EUROPEAN CENTRAL BANK
EUROSYSTEM

Euro area and national quarterly financial accounts

Quality report 2024

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Contents

Executive summary

This biennial 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 on the quality of those statistics, as set out in Article 7(2) of Guideline ECB/2013/24[2] (hereinafter "the ECB Guideline"). The ECB Guideline was substantially amended in 2021 with new data requirements becoming mandatory in 2022 and, in a second step, in 2023. The new reporting framework in place includes the integration of foreign direct investment (FDI) by sector and the splitting of insurance and pension entitlements by investment risk from 2023. The analysis of other financial institutions (OFIs) has been further facilitated by extending the counterpart sector details to the OFI subsectors, which became mandatory in 2024. The role of OFIs was recognised in the ECB's 2020-21 monetary policy strategy review and the first publication of loan counterpart sector details for OFI subsectors in October 2024 marked an additional step in facilitating their analysis.[3],[4]

The regular five-yearly benchmark revision carried out in 2024 was an opportunity for many countries to make improvements to their financial accounts, including several that had been identified as a priority in this report in previous years. This has led to the revision of long-time series. While this benchmark revision has improved quality and consistency across accounts, some significant caveats remain, in particular the persisting discrepancies between the quarterly financial accounts and the balance of payments (b.o.p.) statistics, as well as vertical discrepancies compared to the non-financial accounts, which in some cases are very high.

A Eurosystem-wide audit of the governance, risk management and control processes related to the quarterly financial accounts was carried out at the ECB and the Eurosystem national central banks (NCBs) in 2023. The final report of the Internal Auditors Committee of the European System of Central Banks (ESCB) submitted to the Statistics Committee (STC) on9 April 2024 found the governance, risk management and control processes related to quarterly financial accounts at the Eurosystem level to be effective. A follow-up to the audit was to improve the monitoring of the recommendations in the Quality Report and such improved process has been implemented within this report. In addition, local action plans were requested for the findings reported in local audit reports by the 20 Eurosystem NCBs and the ECB.

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

2 Guideline ECB/2013/24 of 25 July 2013, as amended by Guidelines ECB/2020/51 of 14 October 2020 and ECB/2021/20 of 29 April 2021: consolidated version.

3 The importance of the analysis of OFIs was emphasised in "Non-bank financial intermediation in the euro area: implications for monetary policy transmission and key vulnerabilities", *Occasional Paper Series*, No 270, ECB, revised December 2021.

4 For further details on OFIs see "Financial accounts for other financial institutions by subsectors and counterpart sectors".

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, b.o.p. and international investment position (i.i.p.) statistics, monetary financial institution (MFI) balance sheet items (BSI), 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 2024. Supporting information and details of how the indicators are computed can be found in Annexes 1 and 2 respectively.

Given the specific requirements for the MIP and the ECB's responsibilities in the context of the MoU, Box 1 at the end of this report presents a number of indicators of the fitness for purpose of data for all EU countries. The box draws on data up to the end of 2023, as transmitted in October 2024, and focuses on data availability, revisions as well as the sources and methods that are relevant for the financial accounts data underlying the MIP indicators. These analyses are based on the revised set of MIP indicators, included for the first time in the 2025 Alert Mechanism Report. The revisions to the headline indicators relevant to the financial accounts relate to splitting private sector debt stocks and credit flows into separate indicators for households and non-financial corporations and dropping the indicator for total financial sector liabilities. The headline indicator for the credit flow of non-financial corporations excludes the FDI-related flows and stocks as reported in the b.o.p. statistics from both the nominator and the denominator.

Statistical developments between 2022 and 2024

All euro area countries transmitted the mandatory data to the ECB, except for some gaps in backdata before 2013 with no significant impact in terms of the euro area aggregates (see Section 4.1), and the transmissions were generally timely and consistent. Countries provided selected ("supplementary") quarterly data at t+85, metadata at t+87 and full national financial accounts data and metadata at t+97, as required under the ECB Guideline.

This report includes the quality analysis of data for Croatia in the main part of the report for the first time, after Croatia joined the euro area on 1 January 2023.

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, 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 to reduce structural discrepancies and/or reconcile differences between the various datasets.

In 2024 almost all EU countries carried out a coordinated benchmark revision of their national accounts and b.o.p. data to incorporate new data sources and enhanced methods to ensure a maximum level of consistency within and between national accounts domains for the longest possible time series, across EU countries and with b.o.p. statistics. This report flags two domains of external consistency where further improvements are needed, namely persisting discrepancies between the quarterly financial accounts and balance of payments statistics and in some cases very high vertical discrepancies to the non-financial accounts.

Recommendations for euro area countries

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 by the ECB of national data in the quarterly production rounds, discussions in the Working Group on Financial Accounts and Government Finance Statistics (WG FGS) and the Working Group on External Statistics (WG ES), as well as the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) “level 3” quality reports (which detail national compilers’ assessments 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/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	A1.1	Other equity in cross-border real estate: improve the estimation models for real estate held abroad and real estate held by non-residents, particularly for the household sector, in cooperation with the WG ES	Germany Estonia Ireland Cyprus Slovakia
	A1.2	Securities: assess and, if appropriate, integrate third-party holdings from the securities holdings statistics (SHS), particularly for households	Malta Slovakia Finland
	A1.3	Deposits with non-euro area banks: integrate available mirror data provided by the Bank for International Settlements (BIS)	Ireland Slovakia
Coverage of OFIs	A2.1	Further improve coverage of OFIs	Germany
	A2.2	Improve quarterly data sources for OFIs	Germany
	A2.2.1	Further reduce the remaining coverage gap for quarterly OFI data	Luxembourg (S.127 only)
Financial derivatives	A3	Enhance data sources and procedures to record financial derivatives for all sectors and implement national action plans	Belgium Austria Cyprus Germany Estonia Finland Ireland Luxembourg Lithuania Slovakia
Unlisted shares and other equity	A4	Enhance data sources and procedures to record unlisted shares and other equity	Ireland
	A4.1	Improve estimations for unlisted equity without an International Securities Identification Number (ISIN)	Austria
	A4.2	Evaluate or improve data for head offices and holding companies	Austria Cyprus
	A4.3	Incorporate data from additional sources (e.g. tax reports)	Cyprus
	A4.4	Implement market valuation	Germany Netherlands
	A4.5	Improve data for OFIs	Germany Slovakia
Availability of data and metadata (Section 4)			
Completeness	C	Provide missing backdata from before 2013	Ireland
Accessibility of data	C1.1	Review confidentiality flagging of data from before 2013	Ireland
Internal consistency (Section 6)			
Aggregation consistency	E1	Establish full consistency of sector and instrument aggregation	Germany Ireland
Negative stocks	E2	Ensure that values for deposits/loans/other accounts payable and receivable (balance sheets) are non-negative, including for all who-to-whom details	Ireland (deposits, loans, insurance, pensions and standardised guarantees and other accounts payable/receivable) Netherlands (loans, deposits)
Consistency with non-financial sector accounts (Section 7.1)			
Vertical discrepancies	F1.1	Implement ESCB/European Statistical System recommendations on vertical consistency and target a discrepancy of less than 1% of GDP for all sectors except general government	Ireland (financial corporations, Non-financial corporations (NFCs), Greece (households, NFCs) Finland (NFCs)
External consistency with balance of payments (Section 7.2)			

Concept	Ref.	Description of recommendation	Applicable countries/NCBs
Consistency between b.o.p./i.i.p. data and rest of the world financial accounts data	G1	Address the remaining discrepancies	Belgium Germany Ireland Greece France Luxembourg Malta Slovenia Finland

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.

In 2024 the review of the MIP indicators used in the scoreboard of the European Commission’s Alert Mechanist Report led to changes in the indicators related to the financial accounts[5]. The private sector consolidated debt flows and stocks were split into household[6] debt and NFC debt indicators in recognition of the need for their separate analysis. In addition, the calculation of the MIP indicators flows is now made against the stock of the previous year instead of GDP, while the NFC credit flow indicator as a percentage of underlying stocks excludes flows and stocks of foreign direct investment (FDI) from both the numerator and the denominator. The MIP indicator based on total financial sector liabilities has been dropped. An auxiliary indicator of household debt is now calculated as a percentage of household disposable income, instead of GDP.

The analysis in Box 1, like the revision analysis and comparison of the quarterly and annual data, is now based on the revised MIP indicators relevant for the financial accounts. 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. Minor differences persist in Ireland and Czech Republic.

For MIP purposes, the focus is on data for the last ten complete years, and this data range is available for all EU countries.

Finally, analysis shows that discrepancies between b.o.p./i.i.p. statistics and the 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

5 The motivation for changes are explained in 2025 European Semester: Alert Mechanism report - Commission Staff Working Document - On the changes in the scoreboard of the Macroeconomic Imbalance Procedure.

6 Households and non-profit institutions serving households (NPISHs).

methodology of at least one of the two sets of statistics. The benchmark revision in 2024 was a major target date for overcoming structural differences between the two statistics. The situation is similar when observing the consistency with non-financial accounts, where three countries show persisting significant discrepancies in some sectors. These domains are to be analysed in further depth by the ECB, Eurostat and EU countries.

For more information on the assessment of data quality for MIP purposes, see Box 1.

1 Introduction

This biennial 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 of the quality of those statistics, as set out in Article 7(2) of the ECB Guideline. Furthermore, this report 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.[7]

The report focuses on national data for the 20 euro area countries, as well as euro area aggregates. It includes the data quality analysis for Croatia in the main part of the report for the first time, after Croatia joined the euro area on 1 January 2023. Data for all EU Member States (the EU27) are commented on in Box 1 at the end of the report and are available in the annexed tables.

The report is produced every two years. The next report will be released in the spring of 2027.

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 and metadata 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 data and metadata obligations increased substantially with the 2021 Guideline amendment. The requirements that became mandatory in 2023 were the integration of FDI by sector and splitting insurance and pension entitlements by investment risk. OFI analyses are further facilitated by extending counterpart sector details to the OFI subsectors, which became mandatory in 2024.

The analysis focuses on the quarterly financial accounts data that were transmitted and published in 2024. The report is based on data available as at 29 October 2024, focusing on the transmissions of data and metadata for the reference quarters from the third quarter of 2022 to the second quarter of 2024,[8] with the main body of the report looking only at data for the 20 euro area countries. The vintage used thus

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

8 The revision analysis is for the reference quarters from the second quarter of 2022 to the first quarter of 2024.

reflects the effect of the benchmark revision in 2024 published in October of the same year.

Given the specificities of the MIP process, Box 1 at the end of this report presents a number of indicators that examine the fitness for purpose of data for all EU Member States. The box draws on data up to the end of 2023, as transmitted in October 2024, and 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). The indicators presented in Box 1 relate to national GDP or underlying positions of instruments and are intended to facilitate the analysis of MIP scoreboard indicators.

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’ assessments 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

For securities held with non-resident custodians, national security-by-security data used for SHS and external statistics should be supplemented with data on residents’ securities held with custodians in other euro area countries and non-euro area countries, particularly in countries whose reporting systems do not include a declaration of securities deposited abroad. 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. Malta, Slovakia and Finland have not yet integrated these third-party holdings into data for the household sector.

For complete coverage of deposits held by households with non-resident banks, balance sheet statistics from other euro area countries and the locational banking statistics of the BIS 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 Ireland and Slovakia.

2.2 Coverage of other financial institution subsectors

OFIs are institutions that provide financial services other than MFIs (i.e. banks and money market funds), investment funds, insurance corporations or pension funds. In 2024 they accounted for 25% of total financial sector liabilities. Owing to the heterogeneity the OFI subsectors, other financial intermediaries (ESA code S.125), financial auxiliaries (S.126) and captive financial instructions and money lenders

(S.127) are only partially covered by euro area-wide statistical reporting requirements under ECB regulations. To complement the analysis of financial intermediation, mandatory primary statistics exist for two large segments of financial intermediaries (S.125) included under OFIs. Reporting requirements were specified for financial vehicle corporations engaged in the securitisation of assets in 2013.[9] Statistical reporting requirements were also extended to large securities and derivatives dealers, referred to as systemic investment firms.[10]

No harmonised reporting requirements at euro area level exist for financial auxiliaries (S.126) or captive financial institutions and money lenders (S.127). These two subsectors are made up of institutions that are not financial intermediaries. Financial auxiliaries facilitate financial transactions between third parties without becoming the legal counterparty – examples include stock exchanges, managers of pension funds and mutual funds, and insurance brokers. Captive financial institutions and money lenders are mainly holding companies and intragroup entities, such as financing conduits that raise funds in open markets to be used by their parent corporation. They are by far the largest OFI subsector and accounted for 19% of financial sector liabilities in 2024, concentrated in a small number of euro area countries.

