

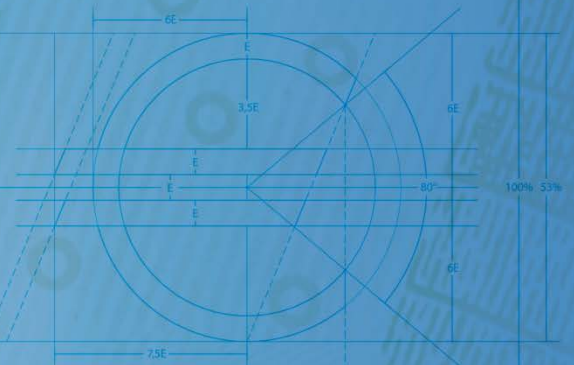


EUROPEAN CENTRAL BANK  
EUROSYSTEM

# Euro area balance of payments and international investment position statistics

2015 Quality Report

April 2016



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# Executive summary

This biennial<sup>1</sup> data quality report is a contribution to the European Central Bank (ECB) Statistics Quality Framework (SQF)<sup>2</sup> and is required by Article 6 of Guideline ECB/2011/23<sup>3</sup> on the statistical reporting requirements of the ECB in the field of external statistics. It focuses on the collection, compilation and dissemination of external statistics, in particular the euro area balance of payments (b.o.p.) and international investment position (i.i.p.) statistics, for the reference period from 2013 to mid-2015.

Following the basic principles set out in the “Public commitment on European statistics by the ESCB”<sup>4</sup>, this report provides descriptive and quantitative quality indicators. It is divided into three sections: Section 1 – Institutional environment – highlights the recently implemented regulatory updates; Section 2 – Statistical processes – presents the main operational commitments since 2013 and includes a box on the impact on euro area aggregates of the implementation of the BPM6 standards; and Section 3 – High output quality – provides the quantitative and qualitative results of the data quality analysis.

## Institutional environment

With regard to the institutional environment, Guideline ECB/2011/23 became applicable from 1 June 2014. Primarily, this new legal act reflects methodological changes introduced by the sixth edition of the International Monetary Fund’s (IMF’s) Balance of Payments and International Investment Position Manual (BPM6). However, it also helped to close some remaining data gaps and bring external statistics into closer alignment with national accounts in terms of content and presentation.<sup>5</sup> Compared with the reporting requirements under the BPM5, the BPM6 requires much more detail on transactions and positions, including a more granular geographical breakdown for the quarterly i.i.p. and a complete reconciliation between changes in positions and flows.

## Statistical processes

With regard to statistical processes, the collection, processing and dissemination of b.o.p. and i.i.p. statistics proceeded smoothly between 2013 and 2015. In this context, the following aspects are worth mentioning:

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<sup>1</sup> This report was published on an annual basis until 2011.

<sup>2</sup> [ECB Statistics Quality Framework](#).

<sup>3</sup> [Guideline of the European Central Bank of 9 December 2011 on the statistical reporting requirements of the European Central Bank in the field of external statistics \(recast\) \(ECB/2011/23\) \(OJ L 65, 3.3.2012, p. 1\)](#).

<sup>4</sup> [Public commitment on European statistics by the ESCB](#).

<sup>5</sup> Further details on “Implementing the new BPM6” are available at <http://ec.europa.eu/eurostat>

- The ECB started publishing euro area b.o.p. and i.i.p. statistics in line with the BPM6 on 30 October 2014. The first BPM6 data covered reference periods from January 2013 onwards. This was followed by releases of additional backdata (going as far back as 1999) and accounting detail (e.g. by geographical counterparty). All these aggregates are dependent on the availability and quality of national data. Similar national datasets were also released by the ECB when the data were made available by the respective countries.
- Data based on the previous methodology (BPM5) are no longer updated, but are still available in the ECB's Statistical Data Warehouse (SDW).<sup>6</sup>
- The ECB's statistical publications, namely the monthly and quarterly statistical press releases<sup>7</sup>, the statistics sections of the Economic Bulletin<sup>8</sup> and the Statistics Bulletin<sup>9</sup>, have been reviewed to accommodate the new BPM6 nomenclature and increased data availability.
- Taking advantage of the transition to the BPM6 conceptual standard, the ECB and other international organisations have also implemented the new Statistical Data and Metadata eXchange (SDMX)<sup>10</sup> standards for the electronic exchange of statistical data on external statistics.

