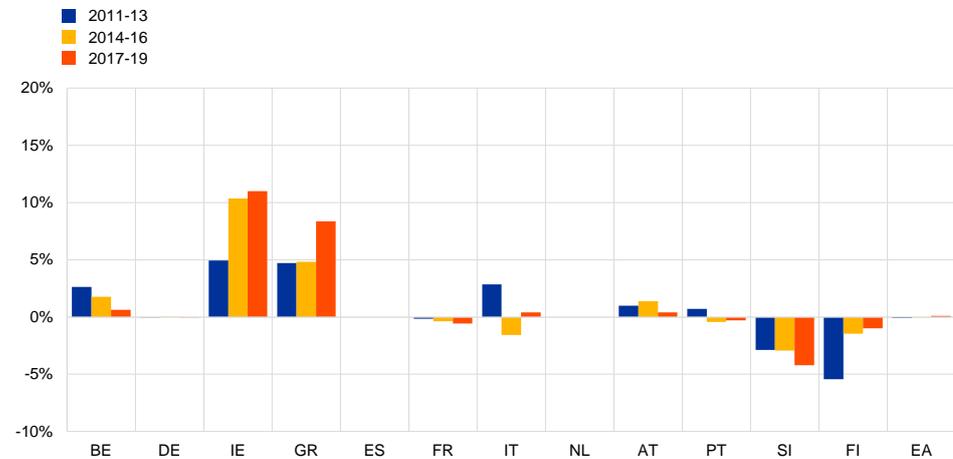
Notes: EA = euro area. Slovenia provides non-financial accounts for this sector on a voluntary basis.

Ireland and Greece exhibit a positive bias in all periods (see Chart 4.3b).

Chart 4.3b

Bias in vertical discrepancies for financial corporations

(cumulative vertical discrepancies relative to GDP; percentages)



Source: ECB.

Notes: EA = euro area. Slovenia provides non-financial accounts for this sector on a voluntary basis.

7.2 Consistency with balance of payments and international investment position statistics

Euro area b.o.p. and i.i.p. data are one of the building blocks for the euro area financial accounts and are widely used at national level for the compilation of the RoW financial and non-financial accounts as part of the system of national accounts.

The methodological differences between the b.o.p./i.i.p. and the RoW account (national accounts) were removed with the introduction of ESA 2010 and BPM6 (albeit some challenges still remain when it comes to interpretation).¹⁷ Nevertheless, subsequent analysis showed that inconsistencies between the two statistical domains continued to persist in many countries, negatively affecting the combined use of the two datasets, as well as their reliability. Acknowledging this, the ESCB worked to identify the precise differences between the two, drawing up national medium-term work plans to be carried out by September 2019.¹⁸

Since the release of b.o.p. data and euro area accounts on 29 October 2020, consistency between the two datasets for transactions at euro area level has been achieved thanks to the alignment of data sources and the [introduction of a common balancing mechanism](#) for periods from Q1 2013 onwards. Work on achieving consistency for positions and other changes is expected to be completed by autumn 2022.

Most countries compile the two sets of statistics in a consistent manner, though large discrepancies continue to be observed in a few countries, with a substantial impact on euro area and EU aggregates. Such issues are being addressed in the context of the MIP quality assurance framework.

7.2.1 Financial transactions

Chart 5 shows the differences between the b.o.p. and the RoW account for financial transactions. In this case, discrepancies may be accounted for by time of recording differences, as well as the reconciliation of national sectoral accounts. “Vertical” reconciliation (correcting for errors and omissions) and “horizontal” reconciliation (ensuring that assets are equal to liabilities across sectors) may both entail large adjustments to financial transactions in the RoW account. Nonetheless, as an indicative benchmark, relative differences should ideally not exceed 0.3% of the average value of the underlying positions.

For the euro area as a whole, such differences were eliminated by the new compilation approach mentioned above. At country level, differences of more than 0.3% were recorded in several countries: Germany (liabilities only), Greece, France, Malta (liabilities only), Slovenia (liabilities only) and Slovakia (assets only). In Malta, work on the implementation of a new IT system is ongoing, which will help to reduce the differences between those statistics.

Greece recorded the highest relative discrepancies for assets, while the largest absolute differences were observed in Germany (liabilities only) and France. Germany achieved full harmonisation for the compilation of financial derivatives with its transmission of data for the first quarter of 2020 in June and July 2020.

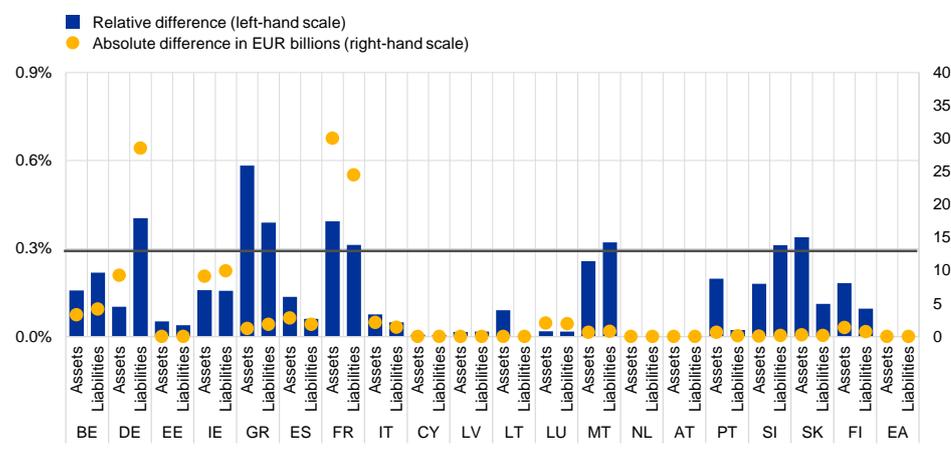
¹⁷ The harmonised EU revision policy also supports equality between the two statistical domains.

¹⁸ Or by the time of the next European benchmark revision (which, for most EU countries – 17 of them – occurred in 2019). The other countries completed this work in 2018 or 2020.

Chart 5

Financial account transaction discrepancies between the b.o.p. and the RoW account

(average absolute and relative differences (as a percentage of b.o.p. and RoW stocks of financial assets/liabilities) for the period Q3 2017 to Q2 2020 (b.o.p. vs euro area accounts))



Source: ECB.
Note: EA = euro area.

7.2.2 Financial positions

Chart 6 below shows the differences between the i.i.p. and the RoW account for financial assets and liabilities (balance sheets/positions). As expected, the differences between the two datasets are larger for positions than they are for transactions. Relative differences should, as an indicative benchmark, be less than 0.5% of the total of the average financial assets/liabilities in the i.i.p. and the sectoral accounts.

The euro area recorded discrepancies of 4.1% for assets and 3.9% for liabilities, similar to last year. These discrepancies arose mostly from differences between the compilation and reconciliation processes for the euro area i.i.p. and the RoW. The ECB is aiming to fully reconcile these positions by autumn 2022. At country level, differences of more than 0.5% were recorded in Germany¹⁹, Greece, France, Italy (assets only), Malta²⁰, Portugal (assets only), Slovenia (liabilities only), Slovakia and Finland. The highest relative discrepancies were recorded in France (assets) and Malta (liabilities), while the largest absolute differences were observed in France (assets).

Detailed analysis at instrument level reveals sizeable differences for equity instruments, which are mostly triggered by differences in valuation practices (e.g. as regards unlisted equity instruments in the case of France).²¹ Other reasons for differences (which also affect other instrument types) include discrepancies in relation to vintages, data sources and estimation methods.

¹⁹ Germany achieved full harmonisation for the compilation of financial derivatives with its transmission of data for the first quarter of 2020 in June and July 2020.