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 provide full coverage and are of high quality. NCBs provided the most recent information on their sources and methods in the 2023 and 2024 updates of the CMFB “level 3” quality reports.

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). Luxembourg continues to maintain and, where possible, improve the coverage of quarterly data sources for sector S.127, which currently accounts for around 90% of the total population. Germany is working on a new system to identify OFIs in corporate balance sheet databases and has been able to verify that the largest enterprises are included or can be added manually, so that the coverage in terms of volume is considered significantly above 70%. However, more work is need ensure full coverage. While work on registers and balance sheet databases is needed to ensure complete 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 that are not covered by counterpart sector information (e.g. unlisted shares and loans). With that in mind, Germany, has been encouraged to improve its quarterly direct data sources.

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9 Regulation (EU) No 1075/2013 of the European Central Bank of 18 October 2013 concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2013/40).

10 The reporting requirements for systemic investment firms such as non-MFI credit institutions were specified in Regulation (EU) 2021/379 of the European Central Bank of 22 January 2021 on the balance sheet items of credit institutions and of the monetary financial institutions sector (recast) (ECB/2021/2).

Where quarterly data coverage is not complete for specific OFI subsectors, 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 2020 a joint WG FGS-WG ES Task Force on Financial Derivatives produced a report providing guidance on the compilation of data on financial derivatives in macroeconomic statistics. The STC approved the task force's recommendations and countries have drawn up national action plans with a view to improving data sources and compilation methods and implementing them on a step-by-step basis. Greece has achieved consistency for b.o.p. and financial accounts for financial sector transactions, while Spain has improved the instructions for direct reporters in the external sector for each type of derivative and modified their declarations as appropriate. Although several countries have implemented structural improvements during the benchmark revisions in 2024, work is ongoing in Belgium, Germany, Estonia, Ireland, Cyprus, Lithuania, Luxembourg, Austria, Slovakia and Finland.

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. These issues contribute to bilateral asymmetries (in particular in FDI), lower cross-country comparability, and inconsistencies with related data on investment income.

A joint WG FGS and WG ES expert group developed recommendations on the recording of unlisted shares and other equity in 2022. The expert group prepared a comprehensive set of best practices for the collection and compilation of unlisted equity data, which should serve as the basis for a thorough review of national systems. The group recommended significantly enhancing data sharing at international and European level. Recommendations also included undertaking efforts to improve the recording of intangible assets, practical guidance on the split between unlisted shares and other equity, and a reduction in the number of recommended statistical methods for deriving valuation estimates. Finally, the group identified several issues which go beyond the topic of unlisted equity and require further work by the statistical community at large, including the recording of accounting provisions and negative equity, as well as mergers and acquisitions, and related corporate actions.[11]

While improvements were made in several countries during the 2024 benchmark revision, work is ongoing in Germany, Ireland, Cyprus, Netherlands, Austria and Slovakia to improve the recording of unlisted shares and other equity. The work is focused on improving estimations for unlisted equity without an International Securities Identification Number (ISIN) in Austria, the evaluation or improvement of data for head offices and holding companies in Cyprus and Austria, in addition to data for OFIs in Germany and Slovakia. There are ongoing workstreams for the incorporation of data from additional sources (e.g. tax reports) in Cyprus and the implementation of market valuation in the Netherlands.

[11] This work provided input for the review of international statistical standards, and in particular for guidance note D.2 Valuation of Unlisted Equity which was endorsed in the global consultation for the update of the 2008 System of National Accounts (SNA) and the Balance of Payments and international Investment Position Manual(BPM6). The United Nations Statistics Commission is expected to endorse the new System of National Accounts (2025 SNA) and new Balance of Payments and international Investment Position Manual (BPM7) in March 2025.

3 Timeliness and punctuality

The ECB Guideline requires (i) transmission of a subset of supplementary financial accounts data at t+85 (i.e. 85 calendar days after the end of the reference quarter) to enable the 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.

In the period from November 2022 to October 2024 most euro area countries transmitted the supplementary data and the full set of national data by the relevant deadlines.

Additional data became mandatory in March 2023 and March 2024 under the amended Guideline – FDI by sector, insurance and pension entitlements by investment risk and counterpart sector details for the OFI subsectors. Most countries provided data for the most recent reference quarters on time; however, several countries did not provide the required backdata on time.

Table 2 shows the dates for the national transmission and the ECB's publication of financial accounts data. National data are released by the ECB at t+108 (NCBs follow their own release policies). The releases of national financial accounts on 12 October 2023 included the data on FDI by sector and the new split of insurance and pension entitlements by investment risk under the amended Guideline. The euro area release on 29 October 2023 included the new split of insurance and pension entitlements by investment risk. The releases of national financial accounts on 15 October 2024 and of euro area results on 29 October 2024 included the new OFI counterpart sector details breakdowns (only loans for the euro area).

Table 2

Transmission and release dates for euro area and country data in 2023 and 2024

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+104)	Calendar days after reference quarter	Full release of euro area data	Calendar days after reference quarter
Q3 2022	24 December 2022	11 January 2023	103	5 January	13 January.	105	28 January.	119
Q4 2022	26 March	5 April	95	7 April	14 April*	104	29 April	117
Q1 2023	24 June	4 July	95	6 July	13 July	104	28 July	118
Q2 2023	23 September	5 October	97	5 October	12 October*	104	29 October	119
Q3 2023	24 December 2023	11 January 2024	103	5 January	15 January	107	26 January	118
Q4 2023	25 March	9 April	100	6 April	15 April*	106	26 April	117
Q1 2024	24 June	4 July	95	6 July	15 July	106	26 July	117
Q2 2024	23 September	4 October	96	5 October	14 October*	106	29 October	121

Source: ECB.
* Excluding the general government sector.

4 Availability of data and metadata

4.1 Completeness

Most data transmissions in 2023 and 2024 were complete and carried out according to the deadlines specified in the ECB Guideline. Some gaps existed or still exist for the new statistical breakdowns required under the 2021 update of the ECB Guideline for backdata before 2013.

The data for FDI by sector and insurance and pension entitlements by investment risk became mandatory in April 2023. All countries provided data for the most recent reference quarters under the new requirements. Ireland and Spain provided some of the required backdata in the October 2024 transmission.

The first mandatory transmission of counterpart sector details to the OFI subsectors took place in April 2024. All euro area countries provided the data for the reference period as required by the Guideline. Ireland provided some of the required backdata in the October 2024 transmission.

As of October 2024 the backdata for 525 series (for different periods between the first quarter of 1999 and the fourth quarter of 2012) related to the previous Guideline requirements are missing for Ireland.

Most countries regularly delivered metadata on revisions and major events governed by the ECB Guideline at t+87 for supplementary data and at t+97 for full datasets. There were small delays in the provision of metadata by Belgium, Germany, Ireland, Cyprus, Slovakia and Finland, but since July 2024 all countries have provided the required metadata on time.

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 for all euro area aggregates. Revaluations are published for debt securities, equity (sum of shares and other equity) and investment fund shares/units held by the main resident sectors. Details of counterpart sectors are published for transactions in and outstanding amounts of deposits, loans, debt securities, listed shares and investment fund shares.

New euro area data were published in 2023 and 2024 following the collection of new national data. The new data releases were announced in the regular euro area accounts in the institutional sector statistical releases published on the ECB's website. The breakdown of life insurance and pension entitlements by investment risk was published from October 2023 onwards.[12] Details of counterpart sectors for the OFI subsectors were published for loans for the first time in October 2024,[13] and data for additional instruments are expected to be published in 2025.

The ECB also publishes national data in accordance with Article 3(2) of the ECB Guideline, which requires the publication of quarterly national financial accounts data as transmitted by NCBs and deemed relevant by the STC, with the exception of information for the counterpart sectors "euro area other than domestic" and "residents outside the euro area".[14] In October 2023 the STC approved the extended publication of national data covering the FDI data by sector for selected instruments and the instrument breakdowns for life insurance and pension entitlements (F.6) by investment risk under Tables 1 and 2 of the Guideline, for which the transmission started in April 2023.

Under that framework, all data are sent to the ECB with a confidentiality flagging. 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. Values below 100 are due to the flagging of a transmitted series which blocks it from external publication. It distinguishes between two different datasets: the "core" dataset and a second dataset containing details of counterpart sectors for securities (see the tables in Annex I to the ECB Guideline) as well as the new data publication requirements relating mostly to the central bank and the OFI subsectors. Mandatory backdata requirements vary across subsets of the data.

12 Statistical release announcing the new breakdown of life insurance and pension entitlements by investment risk.

13 Statistical release announcing new details for counterpart sectors of OFI subsectors.

14 Article 3(2) of the ECB Guideline reads as follows: "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").

Table 3

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

Country	Core dataset: assets, liabilities and counterpart sector details for deposits and loans		Counterpart sector details for securities and new subsector details
	Q1 1999-Q3 2012	Q4 2012-Q2 2024	Q4 2013/Q1 2015-Q2 2024
BE	100	100	100
DE	100	100	100
EE	100	100	100
IE	78	97	87
GR	100	100	100
ES	100	100	100
FR	100	100	100
HR	100	100	100
IT	100	100	100
CY	100	99	83
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 and thereby enable their publication in the ECB Data Portal. Ireland currently releases 87% of the required counterpart sector details for securities and new subsector details – significantly higher than in the last report (46%) – after the review of the data flagging in the benchmark revision of Irish data from 2013 onwards that took place in October 2024. The partial unavailability of counterpart sector details is due to primary confidentiality constraints mainly in the b.o.p. and i.i.p. source data. Furthermore, 78% of the additional backdata for the core dataset are fully available, mainly pre-2013 data flagged as “not for publication”. In addition, 97% of the core dataset from the fourth quarter of 2012 are accessible, which is an improvement compared with the last report (86%). In the case of Cyprus, the partial unavailability of 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, a small amount of backdata for the core dataset (for the insurance corporation and pension fund subsectors and counterpart sectors) remain unpublished owing to confidentiality constraints. Malta and Netherlands have flagged all new OFI subsector breakdowns as “free for publication” after the benchmark revision in October 2024, increasing the availability of their data compared with the last report.

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

Under the G20 Data Gaps Initiative, the ECB shares the quarterly financial accounts data for EU countries with other international organisations (such as the Organisation for Economic Co-operation and Development, the International Monetary Fund and the BIS). Furthermore, the data are shared with Eurostat for further dissemination via its external databases.

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 Data Portal or the sector accounts section of the Statistics Bulletin. Furthermore, the ECB publishes interactive euro area and country charts and tables for the NFCs and household sectors in the ECB Data Portal.[15]

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.

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15 ECB Data Portal report on NFC, ECB Data Portal report on households, ECB Data Portal report on households and NFC

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 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). The countries that needed to update their reports did so in 2023 and 2024.

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 indicators 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 the second quarter of 2022 to the first quarter of 2024, 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 (NFCs). Financial sector liabilities are also presented. 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.

In 2024 almost all EU countries took part in a coordinated benchmark revision of national accounts and b.o.p. data to incorporate new data sources and enhanced methods to ensure a maximum level of consistency within and between national accounts domains for the longest possible time series, across EU countries and with/using b.o.p.. As a result of these improvements, the revisions observed in this report are generally slightly larger (and larger for more countries) than the revisions in the previous report for household financial investment and loan financing as well as for NFC debt securities issuance and loan financing. The revisions to financial sector liabilities, in particular for OFIs, are significantly larger for several countries compared with the previous report.

5.1 Household financial investment and loan financing

In 2024 revisions to household financial investment were larger than revisions to household loan financing in 14 euro area countries (see 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 100% (see Table A.1.3.4 in Annex 1). Cyprus, Lithuania and Malta revised their household financial investment data more extensively than other countries. In Lithuania, this was the result of moving the earnings of domestic NFCs from transactions to revaluations, while for Cyprus the revisions were due to improvements in the coverage of special purpose entities (SPEs). The median for all euro area countries was 0.1%. Cyprus and Lithuania a showed levels of directional reliability of above 70%, while lower directional reliability was observed for Malta. Data were revised upwards and downwards for Malta and Lithuania (upward revision ratio of 50% and 38%, respectively), and only revised downwards for Cyprus (0% upward revision ratio).