## Output quality

With regard to output quality, an analysis of revisions, net errors and omissions, and of comparisons with comparable sets of indicators was carried out.

An analysis of **revisions** was performed to evaluate the reliability of first releases of the euro area b.o.p. statistics. Two types of indicator were used: *directional reliability indicators* and *size indicators*. Owing to the relatively short time span and the consequently low number of observations available, only monthly revisions could be analysed. In addition, the indicators can only provide limited empirical evidence on the stability of the b.o.p. data. The *directional reliability indicator* was applied to all the main components of the current, capital and financial accounts, whereby values of over 60% were considered satisfactory. Regarding *size indicators*, the outcome from this set of reliability indicators showed that the first releases of BPM6-compliant b.o.p./i.i.p. statistics were generally reliable. However, less satisfactory results were observed for primary income credits and debits and for direct investment assets and liabilities. Low stability values for these components are explained by: (i) the need for estimation models for first assessments by some countries; (ii) missing data for the

<sup>6</sup> External statistics data in the ECB's Statistical Data Warehouse are available at <http://sdw.ecb.europa.eu/browse.do?node=2018778>

<sup>7</sup> Press releases are available at <http://www.ecb.europa.eu/press/pr/stats/bop/html/index.en.html>

<sup>8</sup> The statistics section of the Economic Bulletin is available at <http://sdw.ecb.europa.eu/reports.do?node=100004813>

<sup>9</sup> The Statistics Bulletin is available at <http://sdw.ecb.europa.eu/reports.do?node=1000005>

<sup>10</sup> Information about SDMX standards is available on the SDMX website at <https://sdmx.org/>

relevant period (particularly for reinvested earnings); and (iii) a lack of monthly security-by-security collection systems. All of these factors necessitate extensive revisions when such data become available at a later stage.

**Net errors and omissions** constitute the overall balancing item of the b.o.p., and thus provide an indicator of its internal consistency. For the periods between January 2008<sup>11</sup> and June 2015 (overlapping three-year periods), a fairly stable relationship between euro area net errors and omissions and the current account is observed, with the former representing around 8-9% of the latter. On this basis, the euro area b.o.p. statistics can be considered internally consistent.

The so-called external consistency of the b.o.p./i.i.p. statistics, i.e. their **consistency vis-à-vis comparable sets of indicators** from five other statistical domains, namely monetary statistics, foreign trade statistics, euro area rest-of-the-world accounts, money market fund statistics and other investment fund statistics, have been assessed and monitored regularly to ensure that sources of discrepancies are identified and their magnitude kept within acceptable levels. For the comparisons of b.o.p./i.i.p. with monetary statistics, foreign trade statistics and euro area rest-of-the-world accounts, relatively minor discrepancies are prevalent and are due primarily to differing methodological treatments of specific items. The comparisons of the b.o.p./i.i.p. data with money market fund statistics and other investment fund statistics revealed moderate discrepancies, and these statistics are currently subject to a more in-depth investigation.

## Overall quality

From an overall perspective, the b.o.p. and i.i.p. data published by the ECB are assessed to be of high quality and fit for policy purposes.

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<sup>11</sup> For the analyses of net errors and omissions and the external consistency with monetary statistics and foreign trade statistics, reference data from the year 2008 are used, as the indicators rely on overlapping three-year periods and much longer time series are therefore needed.

# Introduction

In line with the mission statement of the Eurosystem,<sup>12</sup> the ECB is committed to adhering to the values – such as credibility, trust, transparency and accountability – that underpin the integrity of the statistical function set out in Article 5 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank (the Statute of the ESCB), which is annexed to the Treaty on the Functioning of the European Union.<sup>13</sup> Adherence to high-quality statistical standards is a key factor in maintaining public confidence in ESCB statistics, upon which monetary policy decisions are based. It also ensures the comparability of euro area and national statistics at international level. In the performance of its statistical function, the ESCB is committed to good governance and the highest ethical standards, as well as to executing its tasks in a spirit of cooperation and teamwork.

This report is required by Article 6 of Guideline ECB/2011/23 and complies with the “Public commitment on European statistics by the ESCB”, which stipulates the common set of principles governing ESCB statistics. In addition, the main principles and elements guiding the production of ECB statistics are contained in the Statistics Quality Framework (SQF)<sup>14</sup> and quality assurance procedures. Accordingly, this report is organised into three sections: institutional environment, statistical processes and statistical output.