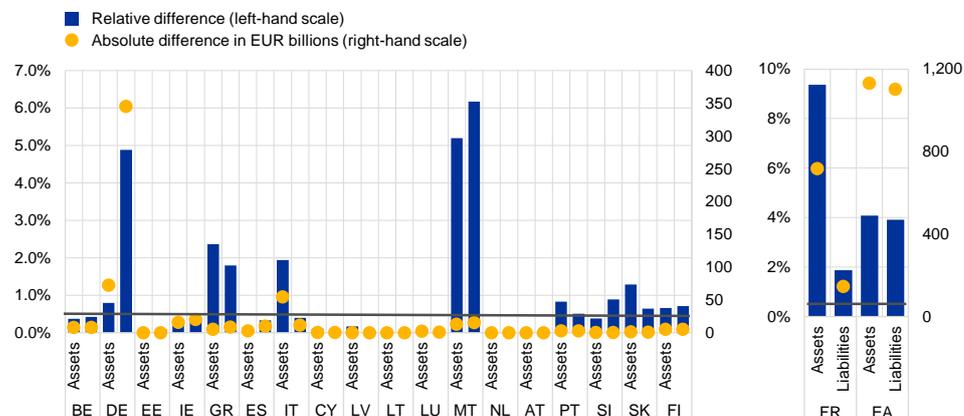
²⁰ In Malta, b.o.p./i.i.p. and financial account statistics are both being migrated to an integrated IT system, which should help to reduce the differences between the two sets of statistics.

²¹ In the RoW dataset an elaborate method is used to estimate market prices, whereas in i.i.p. statistics the own funds at book value methodology is consistently applied.

Chart 6

Financial account position discrepancies between the i.i.p. and the RoW account

(average absolute and relative differences as a percentage of i.i.p. and RoW stocks of financial assets/liabilities for the period Q3 2017 to Q2 2020 (i.i.p. vs euro area accounts))



Source: ECB.
Note: EA = euro area.

7.3 Comparison with other financial statistics

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

7.3.1 Comparing MFI loans by counterpart sector with MFI balance sheet statistics

In several instances, there are conceptual differences between MFI loans as recorded in the financial accounts and MFI loans as recorded in MFI balance sheet items (BSI) statistics.

Loans granted by MFIs to general government as recorded in the financial accounts may differ from the data in BSI statistics, since compilers of financial accounts use government finance statistics, which are assumed to be better at identifying borrowing entities in the government sector (with reporting MFIs sometimes misclassifying entities such as local utilities providers). This is also the main reason why MFI loans to NFCs as recorded in the financial accounts differ from BSI data in a number of countries (see Table A.1.5.1 in Annex 1). Another reason could be the recording of accrued interest, which should ideally be recorded with the relevant instrument in the financial accounts, whereas in BSI statistics it is recorded under remaining assets/liabilities. Moreover, the “rerouting” of loans via the government sector in the

financial accounts can lead to differences between BSI and financial accounts statistics in situations where MFIs grant loans to the private sector “on behalf of” the government.

The differences are less than 2% of stocks in most countries. In Germany and Austria, however, financial accounts data differ by more than 2% owing to the reclassification of MFI loans to government in line with government finance statistics.

7.3.2 Comparing securities issuance with ECB securities issues statistics

Conceptual differences between securities issuance in the financial accounts and the ECB's securities issues statistics (SEC) relate to differences in valuation methods (nominal values in SEC statistics; market values in the financial accounts) and the recording of transactions involving non-cash payments. The latter can have a significant impact, particularly in the case of share swaps relating to mergers and acquisitions. While share swaps are generally recorded as transactions in the financial accounts, SEC statistics do not record such transactions.

In some EU Member States, securities issued without an International Securities Identification Number (ISIN), which are not generally captured in SEC data, are non-negligible. Consequently, compilers of financial accounts supplement the SEC data with additional information on non-ISIN securities.

These methodological differences and the supplementation of securities issuance data with additional information may explain why values for stocks tend to be higher in the financial accounts than they are in SEC data (see Table A.1.5.1 in Annex 1). Meanwhile, small negative relative differences are observed in the Netherlands.

Box 2

Quality indicators for financial accounts statistics underlying the MIP

The MIP scoreboard that is used for the Alert Mechanism Report (AMR) consists of 14 headline indicators with thresholds (which are complemented by auxiliary indicators with no thresholds). The composition of those MIP indicators is subject to review and evolves over time in order to reflect the latest developments and changes in data needs. Most of them are composite indicators – 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 debt²², consolidated²³, as a percentage of GDP;
- private sector credit flow²⁴, consolidated, as a percentage of GDP;

²² Private sector debt as defined in the MIP scoreboard is the stock of liabilities of non-financial corporations (S.11), households (S.14) and NPISHs (S.15). The instruments that are taken into account when compiling private sector debt are debt securities and loans.

²³ i.e. not taking into account the stock (transactions in the case of credit flows) of debt between entities in the same sector.

- financial sector liabilities²⁵, non-consolidated²⁶, one-year percentage change (11 years of data required).
- Additionally, the financial accounts are used for one auxiliary indicator:
- household debt (including NPISHs), consolidated, as a percentage of GDP.

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

The following sections assess the fitness for purpose of financial accounts data used for the MIP, looking at the data vintage used in the [2020 Alert Mechanism Report](#).

Institutional set-up

Quarterly financial accounts are transmitted to the ECB on the basis of the ECB Guideline, with non-euro area EU Member States providing those data on a voluntary basis. Annual financial accounts are sent to Eurostat on the basis of the ESA 2010 transmission programme (under Regulation (EU) No 549/2013²⁷). The indicators that are used for the MIP are provided by Eurostat on the basis of the annual financial accounts that are compiled in the Member States by NCBs (or, in some cases, NSIs). In most cases, the annual and quarterly financial accounts are derived from a single compilation system. An MoU governing this process was signed in November 2016. In that MoU (and the related exchange of letters), the European Commission and the ECB recognise the quality assurance frameworks put in place in the European Statistical System (ESS) and the ESCB, and establish practical working arrangements with a view to ensuring the quality of the statistics underpinning the MIP.

The MoU specifies that Eurostat and the ECB's Directorate General Statistics (DG/S) should regularly conduct assessments looking at the quality of national datasets. In particular, DG/S should run quality checks on the datasets reported by NCBs and provide Eurostat with quality-assured datasets and/or information on the quality of data after the regular transmission of data in September/October of each year.²⁸ The MoU also envisages visits by DG/S and Eurostat to NCBs and/or NSIs to help assess the quality of MIP-related statistical output. In 2020, a country visit to France took place, resulting in recommendations for improving data quality (as detailed in the relevant sections of this report). No other visits were conducted in 2020 owing to the COVID-19 pandemic.

²⁴ Private sector credit flows are defined as the net amount of liabilities that have been incurred (transactions) by non-financial corporations (S.11), households (S.14) and NPISHs (S.15) in the relevant year.

²⁵ Total financial sector liabilities are defined as the sum of all liabilities incurred by the financial corporation sector through currency and deposits, debt securities, loans, equity and investment fund shares/units, insurance, pensions and standardised guarantee schemes, financial derivatives and employee stock options, and other accounts payable.

²⁶ i.e. taking into account the stock of liabilities between entities in the same sector.

²⁷ [Regulation \(EU\) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union](#) (OJ L 174, 26.6.2013, p. 1).

²⁸ The ECB runs quality checks on all quarterly financial accounts received from EU Member States. According to the MoU, it is then up to Eurostat to assess whether those quarterly data are comparable with the annual data that it receives from the Member States. For the large majority of Member States, the quarterly and annual accounts are a result of the same compilation system. Eurostat then derives MIP indicators from the annual financial accounts.

To ensure full transparency with regard to the quality of MIP-related statistics, a three-level quality reporting system has been set up over the last few years with the support of the CMFB. That system consists of national self-assessment reports (level 3), which feed into domain-specific quality reports (level 2) – including this report – that are coordinated by 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 on the [CMFB's website](#).