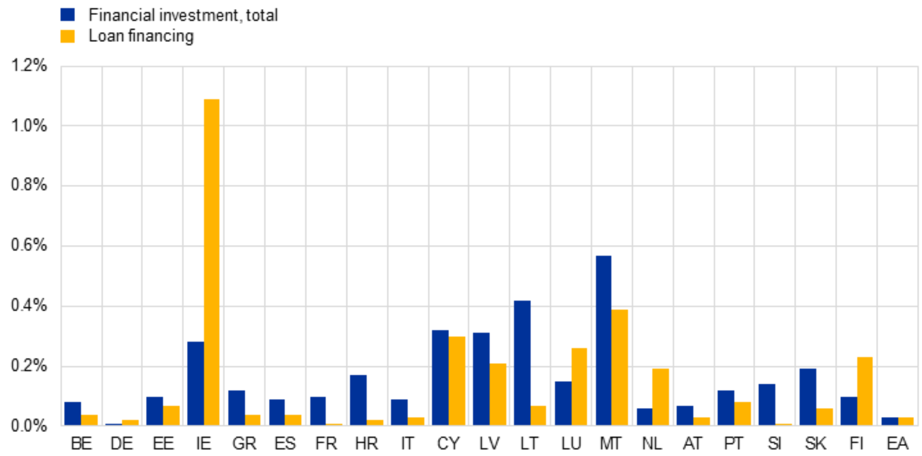
Revisions to euro area household loan financing (transactions) were smaller than the median for euro area countries, with directional reliability of 100%.

Ireland, Cyprus and Malta revised their household loan financing data more extensively than other euro area countries. In Ireland, the revisions reflect updated source information for OFIs (introduced for back data as part of the benchmark revisions exercise). This impacts the household sector via counterpart mirroring and the changes had a notable impact on the household loan financing time series. In Malta, the revisions to household loans were due to source data updates, mainly reported by banks and administrative data. The median for all euro area countries stands at 0.06%. Directional reliability was below 70% for all three countries. The data for all three countries were revised upwards and downwards (50% upward revision ratio).

Chart 1

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

(symmetric mean absolute percentage errors; Q2 2022-Q1 2024)



Source: ECB.
Note: EA = euro area.

5.2 Non-financial corporation financing

Looking at the various components of NFC financing, data on the net issuance of debt securities were revised more extensively than data on loan financing in five euro area countries (see Chart 2).

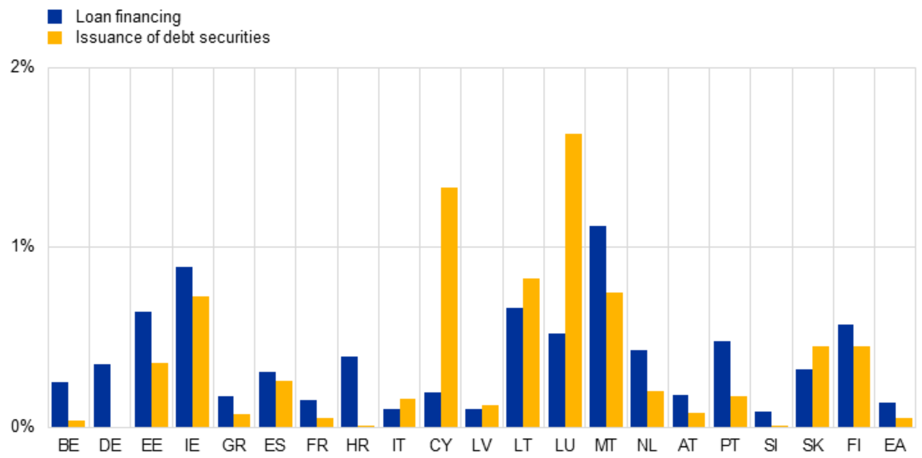
For both loans and debt securities, revisions for the euro area as a whole were smaller than the median for euro area countries. Directional reliability was 88% for debt securities and 63% for loan financing. For the net issuance of debt securities, the revisions made by Cyprus and Luxembourg were larger than in other euro area countries. In Luxembourg, they were due to revisions to b.o.p data sources and recompilations of backdata for the rest of the world, while the revisions in Cyprus were mainly explained by improvements made to the coverage of SPEs. The median for all euro area countries was 0.19%. In Cyprus and Luxembourg, the data were mainly revised upwards (upward revision ratio of above 75%).

Ireland and Malta revised NFC loan financing data more extensively than other euro area countries. In Ireland, revisions were mainly due to counterpart sector revisions in the domestic sectors, in particular vis-à-vis the NFC and OFI sectors. In Malta, the revisions were mainly to captive financial institutions and money lenders (source administrative data) and the rest of the world sector (source external statistics). Directional reliability of less than 70% was recorded in Ireland and of above 70% in Malta. Data for Malta were only revised upwards (100% upward revision ratio), while Irish data were mostly revised downwards (38% upward revision ratio).

Chart 2

Revisions to NFC financing (transactions)

(symmetric mean absolute percentage errors; Q2 2022-Q1 2024)



Source: ECB.
Note: EA = euro area.

5.3 Financial corporation liabilities

With regard to revisions to financial corporation liabilities (stocks), the euro area as a whole recorded revisions totalling 1.33% of underlying stocks during the review period. This was higher than the median for individual euro area countries (0.4%), as some of the countries with the largest liabilities recorded above average revisions (see Chart 3). Revisions were relatively low for the MFI and investment funds subsectors of the financial corporation sector, but above 1% of underlying stocks for OFIs (5.6%), insurance corporations (1.8%) and pension funds (2.2%). Directional reliability for euro area financial corporation liabilities stood at 88%.

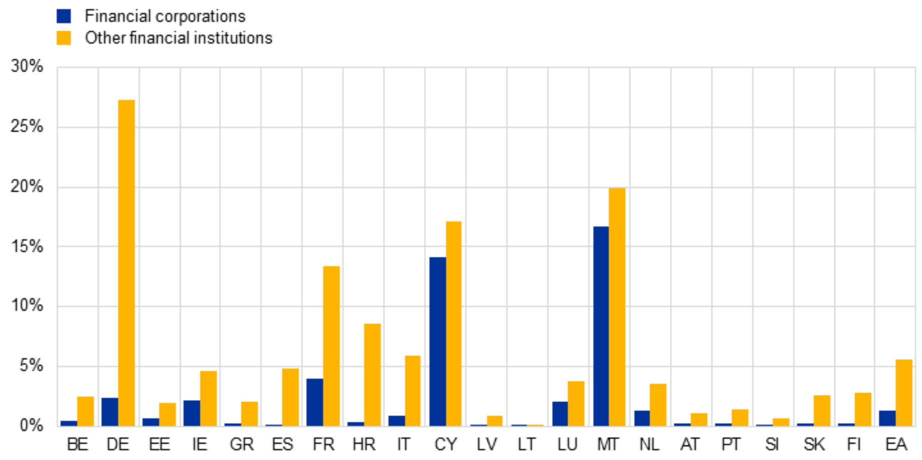
Revisions to financial corporation liabilities were above 10% in Cyprus and Malta with data being mostly revised upwards in both countries (upward revision ratio of above 75%).

For most countries, revisions to OFI liabilities were larger than those reported in the last quality report. Germany, France, Cyprus and Malta recorded the largest revisions to OFI liabilities, with directional reliability of less than 70% in Cyprus and upward revision ratios of above 75% in all four countries. In the case of Germany, the large revisions were due to recalculations of unlisted shares and equity and insurance in connection with the inclusion of Solvency II data in pension funds. In France, they were the result of the benchmark revision of b.o.p. data, improvements in the methodology used to produce the who-to-whom series of loans, the integration and revision of NFC primary statistical sources (the balance sheets of firms included in the ESANE scheme) and a new methodology for compiling financial derivatives. In the case of Cyprus, the revisions mainly stemmed from improvements in the coverage of SPEs in b.o.p./i.i.p. data, which were implemented gradually over the reference period, from 2017 to 2024. In Malta, the revisions reflected updates from the National Statistics Office, with a greater reliance on administrative data in the compilation of captive financial institutions and money lenders as well as improved estimates.

Chart 3

Revisions to financial corporation liabilities (stocks)

(symmetric mean absolute percentage errors; Q2 2022-Q1 2024)



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.[16] 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 rest of the world equals the sum of listed shares purchased by resident sectors and the rest of the world).

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 (before the reconciliation of data sources) continue to be significant. The two underlying causes of this are b.o.p./i.i.p. asymmetries[17] 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 2024 release).

[16] Internal consistency covers the following four elements: (i) aggregation consistency: total economy (transmitted sector total) = sum of sectors (subsectors); (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).

[17] In order to compile appropriate rest of the world 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; EUR billions)

Financial instrument	Q4 2022 to Q2 2024	Q4 2020 to Q2 2022	Q4 2018 to Q2 2020
Gold and SDRs	1.1 ↓	1.6 ↓	2.4 ↑
Currency and deposits	52.1 ↑	24.1 ↑	12.9 ↑
Debt securities	24.3 ↑	16.7 ↓	32.9 ↓
Loans	35.5 ↑	27.6 ↓	30.5 ↑
Shares and other equity	49.3 ↓	54.0 ↑	41.2 ↑
Insurance and pension schemes	9.0 ↑	6.8 ↑	4.0 ↓
Financial derivatives	21.2 ↑	13.1 ↑	12.9 ↓
Other accounts	62.2 ↓	94.2 ↑	50.6 ↓

Source: ECB.
Notes: Root mean square errors are broken down into a bias component (dark colour) and a variance component (light colour). Arrows indicate an increase (↑), no change (↔) or a decrease (↓) in the indicator compared with its value one year ago.

The inconsistency of euro area aggregates before balancing increased for five financial instruments and decreased for three relative to the same quarters two years previously (second column). Five financial instruments exhibit a bias component, as discrepancies tend to accumulate over time. In the case of debt securities, net issuance is, on average, larger than net purchases, suggesting an undercoverage of purchases in the input data. In the case of loans, shares and other equity, financial derivatives and other accounts, the discrepancies are partly due to the elimination of b.o.p./i.i.p. asymmetries to compile appropriate rest of the world accounts for the euro area.

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.[18] There are some internal inconsistencies in the aggregation checks for Germany and Ireland. (see Table A.1.2.1 in Annex 1).

Stocks (outstanding amounts) in the financial accounts usually show positive or zero values. In the few cases in which negative values occur, it is assessed whether there are justified conceptual reasons for this (e.g. short selling) or whether it is an unwelcome effect stemming from the complex process of compiling and balancing the financial accounts.

Netherlands reported one series with negative stock data for deposits and 12 series with negative stock data for loans. Ireland reported several series with negative stock data: three for deposits, ten for loans, two for insurance, pension and standardised guarantee schemes and two for other accounts payable/receivable.

Several countries reported negative stock data for equity and debt securities. However, this may be due to short selling in the case of listed shares and debt

18 Internal discrepancies and unexplained negative stocks of more than €10 million were observed in a few countries in the 2023 and 2024 transmissions, but these were generally corrected in later transmissions.

securities, and to negative equity in branches or entities with unlimited liability equity, also including central banks when the own funds method for equity liabilities is applied. Countries are contacted when they report negative stock data for these instruments and asked to confirm that there are legitimate reasons for these values.

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 rest of the world. 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 rest of the world 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 in the rest of the world account 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 rest of the world account, the discrepancy is identical to the “net errors and omissions” in the euro area b.o.p. for periods after the first quarter of 2013, since the two sets of statistics are fully reconciled from that quarter onwards (see Section 7.2).

National compilers are encouraged to improve vertical consistency by implementing the recommendations of the “Report on developing a common approach to improve vertical consistency,” as approved by the ESCB’s Statistics Committee and by Eurostat’s Directors of Macroeconomic Statistics in 2021 (henceforth referred to as the “European recommendations”). A summary table of statistical practice to improve vertical consistency and the targets adopted for the euro area and national data was published in October 2023. In particular, national compilers were encouraged to implement – in cooperation with non-financial sector accountants – more substantial structural changes in their compilation systems following the benchmark revision in 2024.