- **Section 1** describes the regulatory framework (of the ECB’s institutional environment) that is applicable to the data collection necessary for the production of euro area external statistics. It covers: (i) independence; (ii) legal mandate for data collection; (iii) impartiality and objectivity; and (iv) statistical confidentiality.
- **Section 2** highlights the statistical processes governing data production and gives an overview of selected quality improvement initiatives, relevant aspects of which are: (i) a sound methodology; (ii) appropriate statistical procedures; and (iii) cost-effectiveness and minimisation of the reporting burden.
- **Section 3** is dedicated to specific data analyses in the context of the quality assessment of the statistical output, and covers: (i) relevance, accuracy and reliability; (ii) internal and external consistency; and (iii) timeliness, accessibility and clarity.

The ESCB statistical function collects all relevant data to produce and disseminate reliable, timely, consistent and accessible statistics in the areas under the ESCB’s

<sup>12</sup> The Eurosystem is the central banking system of the euro area. It comprises the ECB and the national central banks (NCBs) of the 19 EU Member States (as at 1 January 2015) that have adopted the euro. The mission statement of the Eurosystem is available at [https://www.ecb.europa.eu/ecb/orga/escb/html/mission\\_eurosys.en.html](https://www.ecb.europa.eu/ecb/orga/escb/html/mission_eurosys.en.html)

<sup>13</sup> The Protocol on the Statute of the European System of Central Banks and of the European Central Bank is available at [https://www.ecb.europa.eu/ecb/legal/pdf/c\\_32620121026en\\_protocol\\_4.pdf](https://www.ecb.europa.eu/ecb/legal/pdf/c_32620121026en_protocol_4.pdf)

<sup>14</sup> The ECB’s Statistics Quality Framework (SQF) is available at <http://www.ecb.europa.eu/stats/html/sqf.en.html>

responsibility. The main purpose of euro area external statistics is to support the monetary policy of the ECB and other tasks of the Eurosystem and the ESCB. They also support other policies of the European Union. These statistics comply with European and internationally agreed standards, guidelines and good practices.

As regards the data accessibility and dissemination policy, external statistics are published on a monthly and quarterly basis in pre-announced press releases<sup>15</sup> and in regular ECB publications, such as the Economic Bulletin<sup>16</sup> and the Statistics Bulletin<sup>17</sup>. They are also made available with additional details in the SDW<sup>18</sup> on the ECB's website.

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<sup>15</sup> The release calendar is available at <https://www.ecb.europa.eu/press/calendars/statscal/ext/html/stprbp.en.html>

<sup>16</sup> The statistics section of the Economic Bulletin is available at <http://sdw.ecb.europa.eu/reports.do?node=1000004813>

<sup>17</sup> The Statistics Bulletin is available at <http://sdw.ecb.europa.eu/reports.do?node=1000005>

<sup>18</sup> External statistics data in the ECB's Statistical Data Warehouse are available at <http://sdw.ecb.europa.eu/browse.do?node=2018778>

# 1 Institutional environment

The institutional environment has a direct impact on the quality of statistics. The statutory *independence* and *accountability* of the ECB, which are based on the provisions of the Treaty on the Functioning of the European Union (the “Treaty”),<sup>19</sup> also apply to its statistical tasks. The euro area b.o.p. and i.i.p. are based on the aggregation of statistics of individual euro area countries on transactions and positions between their residents and non-euro area residents. The *legal framework for collecting b.o.p./i.i.p. data* stems from the Treaty, in particular Article 5 of the Statute of the ESCB, which deals with the collection of statistical information.<sup>20</sup> Applying this provision, Article 2 of Council Regulation (EC) No 2533/98 on the collection of statistical information by the ECB (as amended by, among others, Council Regulation (EC) No 951/2009)<sup>21</sup> defines the reference reporting population, which includes, among others, “legal and natural persons residing in a Member State, to the extent that they hold cross-border positions or have carried out cross-border transactions”.

The legal provisions set out in the Treaty and in Council Regulation (EC) No 2533/98 (as amended) form the basis for Guideline ECB/2011/23<sup>22</sup>, which lays down the statistical reporting requirements of the ECB in the field of external statistics, including the balance of payments (b.o.p.), the international investment position (i.i.p.) and the international reserves template.