Availability and confidentiality of data

For MIP purposes, the focus is on data for the last ten complete years (2010-19). However, 11 years (2009-19) are required for the calculation of financial sector liabilities (as a one-year percentage change). For financial sector liabilities, this data range was available on a quarterly basis for all EU countries except Denmark and Croatia. For Croatia, quarterly financial accounts are not required for the years before it joined the European Union (i.e. the period before 2013).²⁹ Longer time series (15 years or more) are preferable, but of the countries that joined the EU in 2004 or later, only Lithuania and Hungary provide quarterly backdata prior to 2004. Consolidated data on private sector debt and credit are available from Q4 2013 for all countries, in line with the ECB Guideline (which requests that countries provide the counterpart sector details for securities that are needed for full consolidation of NFC debt as of Q4 2013).

All EU Member States make the dataset specified in the ECB Guideline available to the general public, except for some minor exceptions which do not affect the compilation of MIP indicators on a quarterly basis. Ireland, for example, releases only 81% of the required counterpart sector details for securities, and only 78% of the required additional backdata for the core dataset are fully available, while some data prior to Q1 2002 (and separate household and NPISH data from Q4 2012) are flagged as “not for publication”. In addition, the accessibility of the core dataset is just 93% for Ireland. In the case of Cyprus, the partial unavailability of more recent data and counterpart sector details is due to confidentiality constraints in the b.o.p./i.i.p. source data.

Sources and methods

The national financial accounts are generally consistent with the requirements and conceptual framework set out in ESA 2010. However, financial accounts data are derived statistics that are based on a wide range of data sources, and those sources 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 coverage of financial sector liabilities (particularly captive financial institutions and OFIs in general, for which source data are not normally comprehensive and timely). Germany, the Netherlands and Poland should improve cross-checking with business registers or use other methods to ensure full coverage of OFIs. In Croatia and Sweden, meanwhile, it is difficult to determine the coverage for particular OFI sub-sectors, groups of entities or instruments on the basis of existing data sources. This may mean that those data are not complete. Neither is it possible to estimate the missing data.

²⁹ Euro area NCBs are not required to transmit data to the ECB for quarters prior to the first quarter of the year in which the relevant Member State acceded to the European Union. Non-euro area NCBs transmit all data on a voluntary basis.

Several countries do not have a fully comprehensive direct data source for NFCs, or access to business registers facilitating the grossing-up procedures that are needed to achieve full coverage of intra-NFC loans and other transactions/positions not covered by counterpart sector information. Cyprus and Poland should improve cross-checking with business registers or use other methods to ensure full coverage. Furthermore, Cyprus, Malta, Bulgaria, the Czech Republic, Denmark, Croatia and Romania are all encouraged to improve their timely direct data sources, which will reduce revisions when comprehensive data become available.

Accuracy and reliability

Revisions to the data underlying the MIP headline indicators are relatively small for most countries (as can be seen in MIP Table A).

For consolidated private sector debt and credit flows, revisions are mostly due to revisions to NFC loan financing, whereas revisions to household loan financing and the issuance of NFC debt securities are generally smaller.

For consolidated private sector debt, revisions are relatively large in Belgium, Ireland, Cyprus, Luxembourg, Malta, the Netherlands and Denmark, while all other countries have revisions that are less than 2% of national GDP. The exceptionally large revisions in Ireland are due to improvements to data sources with a long time lag (tax records and companies' public accounts) and the use of late survey responses to improve estimates. In Denmark, they are a result of changes to compilation methods for financial accounts, resulting in more stocks being reallocated from other accounts payable to NFC and household loans.

For consolidated private sector credit flows, revisions are relatively large in Belgium, Ireland, Cyprus, Luxembourg, the Netherlands, Finland, the Czech Republic and Denmark, while all other countries have revisions that are less than 1% of national GDP. Those revisions are mainly due to new and updated data sources, including efforts to align data with b.o.p./i.i.p. data and achieve consistency between annual and quarterly financial accounts.

For total financial sector liabilities, revisions are less than 2% in most cases, measured as a one-year percentage change. The larger revisions observed for the Czech Republic and Denmark are mainly due to updated and improved data sources and methods. Moreover, financial sector liabilities continue to be revised upwards as a result of countries improving data sources in order to increase their coverage of OFIs. The size of those revisions differs across countries, partly reflecting their differing economic realities and, in particular, the restructuring of multinationals.

Revisions to the auxiliary indicator on household debt are generally smaller than the revisions to headline indicators, mirroring developments in the main reliable statistical source (loans by MFIs). The largest revisions (above 1% of GDP) can be seen in Cyprus, Luxembourg, the Netherlands and Denmark.

Internal consistency

Most countries fulfil all validation (accounting) rules, with minor exceptions being seen in Ireland, Denmark, Croatia, Hungary, Romania and Sweden (see Table A.1.2.1 in Annex 1).

Consistency of quarterly and annual financial accounts

In most countries, quarterly and annual financial accounts are fully consistent (see Table A.1.2.2 in Annex 1), with the level of consistency improving significantly relative to last year's report. However, vintage differences may occur, as not all countries update their annual data on a quarterly basis. Countries are encouraged to ensure that quarterly and annual data are consistent, particularly for data vintages that are used for MIP purposes in October of each year. Structural differences may signal quality issues in quarterly and/or annual accounts. Very small differences are observed in Ireland and Slovakia.

In some countries, differences in the classification of certain financial institutions in quarterly and annual financial accounts explain some minor differences in financial sector liabilities. In Hungary, for example, the difference for financial sector liabilities (0.9%) is due to the Hungarian Export-Import Bank (Eximbank) being classified differently in the quarterly and annual financial accounts that are transmitted to European institutions (with quarterly data based on NCB data sent to the ECB and annual data based on NCB data transmitted via Eurostat). Whereas the bank is included in the financial sector in the quarterly financial accounts and other financial statistics, it is classified in the general government sector in the annual financial accounts and other statistics transmitted to Eurostat. In its [opinion of 17 July 2017](#), the CMFB advised that Eximbank should be classified as part of the general government sector.³⁰ The consistency of financial accounts should be improved by fully implementing the CMFB's opinion in quarterly and annual results.

Consistency with non-financial accounts

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

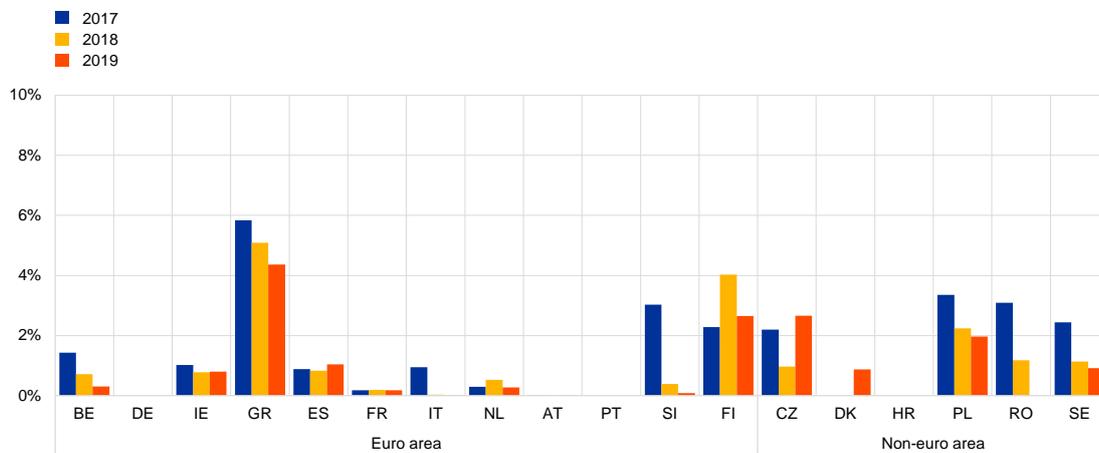
For the household sector, vertical discrepancies for 2019 were above 2% of GDP in Greece and the Czech Republic (see MIP Chart A).