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 the government sector. Consequently, the vertical consistency of quarterly data cannot be assessed for Estonia, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Slovenia and Slovakia. For all countries, including Ireland, the comparison is based on the quarterly financial accounts, while noting that in a few cases the annual financial accounts 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 2023 is based on data available as at October 2024). These charts provide a snapshot of the data that are available about six months after the relevant year's fourth quarter data have been compiled for the first time. Further revisions to data for previous years are not shown, although several countries have taken steps to reduce vertical discrepancies for previous periods.

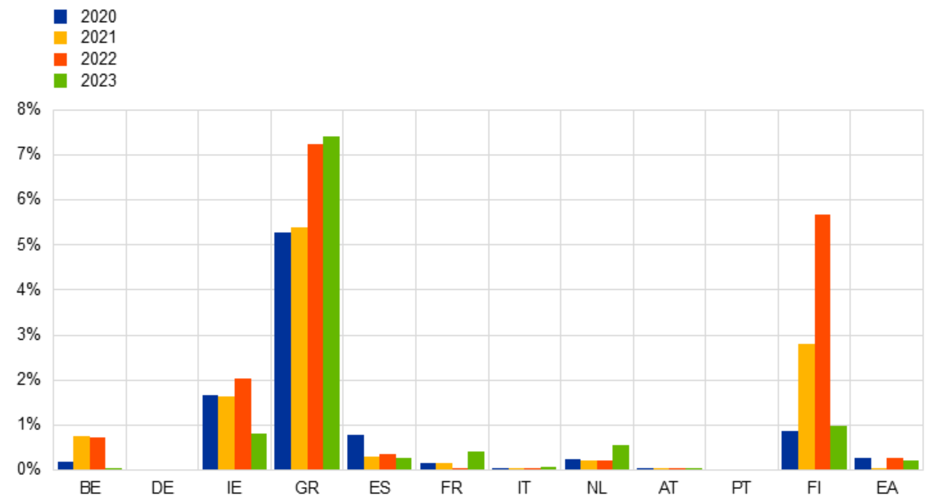
Charts 4.1b, 4.2b and 4.3b display cumulative vertical discrepancies as at October 2024 in order to show whether vertical discrepancies balance out or accumulate over time. An accumulation of vertical discrepancies indicates a persistent bias in the accounts.

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) fully reconcile their household sector (e.g. by adjusting financial and/or non-financial items where data sources are considered incomplete or of relatively low quality), while other countries make partial or no reconciliation adjustments. 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 2023 were particularly large in Greece and even increased compared with the values seen two years ago, reflecting the country's practice of not making reconciliation adjustments in its accounts. For the other countries, the vertical discrepancies are below 1% of GDP, thus achieving the quantitative goal set out in the European recommendations.

Chart 4.1a

Vertical discrepancies for households

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



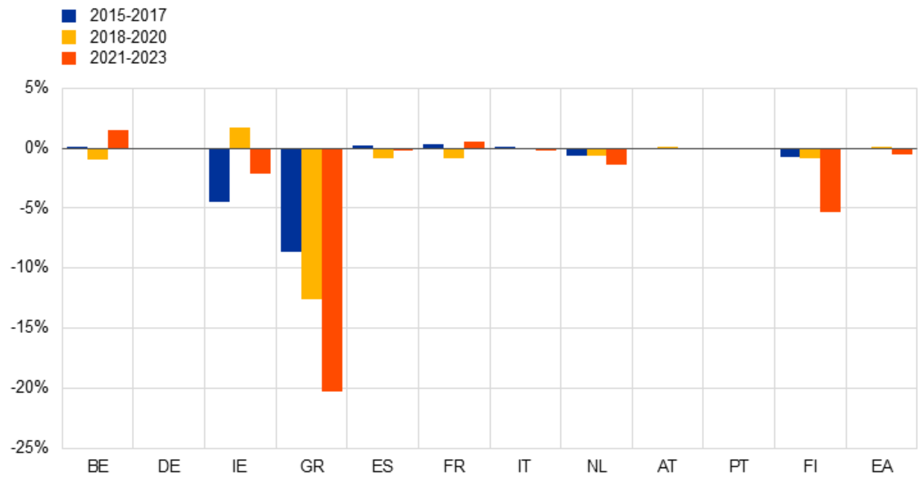
Source: ECB.
Notes: EA = euro area.

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. Greece also exhibits persistent biases in its accounts, with a very high negative bias. In the case of Greece, the large vertical discrepancies for the household sector are largely mirrored by vertical discrepancies for the rest of the world (see Section 7.2). A negative bias indicates persistent underreporting of net lending, as derived from the non-financial accounts (with a positive bias indicating the opposite).

Chart 4.1b

Bias in vertical discrepancies for households

(cumulative vertical discrepancies relative to GDP; percentages)



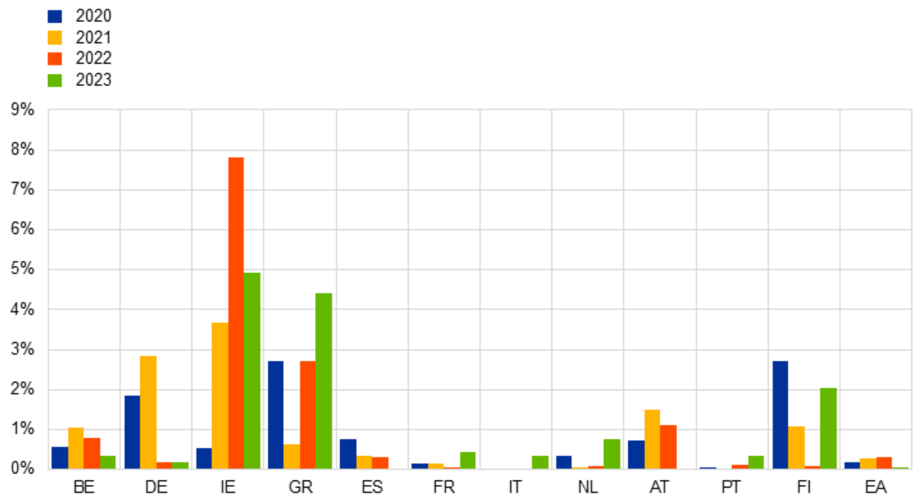
Source: ECB.
Notes: EA = euro area.

For euro area NFCs, the differences between financial and non-financial accounts remain low overall at 0.1% of GDP (see Chart 4.2a). For some countries, however, the discrepancies are significantly greater, partly because statistical 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. Discrepancies relative to GDP for 2023 exceeded 1% of GDP in Ireland, Greece and Finland, while the other countries achieved the quantitative goal set out in the European recommendations to keep discrepancies below 1% at least for 2023.

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)

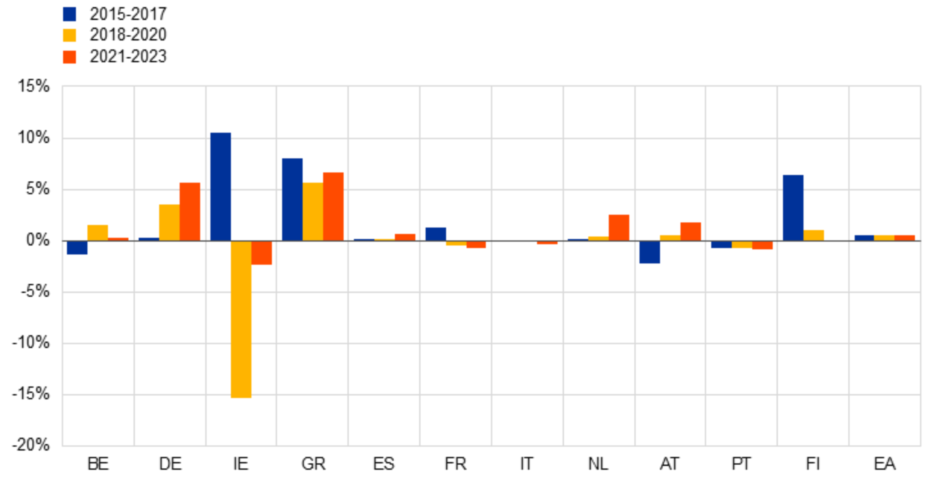


Source: ECB.
Notes: EA = euro area.

The euro area NFC sector displays a small positive bias (see Chart 4.2b); Germany and Greece display a positive bias for all periods, while Portugal shows a very small negative bias for all periods.

Chart 4.2b
Bias in vertical discrepancies for non-financial corporations

(cumulative vertical discrepancies relative to GDP; percentages)



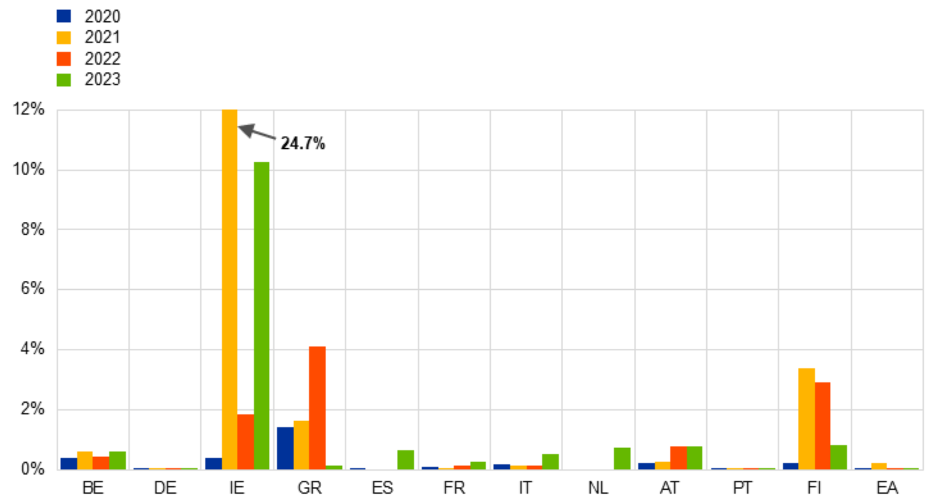
Source: ECB.
Notes: EA = euro area.

For the euro area financial corporation sector, the differences between financial and non-financial accounts remain low overall at close to zero for 2023 (see Chart 4.3a).[19] 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 2023 exceeded 1% in Ireland. In that country, the exceptionally high value for 2021 was the result of a mistake in the data reporting of net lending derived from financial accounts for the OFI sector. This was corrected in December 2022, putting the value for 2021 at 4.7%. The other countries achieved the quantitative goal set out in the European recommendations to keep discrepancies below 1% of GDP at least for 2023.

[19] With the introduction of a new common balancing mechanism applied to the rest of the world 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 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)

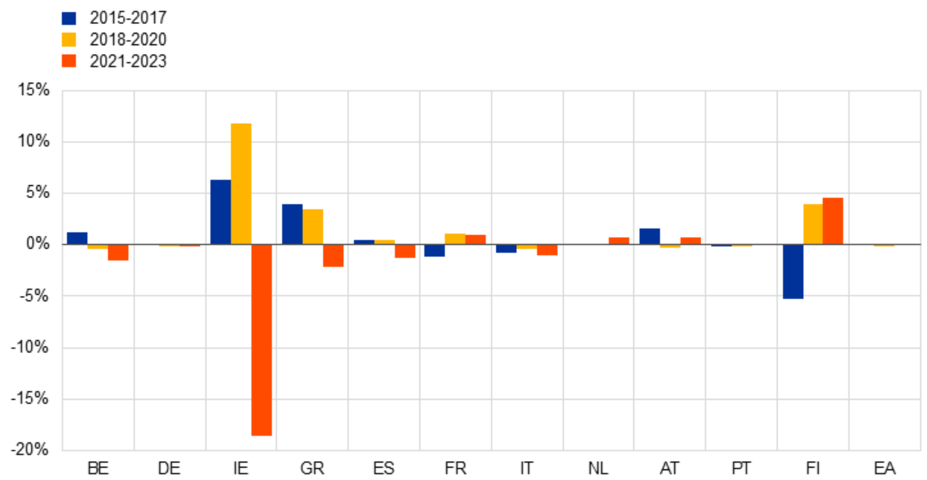


Source: ECB.
Notes: EA = euro area.