The new international standards for balance of payments statistics are defined in the sixth edition of the IMF’s Balance of Payments and International Investment Position Manual (BPM6)<sup>23</sup>. The methodological changes introduced by the manual were translated into new data requirements and integrated into the ESCB’s legal framework through Guideline ECB/2011/23. These new requirements became applicable from 1 June 2014.

The International Monetary Fund (IMF) has established a Special Data Dissemination Standard (SDDS)<sup>24</sup> to guide its member countries in the provision of economic and financial data to the public. Euro area b.o.p./i.i.p. statistics comply with these SDDS requirements.<sup>25</sup> References to the IMF’s SDDS framework are made in this report where appropriate.

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<sup>19</sup> For further details, see the ECB’s website at <http://www.ecb.europa.eu/ecb/orga/governance/html/index.en.html>.

<sup>20</sup> Article 5.1 states that “in order to undertake the tasks of the ESCB, the ECB, assisted by the national central banks, shall collect the necessary statistical information either from the competent national authorities or directly from economic agents”.

<sup>21</sup> OJ L 318, 27.11.1998, p. 8, and OJ L 269, 14.10.2009, p. 1.

<sup>22</sup> As amended by Guideline ECB/2013/25. Both Guidelines can be found on the ECB’s website at <http://www.ecb.europa.eu/ecb/legal/1005/1022/html/index.en.html>

<sup>23</sup> *Balance of Payments and International Investment Position Manual – Sixth Edition*, IMF, 2009, available at <http://www.imf.org/external/pubs/ft/bop/2007/pdf/bpm6.pdf>

<sup>24</sup> The IMF’s SDDS information pages are available at <http://dsbb.imf.org/Pages/SDDS/Home.aspx>

<sup>25</sup> Key euro area indicators which comply with the SDDS can be found at <https://www.ecb.europa.eu/stats/keyind/html/index.en.html>



The main purpose of euro area b.o.p. and i.i.p. statistics is to support the monetary policy of the ECB and other tasks of the Eurosystem<sup>26</sup> and of the ESCB. In the Eurosystem's mission statement, accountability, transparency and good governance are important values which underpin the integrity of the statistical function as defined in the Treaty (Article 5 of the Statute of the ESCB).

Since the start of Stage Three of Economic and Monetary Union (EMU) in 1999, several measures have been implemented to protect the integrity and credibility of euro area statistics and to increase the efficiency and effectiveness of statistical procedures. In line with the "Public commitment on European statistics by the ESCB", the ECB<sup>27</sup> developed a statistics quality framework, providing guidance on the compilation of statistics, as well as quantitative measures to assess the statistical outputs. The framework also encompasses procedures to protect statistical confidentiality, as required by Council Regulation (EC) No 2533/98 (as amended).

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<sup>26</sup> The Eurosystem is the central banking system of the euro area. It comprises the ECB and the national central banks (NCBs) of the 19 EU Member States (as at 1 January 2015) that have adopted the euro as their currency.

<sup>27</sup> In cooperation with the Statistics Committee (STC) of the European System of Central Banks (ESCB) and the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB).

## 2 Statistical processes

### 2.1 Methodological soundness

The sources used and methods applied by EU Member States and the ECB when compiling b.o.p. and i.i.p. statistics are covered in the ECB publication *European Union balance of payments/international investment position statistical methods* (the “B.o.p./i.i.p. Book”).<sup>28</sup> This publication describes the b.o.p./i.i.p. data collection and compilation system in each EU Member State and includes details about the institutional and legal environment, reporting populations, the sources, the collection and estimation methods and the release frameworks. The methods for compiling statistics on the international reserves (flows and outstanding amounts) of the ECB and the Eurosystem are described in a separate document, which is in the process of being updated.<sup>29</sup>

The Box below describes the impact on euro area aggregates<sup>30</sup> of the implementation of the BPM6 standards.

#### Box

#### The implementation of the sixth edition of the IMF’s Balance of Payments and International Investment Position Manual (BPM6) – impact on euro area aggregates

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Over the last fifteen years, substantial changes have occurred in the world economy, new data sources have been developed and there have been advances in statistical methodology. A shift of manufacturing production by multinational corporations to emerging countries (globalisation of production) has resulted in international fragmentation of production processes, enabled by rapid advances in communication and information technologies and financial innovation. This was accompanied by a growing importance of services relative to manufacturing, particularly of financial services. Specialised financial institutions outside the banking sector, such as financial vehicle corporations engaged in securitisation, and previously less monitored financial instruments, such as credit default swaps and other financial derivatives, gained in importance. In the European Union, there has been an acceleration in the process of financial and economic integration, leading to the establishment of the monetary union and the introduction of the euro. Overall, the measurement of economic and financial activities has become more challenging and the need for internationally comparable statistics has increased. These new statistical challenges have come in addition to long-established data needs for economic policy and administrative purposes in the European Union.