³⁰ In the Magyar Nemzeti Bank's quarterly and annual financial accounts, Eximbank is regarded as part of the financial sector.

MIP Chart A

Vertical discrepancies for households

(absolute vertical discrepancies relative to GDP; percentages)



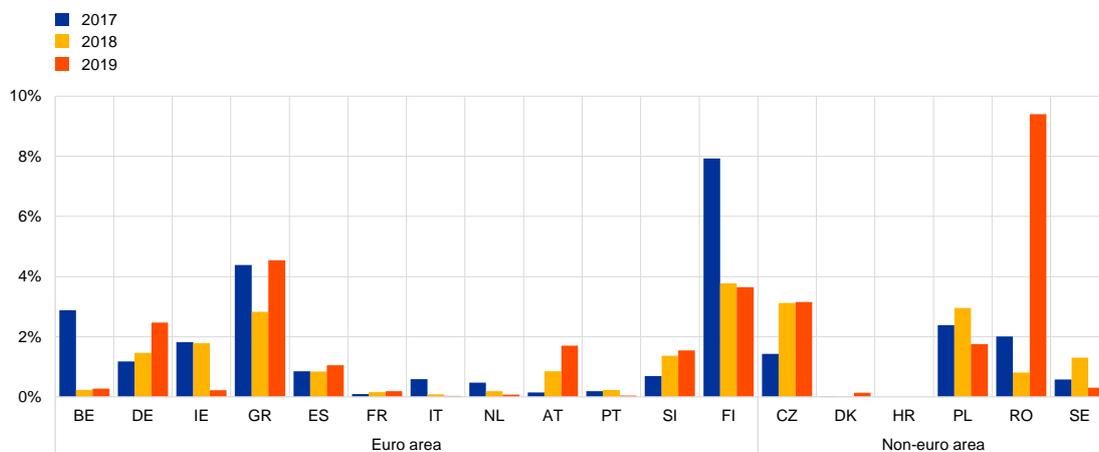
Source: ECB.

Note: Quarterly non-financial accounts for this sector are provided by Croatia (up to and including data for 2016) and Slovenia on a voluntary basis.

MIP Chart B

Vertical discrepancies for non-financial corporations

(absolute vertical discrepancies relative to GDP; percentages) Source: ECB.



Source: ECB.

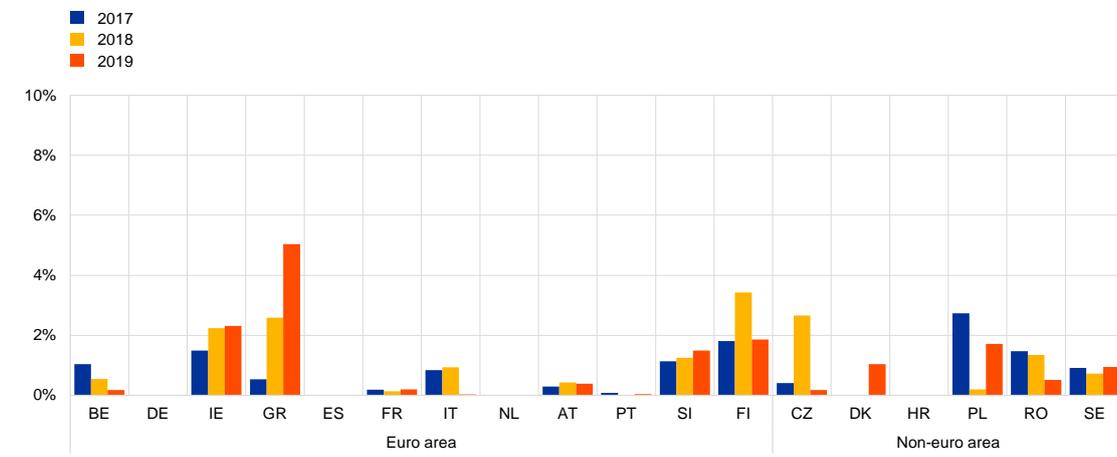
Note: Quarterly non-financial accounts for this sector are provided by Croatia (up to and including data for 2016) and Slovenia on a voluntary basis.

For the NFC sector, vertical discrepancies for 2019 were above 2% of GDP in Germany, Greece, Finland, the Czech Republic and Romania (see MIP Chart B).

MIP Chart C

Vertical discrepancies for financial corporations

(absolute vertical discrepancies relative to GDP; percentages)



Source: ECB.

Note: Quarterly non-financial accounts for this sector are provided by Croatia (up to and including data for 2016) and Slovenia on a voluntary basis.

For the financial corporation sector, vertical discrepancies for 2019 were above 2% of GDP in Ireland and Greece (see MIP Chart C).

In several EU countries, work to ensure good alignment of financial and non-financial accounts is being carried out, with regular meetings being held by compilers. At European level, this issue is being addressed in the relevant working fora (the WG FGS and the Expert Group on Sector Accounts) with the objective of drawing up a first set of recommendations by mid-2021.

External consistency

The methodological differences between the b.o.p./i.i.p. and the RoW account (national accounts) were removed with the introduction of ESA 2010 and BPM6. However, subsequent analysis showed that inconsistencies between the two statistical domains continued to persist in several EU Member States, negatively affecting the combined use of those two datasets, as well as their reliability. With that in mind, the CMFB endorsed a medium-term work plan designed to eliminate most discrepancies by September 2019. The remaining discrepancies are being analysed in depth by the ECB and Eurostat, and the most relevant outstanding differences are being addressed.

MIP Table A

Revisions

(revisions to financial accounts data underlying MIP indicators for 2018 (October 2020 transmission vs October 2019 transmission); percentages)

| Country | 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 2019 transmission | Household debt, consolidated Revision as % of GDP |
|----------------------|---|--|--|--|
| Euro area | | | | |
| BE | 7.22 | 1.37 | 0.31 | -0.13 |
| DE | 0.68 | -0.15 | 0.84 | 0.02 |
| EE | -0.72 | 0.81 | -0.25 | -0.21 |
| IE | 15.11 | 6.33 | -0.10 | -0.26 |
| GR | 0.08 | 0.22 | 1.23 | 0.13 |
| ES | -0.06 | -0.33 | 0.22 | 0.02 |
| FR | 0.02 | 0.29 | 0.29 | -0.03 |
| IT | 0.83 | 0.15 | -0.33 | 0.05 |
| CY | 7.07 | 3.50 | -1.55 | 1.24 |
| LV | -0.52 | 0.00 | -0.46 | -0.00 |
| LT | 0.07 | 0.00 | -0.01 | -0.05 |
| LU | 8.20 | 8.57 | 0.76 | 1.21 |
| MT | -4.50 | -0.97 | 0.43 | 0.00 |
| NL | 2.48 | 1.07 | 1.92 | 1.30 |
| AT | 0.72 | 0.52 | -1.47 | 0.06 |
| PT | 0.32 | 0.22 | -0.17 | -0.11 |
| SI | 0.00 | 0.00 | 0.00 | 0.00 |
| SK | -0.47 | 0.00 | -1.83 | 0.00 |
| FI | 1.95 | 2.61 | 0.70 | 0.21 |
| Non-euro area | | | | |
| BG | 0.27 | -0.01 | 0.01 | 0.01 |
| CZ | 1.77 | 1.00 | 2.28 | 0.01 |
| DK | 20.49 | 2.59 | -4.50 | -1.79 |
| HR | 0.16 | 0.02 | -0.03 | 0.01 |
| HU | 0.61 | -0.15 | -0.11 | 0.20 |
| PL | 0.87 | 0.37 | 0.31 | -0.00 |
| RO | 0.00 | 0.00 | 0.00 | 0.00 |
| SE | 0.56 | -0.14 | 0.51 | -0.13 |

Annexes

Annex 1: Detailed tables on quality criteria

1.1 Accessibility and clarity

Table A.1.1.1

Accessibility of financial accounts data

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

Source: ECB.