Data for Italy exhibit a negligible negative bias in all periods (see Chart 4.3b). In Ireland, the exceptionally high value for 2021 was the result of a mistake in the data reporting of net lending derived from financial accounts for the OFI sector. This was corrected in December 2022, putting the value for 2021 at 6.0%.

Chart 4.3b
Bias in vertical discrepancies for financial corporations

(cumulative vertical discrepancies relative to GDP; percentages)



Source: ECB.
Notes: EA = euro area.

7.2 Consistency with balance of payments and international investment position statistics

Euro area b.o.p. and i.i.p. data are a building block for the euro area financial accounts and are widely used at national level for the compilation of the rest of the world 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 rest of the world account (national accounts) were removed with the implementation of ESA 2010 and BPM6 (although some challenges still remain in terms of interpretation).[20] 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.[21] In this regard, the ESCB has worked to remove inconsistencies between the two statistical domains, and most countries already compile the two sets of statistics in a consistent manner. However, large discrepancies are still observed in a few countries, which has a substantial impact on euro area and EU aggregates. Such issues are being tackled under the MIP quality assurance framework. In addition, these discrepancies are analysed in a detailed annual CMFB report. In addition to the countries for which the discrepancies above a threshold are identified in the following sections, the CMFB report identifies discrepancies for financial transactions or positions in Belgium, Luxembourg and Malta for some instruments.[22]

7.2.1 Financial transactions

Chart 5 shows the differences between the b.o.p. and the rest of the world 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 rest of the world account. Nonetheless, as an indicative benchmark, relative differences should ideally not exceed 0.3% of the average value of the underlying positions.

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 the first quarter of 2013 onwards. Work on achieving consistency in positions and other changes is expected to be resumed, with the results for publication expected in 2025 (see below).

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20 The harmonised EU revision policy also supports equality between the two statistical domains. In addition, the ECB and Eurostat have jointly provided methodological advice to national compilers on selected topics with the objective of further harmonising the recording.

21 Aside from the non-identical interpretations provided in the two manuals, the use of different data sources or different compilation methods also contribute to the outstanding differences.

22 For a detailed analysis see "Joint ECB-Eurostat report on inconsistencies NA-BOP concerning quarterly financial and non-financial accounts".

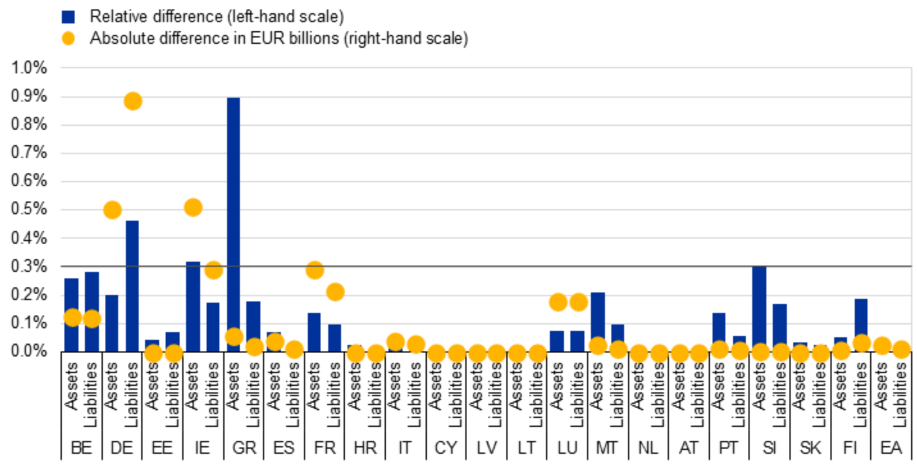
For the euro area as a whole, these differences were eliminated by the new compilation approach mentioned above. At country level, differences of more than 0.3% were recorded in several countries: Germany (liabilities only), Ireland (assets only) and Greece (assets only).

Greece recorded the highest level of relative discrepancies for assets (for the link with vertical discrepancies, see Section 7.1), while the largest absolute differences were observed in Germany (liabilities).

Chart 5

Financial account transaction discrepancies between the b.o.p. and the rest of the world account

(average absolute and relative differences, as a percentage of b.o.p. and rest of the world stocks of financial assets/liabilities, for the period Q3 2021 to Q2 2024; b.o.p. vs euro area accounts)



Source: ECB.
Note: EA = euro area.

7.2.2 Financial positions

Chart 6 shows the differences between the i.i.p. and the rest of the world 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.

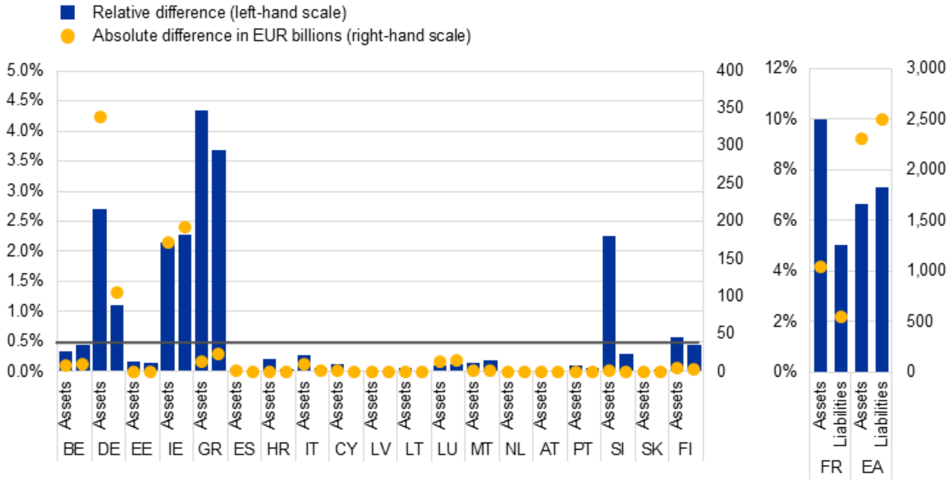
The euro area recorded discrepancies of 6.7% for assets and 7.3% for liabilities, larger than in the last quality report. These discrepancies arose mostly from differences between the compilation and reconciliation processes for the euro area i.i.p. and the rest of the world. The ECB aims to fully reconcile these positions by 2025. At country level, differences of more than 0.5% were recorded in Germany, Ireland, Greece, France, Slovenia (assets only) and Finland (assets only). The highest relative and absolute discrepancies were recorded in France (assets) reaching 10% of underlying financial assets, up from 6% in the previous report.

Detailed analysis at instrument level reveals sizeable differences in equity instruments, which are mostly triggered by differences in valuation practices (e.g. as regards unlisted equity instruments in the case of France).[23] Other reasons for these differences (which also affect other instrument types) include discrepancies in vintages, data sources and estimation methods.

Chart 6

Financial account position discrepancies between the i.i.p. and the rest of the world account

(average absolute and relative differences as a percentage of i.i.p. and rest of the world stocks of financial assets/liabilities for the period Q3 2021 to Q2 2024; 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 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 BSI statistics.

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23 In the rest of the world dataset an elaborate method is used to estimate market prices, whereas for i.i.p. statistics the own funds at book value methodology is consistently applied.

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, Estonia, Austria and Finland, 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 the recording of listing and delisting of shares (recorded as transactions in the financial accounts, but not in SEC) and the coverage of securities without an ISIN code. In some EU Member States, securities issued without an ISIN code, 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 Italy, Latvia, Malta, the Netherlands and Slovakia. In Malta, the difference is mainly because of different sector classification of three institutions and the balancing process.

Box 1

Quality indicators for financial accounts statistics underlying the MIP

The MIP scoreboard that is used for the Alert Mechanism Report consists of 13 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 review of the European Commission's indicators in 2024 gave rise to four indicators and one auxiliary indicator that have financial accounts as their main input.

These are the following:

- household debt,[24] consolidated,[25] as a percentage of GDP;
- non-financial corporations debt,[26] consolidated, as a percentage of GDP;
- household sector credit flow,[27] consolidated, as a percentage of underlying stock in previous period;
- non-financial corporations sector credit flow,[28] consolidated, as a percentage of underlying stock in previous period; excluding FDI-related flows and stocks from both the nominator and the denominator.
- Additionally, the financial accounts are used for one auxiliary indicator:
- household debt, including non-profit institutions serving households (NPISHs), consolidated, as a percentage of household disposable income.

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 the financial accounts data used for the MIP, looking at the data vintage used in the 2025 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 549/2013[29]). The indicators that are used for the MIP are provided by Eurostat based on the annual financial accounts that are compiled in the Member States by NCBs or in some cases, national statistical institutes (NSIs). In most cases, the annual and quarterly financial accounts are derived from a single compilation system. The 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 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

[24] The stock of liabilities of households (S.14) and NPISHs (S.15). The instruments taken into account when compiling private sector debt are debt securities and loans.

[25] For instance, not taking into account the stock (transactions in the case of credit flows) of debt between entities in the same sector.

[26] The stock of liabilities of non-financial corporations (S11). The instruments taken into account when compiling private sector debt are debt securities and loans.

[27] Household sector credit flows are defined as the net amount of liabilities in debt securities and loans (transactions) that have been incurred by households (S.14) and NPISHs (S.15) in the relevant year.

[28] NFC sector credit flows are defined as the net amount of liabilities of debt securities and loans (transactions) that have been incurred by NFCs (S.11) in the relevant year.

[29] 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).

datasets and/or information on the quality of data after the regular transmission of data in September/October each year.[30] 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 2023 and 2024, country visits to Bulgaria, Croatia, Cyprus and Netherlands took place, resulting in recommendations for improving data quality (as detailed in the relevant sections of this report).

To ensure full transparency on 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 (2014-23). The following assessment refers to the situation for quarterly financial accounts as transmitted to the ECB. 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 from before 2004. Consolidated data on household and non-financial sectors' debt and credit flows are available from the fourth quarter of 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 the full consolidation of NFC debt from the fourth quarter of 2013 onwards).

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 currently releases 87% of the required counterpart sector details for securities and new subsector details – significantly more than in the last report (46%) after the review of the data flagging in the benchmark revision of Irish data from 2013 onwards that took place in October 2024. Furthermore, 78% of the additional backdata for the core dataset are fully available, mainly data from before 2013 flagged as "not for publication". In addition, 97% of the core dataset from the fourth quarter of 2012 onwards are accessible, marking an improvement compared with the last report (86%). In the case of Cyprus, the partial unavailability of counterpart sector details is due to primary and secondary confidentiality constraints in the b.o.p. and 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 factor that affects the compilation of the financial accounts data underlying the MIP indicators in several countries is the lack of fully comprehensive direct data sources for NFCs, or access to

[30] 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 most Member States, the quarterly and annual accounts are drawn up using the same compilation system. Eurostat then derives MIP indicators from the annual financial accounts.

business registers facilitating the grossing-up procedures that are needed to achieve full coverage of intra-NFC loans and other transactions or positions that are not covered by counterpart sector information. Poland should improve cross-checking with business registers or use other methods to ensure full coverage. Furthermore, Bulgaria, Czech Republic, Denmark, Croatia and Romania are all encouraged to improve their timely direct data sources, which will reduce the extent of 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 shown in MIP Table A). However, a few countries have made larger revisions on account of the benchmark revision carried out in 2024.

For consolidated household sector debt, the revisions are relatively large for 2022 in Ireland and Netherlands, while all other countries recorded revisions that are less than 2% of national GDP. In both these countries, this is due to the benchmark revision (the unusually large revision in the Netherlands is due to higher debt to holding companies in which households have a substantial interest – including as owner-managers).

For consolidated household sector credit flows, revisions are relatively large in Luxembourg, while all other countries made revisions that are less than 1 percentage point of the ratio of credit flows over the underlying stock. In Luxembourg, the revision was due to the results of the 2022 Structural Business Survey becoming available.