<sup>28</sup> Information on methodologies used for national b.o.p./i.i.p. compilation is available on the ECB’s website at <http://www.ecb.europa.eu/stats/pdf/EUbobointinvposstmeth.pdf?b73aa1ad7c7d91052243c7e8ebdff9f7>

<sup>29</sup> *Statistical treatment of the Eurosystem’s international reserves*, ECB, October 2000, available at <http://www.ecb.europa.eu/pub/pdf/other/statintreservesen.pdf>

<sup>30</sup> In the Box, “euro area aggregates” refers to data covering eighteen of the nineteen countries in the euro area (i.e. excluding Lithuania).

To cope with all these changes and data needs, the ECB reviewed its data requirements on balance of payments and international investment positions – Guideline ECB/2011/23. The new ECB requirements add some additional detail, namely: breakdowns by institutional sector and instrument, a more granular geographical breakdown of the quarterly international investment position, data on changes in positions related to asset prices and exchange rates, and portfolio investment positions by remaining maturity in order to enhance the statistics on euro area external debt.

In order to comply with the new ECB data requirements and the prescribed methodology (BPM6), some national central banks (NCBs) have also introduced new sources/surveys, have started using more granular data and have improved estimations, which may have had an impact on the compilation infrastructure, and which may have reduced or increased the effect of the methodological changes on the final output.

The following two sections explain the main changes in the international standards and the practical impact on the euro area external sector accounts. In order to analyse the impact of the changeover, the study compares the last data available under the BPM5 standards with the BPM6 aggregates available before Lithuania joined the euro area, i.e. the analysis is done with aggregates that include 18 euro area members (EA18).

### **Changes to the current account**

As mentioned above, globalisation involves the international dispersion of production processes for goods and services. The production of goods like computers and transport equipment involves producers from many countries, and it has become increasingly difficult to consistently trace flows of goods (merchandise trade) across national boundaries. The BPM6 and the System of National Accounts (SNA 2008) have converged on a common treatment, clarifying that the only basis for recording international trade, without exception, is a change in ownership of the goods concerned; not the physical cross-border movement of goods.

For example, when multinational companies send goods for processing to a different country, no change in ownership occurs. Therefore, no export of goods is recorded when the goods are sent abroad, and no import of goods is recorded when the processed goods return to the home country. Instead, the processing of the goods is recorded as an import of the home country of a manufacturing service. This new treatment has tended to decrease the recorded levels of imports and exports of goods in both the home country and the processing country, and increase the recorded level of imports of services in the home country, and the recorded level of exports of services in the processing country.

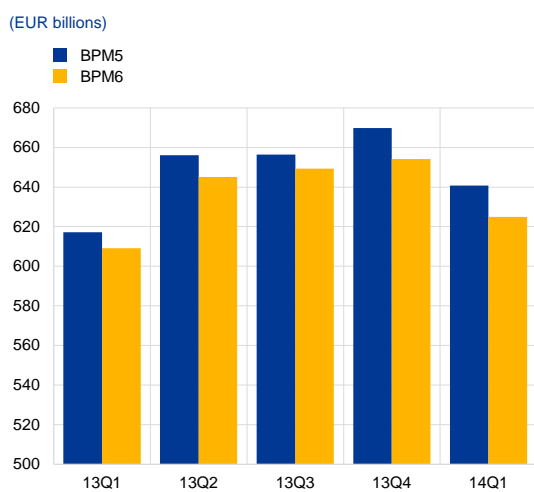
The principle of “change in ownership” is also applied to merchanting. Merchanting occurs when a trader purchases goods in one country (the country of origin) and sells them (usually at a profit) in another country (the country of destination) without the goods ever being present in the merchanter’s home country. Previously, the physical flow of goods was recorded as a direct export from the country of origin (at the purchase price) to the country of destination (at the same price). The trade margin of the merchanter was recorded as an export of services from the home country of the merchanter and an import of services by the country of destination. Under the new treatment, this is recorded as an export of goods from the country of origin to the home country of the merchanter (recorded as a negative export of the merchanter’s home country) and an export from

the home country of the merchanter to the country of destination. The trade margin is reflected in the merchanter's home country as a net export of goods.