1.2 Internal consistency

Table A.1.2.1

Percentage of validation rules satisfied

(period: Q4 2012 to Q2 2019)

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

Source: ECB.

Table A.1.2.2
Consistency across frequencies, 2019

(percentages)

| Country | Private sector debt, consolidated | Private sector credit flow, consolidated | Total financial sector liabilities, non-consolidated | Household debt, consolidated |
|----------------------|--------------------------------------|---|---|---------------------------------|
| | % difference (QFA-AFA)/QFA | | | |
| Euro area | | | | |
| BE | -0.00 | -0.00 | 0.00 | -0.00 |
| DE | 0.00 | -0.01 | 0.00 | 0.00 |
| EE | -0.00 | 0.00 | 0.00 | -0.00 |
| IE | 0.11 | 0.58 | 1.19 | 0.98 |
| GR | 0.00 | 0.00 | 0.00 | 0.00 |
| ES | 0.00 | 0.00 | 0.00 | 0.00 |
| FR | 0.00 | -0.00 | -0.00 | 0.00 |
| IT | -0.00 | 0.00 | 0.00 | 0.00 |
| CY | 0.00 | 0.26 | -0.11 | 0.00 |
| LV | -0.00 | -0.00 | -0.00 | 0.00 |
| LT | 0.00 | 0.00 | -0.00 | -0.00 |
| LU | 0.00 | 0.00 | 0.02 | -0.00 |
| MT | -0.00 | -0.00 | -0.00 | -0.00 |
| NL | 0.00 | 0.00 | 0.00 | 0.00 |
| AT | -0.00 | 0.00 | 0.00 | -0.00 |
| PT | -0.00 | 0.00 | 0.00 | 0.00 |
| SI | -0.00 | 0.00 | -0.00 | 0.00 |
| SK | 0.92 | 0.31 | -1.14 | 0.02 |
| FI | 0.00 | 0.00 | 0.00 | 0.00 |
| Non-euro area | | | | |
| BG | 0.00 | -0.00 | -0.08 | -0.00 |
| CZ | -0.07 | -0.02 | -0.05 | -0.72 |
| DK | 0.00 | -0.00 | -0.00 | -0.00 |
| HR | -0.00 | 0.00 | -0.00 | -0.00 |
| HU | -0.00 | 0.00 | 0.85 | 0.00 |
| PL | 0.00 | 0.00 | -0.00 | 0.00 |
| RO | 0.00 | -0.00 | 0.00 | 0.00 |
| SE | 0.00 | 0.00 | 0.00 | 0.00 |

Source: ECB.

1.3 Revision indicators

Table A.1.3.1

Symmetric mean absolute percentage errors* for the period Q2 2018 to Q1 2020

(percentages)

| | Households (including NPISHs) | | | | Non-financial corporations | | | | | | Financial corporations | | | | | | |
|----------------------|-------------------------------|-------------------|--------------|-------------------|----------------------------|-------------------|--------|-------------------|-----------------|-------------------|------------------------|--------|------|------|-------|------|------|
| | Loans | | Total assets | | Debt securities | | Loans | | Intra-NFC loans | | Total | Total | MFIs | IVFs | OFIs | ICs | PFs |
| | Stocks | Trans- actions | Stocks | Trans- actions | Stocks | Trans- actions | Stocks | Trans- actions | Stocks | Trans- actions | Transactions | Stocks | | | | | |
| Euro area | | | | | | | | | | | | | | | | | |
| BE | 0.13 | 0.14 | 0.28 | 0.05 | 0.77 | 0.57 | 1.10 | 0.55 | 5.51 | 3.76 | 0.08 | 0.19 | 0.30 | 0.17 | 0.60 | 0.18 | 3.05 |
| DE | 0.03 | 0.02 | 0.25 | 0.02 | 0.00 | 0.00 | 0.65 | 0.11 | 9.78 | 0.67 | 0.20 | 0.49 | 0.26 | 1.23 | 0.93 | 0.40 | 1.44 |
| EE | 0.25 | 0.03 | 1.17 | 0.10 | 0.02 | 0.03 | 0.67 | 0.29 | 13.73 | 1.17 | 0.08 | 0.32 | 0.08 | 0.01 | 1.24 | 3.45 | 0.00 |
| IE | 0.36 | 0.02 | 0.36 | 0.16 | 12.06 | 0.53 | 5.87 | 0.74 | 29.77 | 2.09 | 0.19 | 0.39 | 0.06 | 0.01 | 1.50 | 0.64 | 1.09 |
| GR | 1.69 | 0.10 | 0.32 | 0.08 | 0.76 | 2.18 | 0.51 | 0.17 | NA | NA | 0.08 | 0.51 | 0.60 | 0.07 | 0.82 | 0.13 | 2.05 |
| ES | 0.08 | 0.01 | 1.30 | 0.08 | 15.00 | 0.33 | 0.67 | 0.23 | 3.08 | 0.35 | 0.06 | 0.28 | 0.44 | 0.37 | 0.69 | 1.09 | 1.00 |
| FR | 0.02 | 0.00 | 0.25 | 0.08 | 1.81 | 0.03 | 1.85 | 0.27 | 4.18 | 0.53 | 0.10 | 0.23 | 0.22 | 0.12 | 1.01 | 0.09 | NA |
| IT | 0.04 | 0.03 | 0.40 | 0.11 | 0.91 | 0.12 | 0.43 | 0.09 | 1.54 | 0.57 | 0.08 | 0.49 | 1.64 | 0.00 | 5.92 | 0.12 | 0.92 |
| CY | 1.02 | 0.23 | 1.60 | 0.49 | 39.46 | 0.75 | 1.24 | 0.29 | 27.70 | 2.44 | 0.27 | 11.88 | 0.09 | 3.26 | 14.61 | 0.38 | 4.90 |
| LV | 0.16 | 0.07 | 5.31 | 0.31 | 0.26 | 1.08 | 2.40 | 0.43 | 12.58 | 2.30 | 0.08 | 0.41 | 0.12 | 0.23 | 1.55 | 0.54 | 0.28 |
| LT | 0.15 | 0.01 | 1.12 | 0.39 | 0.25 | 0.04 | 2.40 | 0.40 | 8.64 | 2.32 | 0.05 | 0.04 | 0.05 | 0.80 | 0.06 | 0.55 | 0.00 |
| LU | 1.19 | 0.35 | 0.61 | 0.50 | 4.50 | 1.14 | 2.74 | 1.22 | 5.20 | 0.16 | 0.25 | 0.74 | 0.12 | 0.52 | 1.19 | 0.71 | 0.23 |
| MT | 0.47 | 0.07 | 1.33 | 0.46 | 1.47 | 1.24 | 1.25 | 0.20 | 6.80 | 0.95 | 0.08 | 0.68 | 0.35 | 9.34 | 0.74 | 1.55 | 0.79 |
| NL | 0.87 | 0.04 | 0.37 | 0.02 | 5.90 | 0.45 | 1.07 | 0.25 | 9.69 | 1.84 | 0.25 | 1.79 | 1.60 | 0.85 | 2.58 | 0.42 | 0.76 |
| AT | 0.08 | 0.10 | 1.10 | 0.02 | 1.02 | 0.55 | 0.68 | 0.41 | 1.19 | 0.88 | 0.26 | 0.61 | 0.59 | 0.02 | 2.85 | 0.40 | 1.13 |
| PT | 0.19 | 0.05 | 1.19 | 0.08 | 7.27 | 0.09 | 1.89 | 0.25 | 3.79 | 1.21 | 0.04 | 0.11 | 0.03 | 0.34 | 0.70 | 0.50 | 0.27 |
| SI | 0.04 | 0.03 | 3.39 | 0.21 | 0.00 | 0.00 | 0.21 | 0.05 | 2.14 | 1.76 | 0.01 | 0.27 | 0.37 | 0.00 | 0.21 | 0.00 | 0.00 |
| SK | 0.01 | 0.02 | 0.18 | 0.07 | 4.39 | 0.04 | 1.14 | 0.32 | 2.66 | 2.60 | 0.08 | 0.41 | 0.25 | 0.01 | 2.76 | 3.98 | 0.00 |
| FI | 0.57 | 0.09 | 0.23 | 0.09 | 0.98 | 0.16 | 2.90 | 0.49 | 4.86 | 1.68 | 0.16 | 0.17 | 0.17 | 0.12 | 1.23 | 0.27 | 1.44 |
| Euro area | 0.06 | 0.02 | 0.20 | 0.02 | 0.94 | 0.16 | 0.71 | 0.13 | 2.44 | 0.22 | 0.05 | 0.47 | 0.27 | 0.21 | 1.99 | 0.20 | 0.85 |
| Median | 0.16 | 0.04 | 0.61 | 0.09 | 1.02 | 0.33 | 1.14 | 0.29 | 5.36 | 1.45 | 0.08 | 0.41 | 0.25 | 0.17 | 1.19 | 0.42 | 0.85 |
| Non-euro area | | | | | | | | | | | | | | | | | |
| BG | 0.15 | 0.07 | 5.92 | 0.36 | 0.19 | 0.19 | 1.15 | 0.13 | 6.75 | 1.16 | 0.11 | 0.21 | 3.20 | 0.02 | 1.86 | 1.15 | 0.01 |
| CZ | 0.03 | 0.03 | 3.78 | 0.16 | 0.00 | 0.16 | 2.59 | 0.79 | 24.70 | 9.14 | 0.25 | 0.89 | 2.21 | 0.41 | 3.91 | 0.24 | 0.10 |
| DK | 0.76 | 0.08 | 5.37 | 0.16 | 2.89 | 0.61 | 11.81 | 1.89 | 5.72 | 5.55 | 0.13 | 1.34 | 3.54 | 0.11 | 5.42 | 0.92 | 0.35 |
| HR | 0.05 | 0.00 | 0.68 | 0.25 | 0.38 | 0.04 | 0.75 | 0.24 | 1.65 | 0.63 | 0.06 | 0.06 | 2.29 | 0.00 | 0.26 | 0.07 | 0.01 |
| HU | 0.66 | 0.05 | 0.39 | 0.02 | 7.84 | 0.74 | 0.62 | 0.18 | 2.06 | 0.74 | 1.15 | 2.28 | 3.92 | 1.27 | 5.78 | 0.32 | 0.23 |
| PL | 0.01 | 0.00 | 1.12 | 0.14 | 0.38 | 0.08 | 1.57 | 0.31 | 0.43 | 0.10 | 0.04 | 0.41 | 2.68 | 0.00 | 0.64 | 0.01 | 0.01 |
| RO | 0.35 | 0.08 | 4.30 | 1.97 | 22.96 | 6.85 | 0.67 | 0.20 | 8.16 | 4.57 | 0.09 | 0.21 | 1.94 | 0.00 | 2.67 | 0.64 | 0.00 |
| SE | 0.04 | 0.00 | 1.20 | 0.06 | 0.31 | 0.20 | 1.11 | 0.17 | 1.16 | 0.43 | 0.06 | 0.24 | 2.34 | 0.10 | 1.64 | 0.62 | 1.29 |