For consolidated non-financial sector debt, the revisions for 2022 are relatively large for Belgium, Czech Republic, Spain, Cyprus, Luxembourg, Malta, Hungary, Netherlands and Slovakia, while those for all other countries are less than 2% of national GDP. In the case of Belgium, this is mostly explained by data and methodological updates related to the benchmark revision. In the Czech Republic, they are explained by new data from the 2022 survey that have been used in the annual national accounts. In Spain, it is due to the inclusion of benchmark revision and new estimates of loans that households grant to companies. In Cyprus, the revisions are mainly explained by data updates to b.o.p./i.i.p. statistics. In the case of Luxembourg (the second largest revision), the upward revisions are due to the 2022 Structural Business Survey results becoming available. In Malta, they stem mainly from revisions to counterpart captive financial institutions, money lenders and rest of the world sectors. In the case of Hungary, the revisions derive from b.o.p statistics due to corrections in data reporting by a few NFCs. In the Netherlands, they are due to increased debt to holding companies in which households have a substantial interest (including as owner-managers). Finally, in Slovakia, the revisions are mainly due to data updates to b.o.p/i.i.p. statistics based on annual reporting for NFCs.

For consolidated NFC sector credit flows, the percentage point revisions to the ratio of credit flows over the underlying stocks are relatively large in Belgium, Czech Republic, Denmark, Estonia, Ireland, Greece, Spain, Croatia, Lithuania, Luxembourg, Hungary, Malta, Netherlands and Slovakia. For Belgium, Czech Republic, Spain, Luxembourg, Hungary, Malta, Netherlands and Slovakia the reasons are mostly the same as for the revisions to stocks of debt. In Ireland, they are due to NFC loans being revised downwards due to the benchmark revision, while in Denmark they are the result of a negative revision of loans to NFCs due to the incorporation of new information over the summer of 2024. In the case of Lithuania, the revision to the ratio is mainly due to the revisions to the FDI flows and stocks that form part of the calculation of this indicator.

Internal consistency

Most countries fulfil all validation (accounting) rules, with minor exceptions seen in Czech Republic, Germany, Ireland, Hungary, Romania and Sweden (see Table A.1.2.1 in Annex 1). Denmark only fulfils 67% of the validation rules.

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). Larger differences are observed for Czech Republic, Ireland, Italy and Slovakia. 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.

Consistency with non-financial accounts

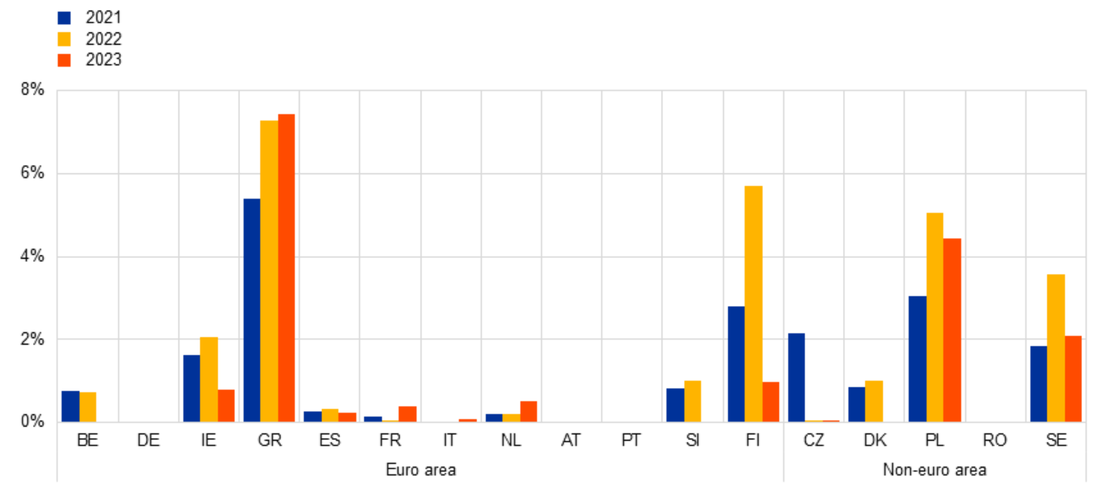
An important quality aspect for users of financial accounts is their consistency with non-financial accounts across institutional sectors. Conceptually, the net lending or net borrowing that is derived from financial and non-financial accounts should be identical for all sectors, although in practice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

For the household sector, vertical discrepancies in 2023 were above 1% of GDP in Greece, Poland and Sweden (see MIP Chart A).

MIP Chart A

Vertical discrepancies for households

(absolute vertical discrepancies relative to GDP; percentages)

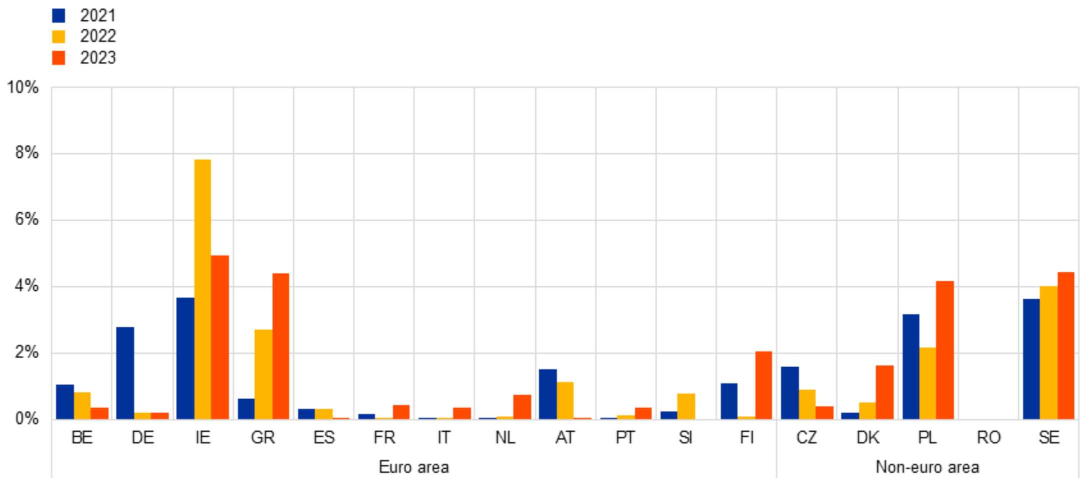


Source: ECB.
Note: Quarterly non-financial accounts for this sector are provided by Slovenia on a voluntary basis until 2023.

MIP Chart B

Vertical discrepancies for non-financial corporations

(absolute vertical discrepancies relative to GDP; percentages)



Source: ECB.
Note: Quarterly non-financial accounts for this sector are provided by Slovenia on a voluntary basis until 2023.

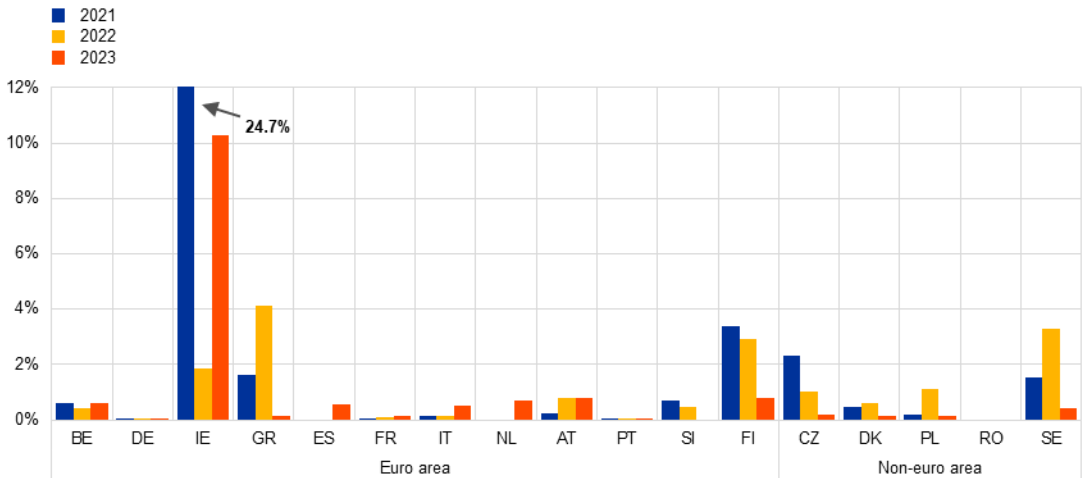
For the NFC sector, vertical discrepancies for 2023 were above 1% of GDP in Denmark, Ireland, Greece, Poland, Finland and Sweden (see MIP Chart B).

Overall, considering that this analysis reflects the situation directly after a benchmark revision, the high vertical discrepancies observed in these countries are a major quality concern and national compilers are encouraged to improve vertical consistency by implementing the European recommendations.

MIP Chart C

Vertical discrepancies for financial corporations

(absolute vertical discrepancies relative to GDP; percentages)



Source: ECB.

In the financial corporation sector, vertical discrepancies for 2023 were above 1% of GDP in Ireland (see MIP Chart C). In that country, the exceptionally high value for 2021 was the result of a mistake in the data reporting of net lending derived from the financial accounts of the OFI sector. This was corrected in December 2022, putting the value for 2021 at 4.7%.

MIP Table A

Revisions

(revisions to financial accounts data underlying MIP indicators for 2022 (October 2024 transmission vs October 2023 transmission); percentages)

Country	Household debt, consolidated Revision as % of GDP	Household credit flow, consolidated P.p. revision as % of stocks	NFC debt, consolidated Revision as % of GDP	NFC credit flow, consolidated P.p. revision as % of stocks
Euro area				
BE	0.12	-0.18	3.71	-3.84
DE	-0.26	-0.00	0.43	-0.62
EE	0.05	0.72	-0.68	-3.22
IE	2.45	-0.78	0.87	-5.06
GR	0.12	-0.04	-0.62	1.09
ES	0.22	0.14	3.07	-1.40
FR	-0.01	0.01	-1.12	0.28
HR	0.71	-0.03	-0.80	-1.04
IT	0.10	-0.17	-0.78	0.15
CY	1.57	-0.33	4.48	-0.03
LV	0.16	0.03	-0.39	0.93
LT	0.00	0.00	-0.01	-3.70
LU	0.00	-2.14	8.09	32.72
MT	-0.20	-0.54	6.36	5.34
NL	10.57	0.89	14.63	1.28
AT	-0.34	0.03	0.92	-0.21
PT	0.01	0.19	-1.17	0.39
SI	-0.03	0.01	-0.61	0.73
SK	0.00	0.00	2.19	2.15
FI	0.03	0.02	-0.26	0.39
Non-euro area				
BG	0.00	0.00	-1.08	0.06
CZ	0.08	0.31	2.13	5.23
DK	0.03	-0.05	-0.04	1.69
HU	-0.00	0.19	2.57	-2.16
PL	-0.11	0.71	-1.04	0.75
RO	0.00	0.00	0.07	0.03
SE	-0.00	0.01	-0.75	-0.08

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	Y	N	Y
ES	Y	Y	Y	Y	Y
FR	Y	Y	Y	Y	Y
HR	Y	Y	Y	Y	N
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
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 2024)

Country	Consistency rate
Euro area	
BE	100
DE	98
EE	100
IE	92
GR	100
ES	100
FR	100
HR	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	98
DK	67
HU	94
PL	100
RO	96
SE	99

Source: ECB.

Table A.1.2.2

Consistency across frequencies, 2023

(percentages)

Country	Household debt, consolidated	Household credit flow, consolidated	NFC debt, consolidated	NFC credit flow, consolidated
	% difference (QFA-AFA)/QFA			
Euro area				
BE	-0.00	0.00	0.00	-0.00
DE	0.00	0.00	0.00	0.00
EE	0.00	-0.01	0.00	0.01
IE	0.02	3.14	3.31	-73.57
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
HR	-0.00	0.00	-0.00	0.00
IT	0.00	0.02	0.28	-5.77
CY	-0.00	-0.00	0.00	-0.00
LV	0.01	0.14	-0.00	0.35
LT	0.00	-0.00	-0.00	0.00
LU	0.00	0.00	-0.00	-0.00
MT	0.00	-0.00	-0.00	-0.00
NL	0.00	0.00	0.00	0.00
AT	-0.00	-0.03	0.00	0.04
PT	0.00	-0.00	-0.00	-0.00
SI	-0.00	-0.08	0.00	-0.04
SK	0.00	4.78	-0.09	26.35
FI	0.00	0.00	0.00	0.00
Non-euro area				
BG	-0.00	0.01	-0.00	0.01
CZ	-1.36	5.43	-0.45	277.35
DK	-0.00	-0.10	0.00	-0.01
HU	0.00	0.00	0.00	0.00
PL	0.00	-0.00	-0.00	0.00
RO	-0.00	-0.01	0.00	0.00
SE	0.00	0.00	0.00	0.00

Source: ECB.
Notes: QFA stands for quarterly financial accounts, AFA stands for annual financial accounts.

1.3 Revision indicators

Table A.1.3.1

Symmetric mean absolute percentage errors* for the period from Q2 2022 to Q1 2024

(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	Trans-actions	Stocks					
Euro area																	
BE	0.32	0.04	0.17	0.08	0.66	0.04	0.49	0.25	8.59	1.42	0.08	0.46	0.51	0.02	2.45	0.05	0.21
DE	0.24	0.02	4.62	0.01	0	0	14.74	0.35	52.71	1.24	0.11	2.41	0.06	0	27.26	2.36	0.76
EE	0.08	0.07	4.32	0.1	0.53	0.36	1.38	0.64	7.75	2.53	0.05	0.63	0.01	0.46	1.92	0.06	NA
IE	4.08	1.09	2.86	0.28	1.25	0.73	1.93	0.89	16.76	1.22	0.31	2.18	1.14	4.66	4.66	3.05	7
GR	0.07	0.04	1.21	0.12	0.59	0.07	0.86	0.17	60.95	3.85	0.04	0.2	0.04	1.85	2.08	0.21	0.47
ES	0.31	0.04	1.12	0.09	0.98	0.26	1.86	0.31	1.15	1.16	0.05	0.12	0.84	0.05	4.85	0.08	0.11
FR	0.02	0.01	0.94	0.1	0.31	0.05	1.42	0.15	2.92	0.36	0.35	4.04	4.55	3.53	13.34	3.23	100
HR	1.31	0.02	2.93	0.17	0.01	0.01	12.65	0.39	39.07	1.22	0.18	0.33	0.05	0.08	8.59	1.57	0.15
IT	0.14	0.03	2.05	0.09	1.09	0.16	0.69	0.1	10.05	1.34	0.05	0.9	0.03	0	5.87	0.3	10.48
CY	1.21	0.3	2.13	0.32	1.41	1.33	3.69	0.19	69.94	1.5	0.33	14.09	0.13	0.12	17.17	2.41	1.36
LV	0.77	0.21	0.28	0.31	0.05	0.12	3.11	0.1	15.93	0.65	0.02	0.14	0	6.21	0.84	0.18	0.01
LT	0.06	0.07	1.15	0.42	0.91	0.83	0.66	0.66	2.59	2.19	0.01	0.13	0.1	0.91	0.16	0.12	0.29
LU	0.41	0.26	0.91	0.15	14.32	1.63	12.06	0.52	40.19	2.05	0.17	2.08	0.04	0.27	3.8	0.86	2.08
MT	2.98	0.39	4.28	0.57	6.1	0.75	9.42	1.12	12.87	1.85	0.6	16.68	0.24	1.09	19.87	3.09	2.67
NL	5.28	0.19	3.05	0.06	2.49	0.2	20.51	0.43	53.61	1.1	0.12	1.37	1.43	2.9	3.61	2.2	0.17
AT	0.35	0.03	0.61	0.07	0.44	0.08	1.19	0.18	7.26	1.06	0.05	0.24	0.26	0.11	1.08	0.23	1.3
PT	0.17	0.08	3.53	0.12	0.36	0.17	0.49	0.48	11.07	2.96	0.09	0.29	0.2	0.84	1.47	1.74	0.63
SI	0.09	0.01	0.44	0.14	0.01	0.01	0.92	0.09	0.4	0.07	0.03	0.04	0.01	0.05	0.65	0.25	0
SK	0	0.06	0.11	0.19	1.79	0.45	1.11	0.32	0	0	0.1	0.21	0.1	0.22	2.63	5.01	0
FI	0.19	0.23	0.29	0.1	1.18	0.45	2.18	0.57	5.09	1.37	0.06	0.25	0.04	0.05	2.77	0.11	0.03
Euro area	0.26	0.03	2.28	0.03	2.13	0.05	3.87	0.14	7.14	0.44	0.04	1.33	0.13	0.23	5.57	1.82	2.15
Median	0.32	0.06	1.18	0.12	0.79	0.19	1.64	0.34	10.56	1.29	0.08	0.39	0.1	0.25	3.19	0.58	0.55
Non-euro area																	
BG	0.02	0.01	2.42	0.50	0.20	0.09	0.66	0.35	6.16	2.25	1.26	1.38	1.51	0.07	2.03	0.99	0.01
CZ	0.11	0.04	3.15	0.06	1.52	0.00	7.53	0.72	29.69	5.63	0.10	0.23	0.06	3.67	0.65	0.42	0.00
DK	0.06	0.06	3.55	0.13	5.10	1.30	0.82	0.35	2.11	1.49	0.06	1.02	0.06	0.09	1.71	6.74	0.31
HU	0.17	0.06	0.74	0.05	0.01	0.02	0.89	0.22	4.17	1.14	0.44	1.28	1.42	0.25	2.56	2.06	0.52
PL	0.22	0.07	0.64	0.20	1.34	1.16	1.51	0.13	0.22	0.22	0.17	0.48	0.50	0.00	1.28	0.01	0.00
RO	0.05	0.06	1.56	0.20	0.46	0.05	0.66	0.10	3.37	3.01	0.03	0.17	0.08	0.00	2.48	0.05	0.00
SE	0.02	0.01	0.59	0.09	1.04	0.29	0.53	0.12	1.06	0.16	0.20	0.14	0.03	0.04	0.68	0.95	1.22

Source: ECB.
Notes: NA = no revisions. For non-euro area countries, data relate to the period from the fourth quarter of 2022 to the fourth quarter of 2023. IVFs stands for investment funds, ICs stands for insurance corporations and PFs stands for pension funds.
* In the case of transactions, underlying stocks are used in the denominator, resulting in the calculation of mean absolute comparative errors.

Table A.1.3.2

Mean absolute revisions for the period from Q2 2022 to Q1 2024

(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	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Stocks	Trans-actions	Trans-actions	Stocks					
Euro area																	
BE	0.37	0.05	0.86	0.42	0.11	0.01	1.15	0.60	5.19	0.86	0.76	4.44	2.69	0.02	5.61	0.06	0.03
DE	0.24	0.02	17.91	0.04	0.00	0.00	21.50	0.51	20.81	0.49	1.04	23.77	0.35	0.00	24.68	2.69	0.25
EE	0.06	0.05	10.90	0.26	0.02	0.01	1.88	0.87	2.51	0.82	0.24	2.94	0.02	0.16	2.78	0.00	NA
IE	2.23	0.60	5.64	0.56	0.39	0.23	4.77	2.20	6.78	0.49	9.58	67.31	7.92	69.71	31.94	5.02	3.47
GR	0.06	0.03	3.41	0.33	0.02	0.00	0.86	0.17	0.29	0.02	0.21	1.07	0.20	0.22	0.61	0.03	0.01
ES	0.29	0.04	4.19	0.34	0.16	0.04	2.79	0.47	0.41	0.41	0.37	0.86	4.42	0.02	3.75	0.03	0.02
FR	0.03	0.01	4.43	0.47	0.14	0.02	3.64	0.39	3.52	0.43	5.06	57.64	46.15	3.94	14.49	6.02	6.97
HR	0.74	0.01	6.53	0.38	0.00	0.00	14.83	0.46	14.36	0.45	0.68	1.22	0.15	0.01	1.28	0.24	0.08
IT	0.11	0.02	10.25	0.43	0.17	0.02	0.73	0.11	0.54	0.07	0.34	5.99	0.12	0.00	4.50	0.27	1.41
CY	1.56	0.38	7.75	1.17	0.01	0.01	9.74	0.49	3.72	0.08	13.25	561.41	0.77	0.06	560.07	0.79	0.36
LV	0.28	0.08	0.56	0.62	0.00	0.00	2.67	0.08	2.88	0.12	0.09	0.53	0.01	0.17	0.70	0.01	0.00
LT	0.02	0.03	2.19	0.80	0.05	0.05	0.46	0.46	0.50	0.42	0.04	0.41	0.24	0.07	0.07	0.01	0.05
LU	0.55	0.34	2.78	0.44	10.72	1.22	77.38	3.32	77.79	3.96	74.84	917.71	1.87	43.12	891.08	5.62	0.11
MT	2.75	0.36	16.91	2.27	0.52	0.06	24.65	2.94	18.61	2.67	35.13	972.24	1.19	2.37	974.72	4.19	2.04
NL	9.55	0.35	16.54	0.32	0.79	0.06	56.64	1.18	45.60	0.94	2.72	29.99	9.05	4.51	36.58	2.05	0.49
AT	0.32	0.02	2.14	0.23	0.07	0.01	1.95	0.29	2.76	0.40	0.41	1.85	1.34	0.10	1.14	0.09	0.14
PT	0.19	0.08	13.49	0.45	0.10	0.05	0.68	0.67	2.28	0.61	0.61	1.94	0.95	0.26	1.47	0.70	0.10
SI	0.04	0.01	1.06	0.34	0.00	0.00	0.72	0.07	0.04	0.01	0.09	0.14	0.01	0.01	0.13	0.07	0.00
SK	0.00	0.05	0.19	0.32	0.10	0.02	0.96	0.28	0.00	0.00	0.35	0.75	0.27	0.03	0.42	0.61	0.00
FI	0.24	0.30	0.87	0.29	0.29	0.11	4.52	1.18	3.95	1.07	0.56	2.42	0.28	0.06	2.15	0.06	0.00
Euro area	0.28	0.03	9.17	0.11	0.49	0.01	6.73	0.25	4.22	0.26	0.56	17.43	0.80	0.52	17.57	2.05	0.82
Median	0.28	0.05	4.31	0.40	0.10	0.02	2.73	0.48	3.20	0.44	0.58	2.68	0.56	0.09	3.27	0.26	0.09
Non-euro area																	
BG	0.01	0.00	6.87	1.41	0.01	0.00	0.70	0.37	0.86	0.31	4.00	4.39	3.71	0.00	0.69	0.12	0.00
CZ	0.07	0.02	8.41	0.17	0.11	0.00	6.75	0.65	4.69	0.89	0.48	1.12	0.20	1.05	0.50	0.06	0.00
DK	0.10	0.11	25.87	0.93	0.67	0.17	2.01	0.86	1.04	0.73	1.13	18.25	0.45	0.15	8.93	16.52	0.41
HU	0.06	0.02	1.84	0.13	0.00	0.00	1.22	0.31	1.54	0.42	3.10	8.93	3.75	0.11	9.70	0.20	0.03
PL	0.10	0.03	1.11	0.34	0.06	0.05	1.04	0.09	0.01	0.01	0.45	1.33	1.02	0.00	0.31	0.00	0.00
RO	0.01	0.02	2.20	0.28	0.00	0.00	0.36	0.05	0.06	0.06	0.05	0.29	0.11	0.00	0.34	0.00	0.00
SE	0.03	0.02	3.76	0.59	0.51	0.14	1.41	0.32	0.84	0.13	2.49	1.77	0.19	0.08	1.08	0.48	2.27

Source: ECB.

Notes: NA = no revisions. For non-euro area countries, data relate to the period from the fourth quarter of 2022 to the fourth quarter of 2023. IVFs stands for investment funds, ICs stands for insurance corporations and PFs stands for pension funds.