Source: ECB.

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

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

Table A.1.3.2
Mean absolute revisions for the period Q2 2018 to Q1 2020

(percentages of GDP)

| | Households (including NPISHs) | | | | Non-financial corporations | | | | | | Financial corporations | | | | | | |
|----------------------|-------------------------------|--------------|--------------|--------------|----------------------------|--------------|--------|--------------|-----------------|--------------|------------------------|--------|-------|-------|--------|------|------|
| | Loans | | Total assets | | Debt securities | | Loans | | Intra-NFC loans | | Total | Total | MFIs | IVFs | OFIs | ICs | PFs |
| | Stocks | Transactions | Stocks | Transactions | Stocks | Transactions | Stocks | Transactions | Stocks | Transactions | Transactions | Stocks | | | | | |
| Euro area | | | | | | | | | | | | | | | | | |
| BE | 0.16 | 0.17 | 1.57 | 0.29 | 0.22 | 0.16 | 2.97 | 1.47 | 2.92 | 1.99 | 0.78 | 1.95 | 1.51 | 0.12 | 1.68 | 0.26 | 0.47 |
| DE | 0.03 | 0.02 | 0.94 | 0.06 | 0.00 | 0.00 | 0.67 | 0.12 | 1.48 | 0.10 | 1.87 | 4.52 | 1.47 | 1.66 | 0.56 | 0.51 | 0.48 |
| EE | 0.18 | 0.02 | 2.75 | 0.23 | 0.00 | 0.00 | 0.87 | 0.37 | 2.47 | 0.21 | 0.34 | 1.30 | 0.21 | 0.00 | 1.20 | 0.36 | 0.00 |
| IE | 0.27 | 0.02 | 0.80 | 0.35 | 1.36 | 0.06 | 21.94 | 2.76 | 15.80 | 1.11 | 6.18 | 12.34 | 0.41 | 0.19 | 11.93 | 1.11 | 0.79 |
| GR | 1.86 | 0.11 | 0.89 | 0.22 | 0.01 | 0.02 | 0.57 | 0.19 | 0.00 | 0.00 | 0.33 | 2.17 | 2.27 | 0.01 | 0.13 | 0.03 | 0.03 |
| ES | 0.09 | 0.01 | 4.79 | 0.29 | 2.30 | 0.05 | 1.13 | 0.40 | 1.22 | 0.14 | 0.43 | 2.11 | 2.37 | 0.18 | 0.58 | 0.58 | 0.23 |
| FR | 0.03 | 0.00 | 1.14 | 0.38 | 0.97 | 0.01 | 4.40 | 0.63 | 4.57 | 0.58 | 1.28 | 2.94 | 1.95 | 0.14 | 0.86 | 0.20 | 0.00 |
| IT | 0.03 | 0.03 | 1.91 | 0.53 | 0.15 | 0.02 | 0.52 | 0.11 | 0.08 | 0.03 | 0.57 | 3.47 | 7.99 | 0.00 | 4.44 | 0.12 | 0.11 |
| CY | 1.86 | 0.42 | 6.83 | 2.10 | 0.06 | 0.00 | 4.34 | 1.01 | 0.71 | 0.06 | 11.55 | 506.70 | 0.62 | 1.60 | 507.59 | 0.15 | 1.42 |
| LV | 0.06 | 0.03 | 9.82 | 0.58 | 0.00 | 0.02 | 2.75 | 0.49 | 2.28 | 0.42 | 0.30 | 1.52 | 0.31 | 0.01 | 1.09 | 0.04 | 0.08 |
| LT | 0.07 | 0.00 | 2.07 | 0.72 | 0.01 | 0.00 | 1.80 | 0.30 | 1.30 | 0.35 | 0.13 | 0.10 | 0.10 | 0.04 | 0.02 | 0.05 | 0.00 |
| LU | 1.53 | 0.44 | 1.97 | 1.60 | 3.84 | 0.97 | 15.26 | 6.78 | 9.50 | 0.30 | 123.19 | 366.14 | 5.23 | 75.91 | 352.54 | 4.82 | 0.02 |
| MT | 0.44 | 0.06 | 5.61 | 1.94 | 0.17 | 0.15 | 3.09 | 0.50 | 7.57 | 1.05 | 3.74 | 30.19 | 2.72 | 23.11 | 23.81 | 2.94 | 0.00 |
| NL | 1.73 | 0.09 | 2.47 | 0.11 | 1.71 | 0.13 | 3.07 | 0.72 | 4.10 | 0.78 | 6.70 | 48.72 | 10.77 | 1.90 | 33.39 | 0.55 | 2.98 |
| AT | 0.07 | 0.10 | 3.93 | 0.08 | 0.21 | 0.11 | 1.07 | 0.65 | 0.46 | 0.34 | 2.02 | 4.64 | 2.89 | 0.02 | 3.42 | 0.22 | 0.12 |
| PT | 0.24 | 0.06 | 4.76 | 0.32 | 2.00 | 0.02 | 3.13 | 0.42 | 0.84 | 0.27 | 0.33 | 0.85 | 0.14 | 0.09 | 1.01 | 0.28 | 0.05 |
| SI | 0.02 | 0.01 | 7.45 | 0.46 | 0.00 | 0.00 | 0.20 | 0.05 | 0.26 | 0.21 | 0.04 | 0.83 | 0.86 | 0.00 | 0.04 | 0.00 | 0.00 |
| SK | 0.01 | 0.01 | 0.29 | 0.12 | 0.53 | 0.01 | 1.08 | 0.30 | 0.26 | 0.25 | 0.27 | 1.43 | 0.70 | 0.00 | 0.55 | 0.63 | 0.00 |
| FI | 0.73 | 0.12 | 0.67 | 0.25 | 0.27 | 0.04 | 5.90 | 1.00 | 3.46 | 1.20 | 1.36 | 1.48 | 1.06 | 0.14 | 0.92 | 0.17 | 0.04 |
| Euro area | 0.06 | 0.02 | 0.82 | 0.07 | 0.23 | 0.04 | 1.31 | 0.23 | 1.38 | 0.12 | 0.63 | 6.37 | 1.66 | 0.45 | 6.97 | 0.27 | 0.37 |
| Median | 0.16 | 0.03 | 2.07 | 0.32 | 0.21 | 0.02 | 2.75 | 0.49 | 1.48 | 0.30 | 0.78 | 2.17 | 1.47 | 0.12 | 1.09 | 0.26 | 0.05 |
| Non-euro area | | | | | | | | | | | | | | | | | |
| BG | 0.07 | 0.03 | 15.35 | 0.93 | 0.01 | 0.01 | 1.72 | 0.20 | 1.32 | 0.23 | 0.39 | 0.73 | 8.14 | 0.00 | 0.77 | 0.18 | 0.00 |
| CZ | 0.02 | 0.02 | 9.32 | 0.39 | 0.00 | 0.02 | 2.53 | 0.77 | 2.87 | 1.06 | 1.29 | 4.58 | 8.34 | 0.08 | 2.83 | 0.05 | 0.02 |
| DK | 1.67 | 0.17 | 34.60 | 1.06 | 0.42 | 0.09 | 26.34 | 4.22 | 2.74 | 2.66 | 2.25 | 23.43 | 26.28 | 0.22 | 20.78 | 2.10 | 0.55 |
| HR | 0.04 | 0.00 | 1.66 | 0.60 | 0.03 | 0.00 | 1.26 | 0.39 | 1.01 | 0.39 | 0.25 | 0.22 | 6.28 | 0.00 | 0.05 | 0.02 | 0.01 |
| HU | 0.22 | 0.02 | 0.95 | 0.04 | 0.19 | 0.02 | 0.75 | 0.21 | 0.56 | 0.20 | 5.07 | 10.03 | 8.46 | 0.39 | 9.51 | 0.04 | 0.02 |
| PL | 0.00 | 0.00 | 2.15 | 0.28 | 0.03 | 0.01 | 1.21 | 0.24 | 0.03 | 0.01 | 0.11 | 1.22 | 5.44 | 0.00 | 0.17 | 0.00 | 0.00 |
| RO | 0.10 | 0.03 | 5.01 | 2.30 | 0.03 | 0.01 | 0.41 | 0.12 | 0.14 | 0.08 | 0.14 | 0.33 | 2.29 | 0.00 | 0.32 | 0.03 | 0.00 |
| SE | 0.07 | 0.00 | 7.30 | 0.34 | 0.16 | 0.11 | 2.99 | 0.46 | 1.08 | 0.40 | 0.62 | 2.68 | 14.05 | 0.17 | 1.93 | 0.31 | 2.34 |

Source: ECB.

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

Table A.1.3.3

Upward revision ratios for the period Q2 2018 to Q1 2020

(percentages)

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

Source: ECB.

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

Table A.1.3.4

Directional reliability indicator for the period Q2 2018 to Q1 2020

(percentages)

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

Source: ECB.

Note: For non-euro area countries, data relate to the period Q4 2018 to Q4 2019.

1.4 Vertical discrepancies

Table A.1.4.1

Four-quarter cumulative vertical discrepancies

| | EUR millions* | | | | As a percentage of GDP | | | |
|---|---------------|----------|----------|----------|------------------------|---------|---------|---------|
| | Q3 2019 | Q4 2019 | Q1 2020 | Q2 2020 | Q3 2019 | Q4 2019 | Q1 2020 | Q2 2020 |
| Households – euro area | | | | | | | | |
| BE | 510 | 1,422 | 6,243 | 990 | 0% | 0% | 1% | 0% |
| DE | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| IE | -2,758 | -2,836 | 539 | 2,104 | -1% | -1% | 0% | 1% |
| GR | -7,195 | -8,009 | -5,505 | -7,971 | -4% | -4% | -3% | -4% |
| ES | -14,269 | -12,948 | -8,959 | -15,713 | -1% | -1% | -1% | -1% |
| FR | 40,670 | 4,283 | 23,115 | 40,883 | 2% | 0% | 1% | 2% |
| IT | 1,948 | 81 | -169 | -309 | 0% | 0% | 0% | 0% |
| NL | -7,443 | -2,171 | -3,158 | -916 | -1% | 0% | 0% | 0% |
| AT | 3,786 | -1 | 489 | -1,317 | 1% | 0% | 0% | 0% |
| PT | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| SI | 130 | -40 | 448 | 820 | 0% | 0% | 1% | 2% |
| FI | -3,672 | -6,357 | -8,838 | -2,182 | -2% | -3% | -4% | -1% |
| Euro area | -28,385 | -36,600 | -17,544 | 17,366 | 0% | 0% | 0% | 0% |
| Households – non-euro area | | | | | | | | |
| CZ | -140,505 | -152,963 | -132,036 | -259,658 | -2% | -3% | -2% | -5% |
| DK | -17,049 | -20,389 | -13,912 | -44,367 | -1% | -1% | -1% | -2% |
| HR | NC | NC | NC | NC | NC | NC | NC | NC |
| PL | -85,038 | -45,098 | -30,496 | -134,735 | -4% | -2% | -1% | -6% |
| RO | NC | NC | NC | NC | NC | NC | NC | NC |
| SE | 52,874 | 45,799 | 52,215 | 3,871 | 1% | 1% | 1% | 0% |
| Non-financial corporations – euro area | | | | | | | | |
| BE | -10,921 | -1,294 | -2,946 | -8,882 | -2% | 0% | -1% | -2% |
| DE | 74,224 | 85,285 | 24,084 | -14,208 | 2% | 2% | 1% | 0% |
| IE | 1,471 | -764 | -913 | 1,365 | 0% | 0% | 0% | 0% |
| GR | 6,558 | 8,331 | 5,863 | 8,802 | 4% | 5% | 3% | 5% |
| ES | 13,454 | 13,068 | 10,030 | 16,428 | 1% | 1% | 1% | 1% |
| FR | 6,236 | 4,586 | -3,824 | 8,324 | 0% | 0% | 0% | 0% |
| IT | 260 | 465 | -611 | -216 | 0% | 0% | 0% | 0% |
| NL | -2,504 | -620 | -4,331 | -1,249 | 0% | 0% | -1% | 0% |
| AT | -7,513 | -6,781 | -4,026 | 3,752 | -2% | -2% | -1% | 1% |
| PT | 120 | 83 | 157 | 399 | 0% | 0% | 0% | 0% |
| SI | 453 | 750 | 594 | 1,055 | 1% | 2% | 1% | 2% |
| FI | 9,760 | 8,762 | 13,125 | 7,192 | 4% | 4% | 5% | 3% |
| Euro area | 37,248 | 44,417 | 56,694 | 39,617 | 0% | 0% | 0% | 0% |