Table A.1.3.3

Upward revision ratios for the period from Q2 2022 to Q1 2024

(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	Trans-actions	Stocks					
Euro area																	
BE	100	63	100	50	38	25	25	75	0	75	50	75	50	100	88	63	20
DE	0	38	100	75	50	100	100	100	100	88	38	100	88	100	100	75	25
EE	100	75	100	50	83	71	100	75	100	63	50	13	25	0	13	43	NA
IE	100	50	0	25	75	13	13	38	0	0	38	0	75	75	0	13	0
GR	63	50	63	38	38	38	50	50	100	88	63	100	100	100	100	100	100
ES	100	100	100	38	100	63	100	63	33	57	50	25	0	75	100	50	100
FR	25	38	100	63	13	38	50	100	50	100	0	100	100	0	100	0	100
HR	100	88	100	75	50	0	0	63	0	63	38	100	50	0	100	57	71
IT	100	25	100	63	100	75	38	50	75	50	13	100	88	100	88	88	100
CY	100	50	38	0	0	17	100	50	100	50	50	100	88	40	100	88	50
LV	100	50	100	63	75	57	100	38	100	38	75	0	100	100	0	25	100
LT	75	50	25	38	67	20	63	63	38	50	50	100	88	100	75	43	100
LU	50	88	88	50	100	88	100	38	100	63	63	100	63	88	100	88	75
MT	63	50	88	50	0	50	100	100	100	100	75	75	75	0	75	38	38
NL	88	75	88	25	100	40	88	63	100	75	75	100	0	100	100	0	43
AT	0	75	50	25	0	57	13	38	13	25	50	75	100	0	50	38	43
PT	100	63	100	63	50	75	75	50	100	38	50	88	100	100	100	0	88
SI	0	50	88	25	100	100	0	63	0	67	100	25	75	0	0	83	100
SK	100	0	63	50	67	60	100	63	60	71	50	0	63	67	25	0	100
FI	25	50	75	50	63	75	63	63	50	50	38	0	13	75	0	25	100
Euro area	88	50	100	75	100	38	100	75	100	100	88	100	50	88	100	0	100
Non-euro area																	
BG	40	20	100	100	40	60	40	80	100	100	100	80	50	100	100	100	100
CZ	60	20	100	100	50	NA	100	60	100	60	40	100	100	100	20	100	NA
DK	60	60	80	20	100	80	80	100	40	80	100	80	100	80	100	20	80
HU	60	80	100	60	40	100	60	20	0	40	40	60	0	80	60	20	0
PL	20	60	40	60	20	40	0	60	40	40	60	0	0	NA	0	40	NA
RO	80	80	40	60	40	40	40	60	100	100	60	20	60	0	20	100	NA
SE	20	60	40	80	0	0	20	40	50	50	100	40	60	100	100	0	40

Source: ECB.

Notes: NA = no revisions. For non-euro area countries, data relate to the period from the fourth quarter of 2022 to the fourth quarter of 2023. IVFs stands for investment funds, ICs stands for insurance corporations and PFs stands for pension funds.

Table A.1.3.4

Directional reliability indicator for the period from Q2 2022 to Q1 2024

(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	Trans-actions	Stocks					
Euro area																	
BE	100	100	100	75	100	100	50	88	50	13	100	88	88	88	63	88	88
DE	75	75	88	88	100	100	100	75	100	75	100	100	88	88	75	88	50
EE	88	88	88	63	75	88	75	88	63	50	88	88	88	75	75	88	NA
IE	88	50	75	63	75	88	63	63	63	75	50	100	88	88	75	63	75
GR	75	88	75	88	75	100	100	100	25	63	88	75	75	88	75	88	88
ES	100	100	100	100	63	88	100	75	88	63	100	75	75	88	63	88	88
FR	88	88	75	75	88	88	75	75	63	13	88	88	88	88	75	75	88
HR	100	100	100	75	88	100	75	88	63	63	100	88	88	88	63	75	13
IT	100	100	100	100	100	88	63	88	50	75	100	100	88	88	50	75	88
CY	88	63	50	88	88	88	75	100	75	38	75	63	88	88	50	50	38
LV	88	63	100	63	100	100	88	88	88	75	100	100	88	50	75	75	88
LT	100	88	88	100	75	75	75	100	75	75	100	100	88	88	88	88	88
LU	100	63	100	88	50	75	75	88	13	63	100	88	88	88	75	63	38
MT	100	50	63	50	100	100	75	50	75	63	38	75	75	75	75	63	38
NL	88	88	100	75	75	100	75	63	25	38	100	100	88	88	75	50	88
AT	100	88	100	63	100	100	100	100	50	50	100	100	88	88	63	88	88
PT	75	100	88	100	75	88	75	75	63	50	88	100	88	88	63	88	75
SI	100	100	100	88	100	100	100	100	100	100	100	100	88	88	75	63	88
SK	100	100	75	88	63	100	75	88	100	100	75	100	75	88	50	88	88
FI	75	100	100	88	63	100	75	50	75	75	100	100	88	88	63	75	88
Euro area	88	100	100	100	88	88	63	63	63	50	100	88	75	100	88	100	88
Non-euro area																	
BG	100	100	100	100	80	100	80	60	60	80	80	60	80	100	80	100	100
CZ	100	100	100	100	80	100	60	40	40	80	100	100	100	100	100	100	100
DK	80	100	80	40	100	100	80	100	40	80	100	80	80	80	40	80	60
HU	100	100	100	100	100	100	80	100	60	80	100	80	100	100	80	80	100
PL	80	80	80	60	100	80	100	100	80	100	60	100	80	100	100	100	100
RO	100	80	100	100	100	100	80	100	40	60	100	100	100	100	40	100	100
SE	100	100	100	80	80	100	80	100	100	100	80	100	100	100	100	80	100

Source: ECB.
Note: For non-euro area countries, data relate to the period from the fourth quarter of 2022 to the fourth quarter of 2023. IVFs stands for investment funds, ICs stands for insurance corporations and PFs stands for pension funds.

1.4 Vertical discrepancies

Table A.1.4.1

Four-quarter cumulative vertical discrepancies

	EUR millions*				As a percentage of GDP			
	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Households – euro area								
BE	-3,535	200	-1,032	1,274	-1%	0%	0%	0%
DE	0	0	0	0	0%	0%	0%	0%
IE	-2,702	-4,086	8,678	3,931	-1%	-1%	2%	1%
GR	-16,176	-16,711	-16,362	-18,616	-7%	-7%	-7%	-8%
ES	9,289	3,885	-5,681	-868	1%	0%	0%	0%
FR	6,793	11,230	5,225	18,891	0%	0%	0%	1%
HR	NC	NC	NC	NC	NC	NC	NC	NC
IT	-2,423	-1,489	-1,156	-1,469	0%	0%	0%	0%
NL	1,459	-5,884	-9,681	-11,168	0%	-1%	-1%	-1%
AT	2,359	0	507	4,023	0%	0%	0%	1%
PT	0	0	0	0	0%	0%	0%	0%
SI	NC	NC	NC	NC	NC	NC	NC	NC
FI	-5,472	-2,653	-1,741	838	-2%	-1%	-1%	0%
Euro area	13,401	-29,472	2,603	-13,176	0%	0%	0%	0%
Households – non-euro area								
CZ	-33,606	-4,661	-2,830	-126,003	0%	0%	0%	-2%
DK	-97	-84	-158	-92	0%	0%	0%	0%
PL	-215,938	-150,736	-154,432	-187,989	-6%	-4%	-5%	-6%
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	-150,407	-129,796	-129,276	-160,898	-2%	-2%	-2%	-3%
Non-financial corporations – euro area								
BE	5,556	2,123	1,681	-3,952	1%	0%	0%	-1%
DE	-67,732	-7,959	-34,200	24,271	-2%	0%	-1%	1%
IE	34,942	-25,167	-35,104	-39,604	7%	-5%	-7%	-8%
GR	7,430	9,946	9,270	7,497	3%	4%	4%	3%
ES	-13,234	-361	12	-9,553	-1%	0%	0%	-1%
FR	-21,477	-12,660	-17,506	22,527	-1%	0%	-1%	1%
HR	NC	NC	NC	NC	NC	NC	NC	NC
IT	-7,336	-7,670	5,711	5,254	0%	0%	0%	0%
NL	8,508	8,239	7,521	15,613	1%	1%	1%	1%
AT	200	-32	3,754	1,349	0%	0%	1%	0%
PT	-513	-931	-1,466	-1,357	0%	0%	-1%	-1%
SI	NC	NC	NC	NC	NC	NC	NC	NC
FI	-829	5,563	-873	-1,521	0%	2%	0%	-1%
Euro area	-40,956	-9,518	-51,493	-37,271	0%	0%	0%	0%
Non-financial corporations – non-euro area								
CZ	-12,602	-29,103	38,533	43,861	0%	0%	1%	1%
DK	57,860	47,907	79,280	113,646	2%	2%	3%	4%
PL	176,356	141,847	155,720	104,447	5%	4%	5%	3%

	EUR millions*				As a percentage of GDP			
	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2023	Q4 2023	Q1 2024	Q2 2024
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	483,688	275,011	67,975	257,375	8%	4%	1%	4%
Financial corporations – euro area								
BE	-3,529	-3,681	-3,657	-2,959	-1%	-1%	-1%	0%
DE	-3	-2	-1	2	0%	0%	0%	0%
IE	-3,342	-52,353	-119,590	-111,206	-1%	-10%	-23%	-22%
GR	84	347	-3,521	-3,869	0%	0%	-2%	-2%
ES	13,575	-9,363	688	-1,573	1%	-1%	0%	0%
FR	9,166	7,683	21,940	-22,705	0%	0%	1%	-1%
HR	NC	NC	NC	NC	NC	NC	NC	NC
IT	-16,519	-10,947	-37,759	-21,561	-1%	-1%	-2%	-1%
NL	-4,385	7,918	11,587	-530	0%	1%	1%	0%
AT	6,679	3,663	4,009	978	1%	1%	1%	0%
PT	22	74	61	36	0%	0%	0%	0%
SI	NC	NC	NC	NC	NC	NC	NC	NC
FI	1,772	2,191	1,785	746	1%	1%	1%	0%
Euro area	6,786	6,786	9,753	3,965	0%	0%	0%	0%
Financial corporations – non-euro area								
CZ	-13,984	14,993	-132,051	-30,051	0%	0%	-2%	0%
DK	-10,126	-3,887	6,447	4,808	0%	0%	0%	0%
PL	24,311	5,005	2,473	4,014	1%	0%	0%	0%
RO	NC	NC	NC	NC	NC	NC	NC	NC
SE	-23,835	-26,511	65,592	-7,715	0%	0%	1%	0%

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, 2023		NFC debt securities: FA vs SEC, 2023			
	Stocks	Transactions*	Stocks		Transactions*	
	% difference (QFA-BSI)/QFA		% difference (QFA-SEC)/QFA	Difference as % of GDP	% difference (QFA-SEC)/QFA	Difference as % of GDP
Euro area						
BE	0.78	-0.04	0.20	0.02	0.03	0.00
DE	-3.33	1.14	3.87	0.22	2.46	0.14
EE	-2.67	-0.09	0.94	0.01	5.88	0.06
IE	-0.01	0.97	54.80	7.96	-14.63	-2.12
GR	-0.08	0.34	0.20	0.00	0.00	0.00
ES	0.33	0.13	1.92	0.16	0.77	0.06
FR	0.97	0.23	1.56	0.37	-1.33	-0.32
HR	-1.86	-0.04	49.39	0.05	7.58	0.19
IT	0.01	-0.01	-0.10	-0.01	0.06	0.01
CY	1.92	0.59	20.24	0.05	-26.49	-0.06
LV	0.01	0.62	-4.60	-0.07	-4.97	-0.08
LT	0.48	0.39	13.20	0.39	2.58	0.08
LU	0.00	0.04	36.14	14.33	-21.99	-8.72
MT	0.63	0.07	-42.58	-1.76	-6.02	-0.25
NL	-1.94	-0.21	-3.96	-0.68	2.91	0.50
AT	2.20	-0.25	3.19	0.24	1.24	0.09
PT	0.38	0.21	4.94	0.72	-0.16	-0.02
SI	0.40	0.17	31.87	0.31	0.48	0.00
SK	0.97	0.72	-0.29	-0.01	4.16	0.10
FI	-7.85	-0.52	4.97	0.64	-0.47	-0.06
Non-euro area						
BG	0.65	5.32	6.09	0.10	0.55	0.01
CZ	0.38	6.38	-18.58	-0.65	-8.98	-0.31
DK	-6.67	1.23	-8.30	-0.65	-3.48	-0.27
HU	-0.19	2.97	2.21	0.09	-3.60	-0.15
PL	1.06	-0.47	14.59	0.33	-10.49	-0.24
RO	0.73	3.94	1.63	0.00	-3.49	-0.01
SE	-0.80	0.41	-1.18	-0.28	-1.19	-0.28

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:

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

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 set out 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:

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

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 zero 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):

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

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, 2023).

For revisions, all figures are calculated as the difference between the data in the October 2024 transmission and the data in the October 2022 transmission.

For all other tables and charts, unless otherwise indicated, figures are calculated using the data in the October 2024 transmission.

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

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