| | EUR millions* | | | | As a percentage of GDP | | | |
|---|---------------|----------|----------|----------|------------------------|---------|---------|---------|
| | Q3 2019 | Q4 2019 | Q1 2020 | Q2 2020 | Q3 2019 | Q4 2019 | Q1 2020 | Q2 2020 |
| Non-financial corporations – non-euro area | | | | | | | | |
| CZ | -117,102 | -181,374 | -164,937 | -206,381 | -2% | -3% | -3% | -4% |
| DK | -10,566 | -3,033 | 25,282 | 10,974 | 0% | 0% | 1% | 0% |
| HR | NC | NC | NC | NC | NC | NC | NC | NC |
| PL | 125,843 | 40,314 | 63,471 | 25,604 | 6% | 2% | 3% | 1% |
| RO | 3,375 | 99,541 | 79,519 | 68,381 | 0% | 9% | 8% | 6% |
| SE | -141,427 | 15,279 | -141,540 | -129,251 | -3% | 0% | -3% | -3% |
| Financial corporations – euro area | | | | | | | | |
| BE | 11,731 | 820 | -3,612 | 6,055 | 2% | 0% | -1% | 1% |
| DE | -3 | -4 | -4 | -5 | 0% | 0% | 0% | 0% |
| IE | -4,756 | -8,216 | 3,356 | 1,850 | -1% | -2% | 1% | 1% |
| GR | 10,033 | 9,245 | 12,788 | 7,459 | 5% | 5% | 7% | 4% |
| ES | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| FR | -74,016 | -4,885 | -6,067 | -79,705 | -3% | 0% | 0% | -3% |
| IT | 7,751 | 608 | 1,573 | 8,801 | 0% | 0% | 0% | 0% |
| NL | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| AT | -3,792 | 1,559 | -1,009 | 345 | -1% | 0% | 0% | 0% |
| PT | 109 | 95 | 290 | 38 | 0% | 0% | 0% | 0% |
| SI | -522 | -722 | -820 | -881 | -1% | -1% | -2% | -2% |
| FI | 7,371 | 4,475 | 7,332 | 12,276 | 3% | 2% | 3% | 5% |
| Euro area | 29,719 | 24,834 | 22,997 | 6,997 | 0% | 0% | 0% | 0% |
| Financial corporations – non-euro area | | | | | | | | |
| CZ | -7,088 | -9,958 | -60,943 | -62,118 | 0% | 0% | -1% | -1% |
| DK | -3,601 | -24,355 | -42,938 | -52,728 | 0% | -1% | -2% | -2% |
| HR | NC | NC | NC | NC | NC | NC | NC | NC |
| PL | -19,867 | 39,237 | -19,733 | 282 | -1% | 2% | -1% | 0% |
| RO | 10,021 | 5,464 | 3,564 | 1,187 | 1% | 1% | 0% | 0% |
| SE | -77,589 | -47,351 | 31,620 | 39,620 | -2% | -1% | 1% | 1% |

Source: ECB.

Note: NC = No data

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

1.5 Comparison with financial statistics

Table A.1.5.1

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

(percentages)

| | External comparison | | | | | | |
|----------------------|--|---------------|---|------------------------|-------------------------------|------------------------|--|
| | MFI loans to NFCs and households: FA vs BSI, 2019 | | NFC debt securities: FA vs SEC, 2019 | | | | |
| | Stocks | Transactions* | Stocks | | Transactions* | | |
| | | | % difference (QFA-SEC)/QFA | Difference as % of GDP | % difference (QFA-SEC)/QFA | Difference as % of GDP | |
| Euro area | | | | | | | |
| BE | 1.15 | 0.12 | 11.37 | 1.60 | 0.09 | 0.01 | |
| DE | -3.84 | 0.11 | 13.37 | 0.83 | -0.02 | 0.00 | |
| EE | 0.40 | -0.12 | 7.84 | 0.32 | -0.91 | -0.04 | |
| IE | -0.09 | 0.74 | 28.04 | 1.81 | 1.77 | 0.11 | |
| GR | 0.67 | -0.11 | 1.24 | 0.01 | 7.22 | 0.04 | |
| ES | 0.01 | 0.00 | 0.69 | 0.07 | -0.02 | 0.00 | |
| FR | 0.28 | -0.06 | 7.45 | 2.06 | -0.03 | -0.01 | |
| IT | 0.01 | 0.02 | 6.86 | 0.57 | -1.04 | -0.09 | |
| CY | 0.89 | 0.23 | 31.37 | 0.04 | 88.24 | 0.12 | |
| LV | -1.35 | -0.06 | 9.02 | 0.12 | -6.96 | -0.09 | |
| LT | -0.07 | 0.05 | 23.52 | 0.61 | 4.95 | 0.13 | |
| LU | -0.22 | -0.32 | 10.55 | 4.74 | 0.28 | 0.13 | |
| MT | 0.49 | -0.64 | 12.78 | 0.84 | 8.28 | 0.54 | |
| NL | 0.96 | 0.24 | -25.04 | -3.41 | -2.49 | -0.34 | |
| AT | 3.20 | -0.06 | 7.60 | 0.74 | 0.24 | 0.02 | |
| PT | 0.20 | -0.09 | -0.78 | -0.10 | -0.54 | -0.07 | |
| SI | -0.03 | -0.10 | 0.98 | 0.01 | -29.02 | -0.44 | |
| SK | 0.60 | -0.02 | 35.68 | 2.22 | 0.00 | 0.00 | |
| FI | -0.85 | 0.38 | 4.59 | 0.62 | 3.01 | 0.41 | |
| Non-euro area | | | | | | | |
| BG | 1.28 | | 1.05 | 0.03 | | | |
| CZ | -0.38 | | 1.14 | 0.07 | | | |
| DK | 1.96 | | 2.34 | 0.17 | | | |
| HR | 0.28 | | 22.17 | 1.18 | | | |
| HU | 0.63 | | 2.59 | 0.04 | | | |
| PL | 0.83 | | 16.28 | 0.64 | | | |
| RO | 0.69 | | -19.52 | 0.00 | | | |
| SE | -0.89 | | -0.48 | -0.13 | | | |

Source: ECB.

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

Annex 2: Methodological documentation of quality indicators

2.1 Descriptive indicators

Upward revision ratio

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

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

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

Directional reliability indicator

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

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

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

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

Table A.2.1

Contingency table for directional reliability

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

The directional reliability indicator (Q) is defined as:

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

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

2.2 Indicators of size

Mean absolute percentage errors

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

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

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

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

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

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

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

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

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

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

Symmetric mean absolute percentage errors

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

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

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

Additional notes:

Whenever GDP is used, it is the latest value available (in this case, 2019).

For revisions, all figures are calculated as the difference between the data in the October 2020 transmission and the data in the October 2019 transmission.

For all other tables and charts, unless otherwise indicated, figures are calculated using the data in the October 2020 transmission.

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