A reclassification that will also affect the services account is the inclusion of financial intermediation services indirectly measured (FISIM) as a financial service. When contracting interest rates on deposits and loans with their customers, credit institutions are implicitly charging a service fee corresponding to the difference (margin) between these rates and the reference interest rate available in the interbank market. Until now this margin was included as part of the interest income, but the new standards have implemented a homogenous treatment that separates the pure interest component (income) from the resulting interest margin (service).

**Chart A**

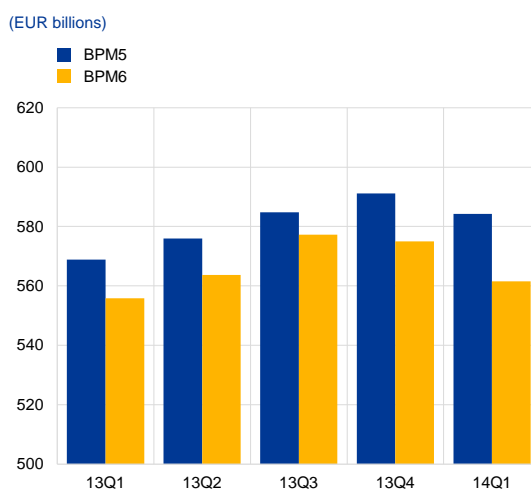
Euro area goods and services exports



Source: ECB

**Chart B**

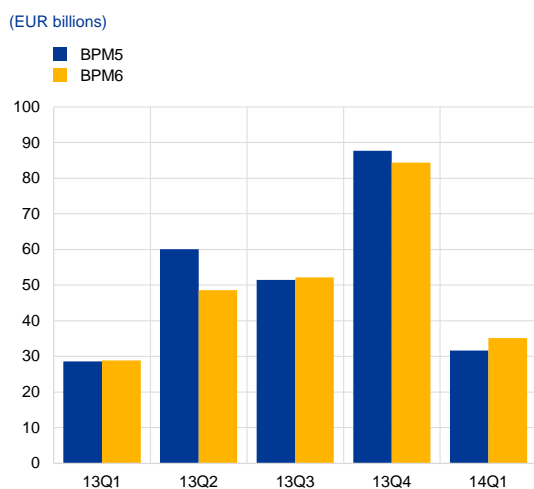
Euro area goods and services imports



Source: ECB

**Chart C**

Euro area current account balance



Source: ECB

Charts A and B compare euro area exports and imports of goods and services following the BPM5 and BPM6 standards. The impact of the methodological changes on euro area goods and services is to a certain extent as expected; the gross flows show a decrease for every quarter of the period under consideration. This decrease is mainly explained by the (i) "net treatment" of goods sent abroad for processing and (ii) the net exports of goods under merchanting.

Meanwhile, Chart C shows that the impact of the changeover, including the methodological changes at the level of the euro area current account balance, was minor in most of the quarters.

## Changes to the financial account and international investment position

The changes to the financial account are also applicable to the international investment position (i.i.p.) and to the external debt. One of the major methodological changes was the introduction of an integrated view of transactions, other changes and positions as a relevant tool for analysing international economic developments, particularly countries' vulnerability and sustainability. This balance sheet approach allows changes in quarterly i.i.p. between two periods to be explained through a decomposition into b.o.p. transactions, price and exchange rate revaluations and other changes in volume (such as, for example, write-offs and sectoral or geographical reclassifications). The ECB started collecting this detail in June 2014 and will start disseminating this decomposition in the first half of 2016.

Although already mentioned in the BPM5, the BPM6 provides more specific guidance on the residence and activity of special purpose entities (SPEs) and other legal structures that are used for holding assets and that have little or no physical presence in the country concerned. A better coverage of this type of entity, resident in countries such as Cyprus and Malta, which previously had not been appropriately included, has had a considerable impact on the euro area aggregates. The external debt has increased, as have foreign direct investment assets and liabilities. The net effect, and therefore the impact on the net i.i.p., depends on the geographical composition of the transactions and positions of these companies.<sup>31</sup>

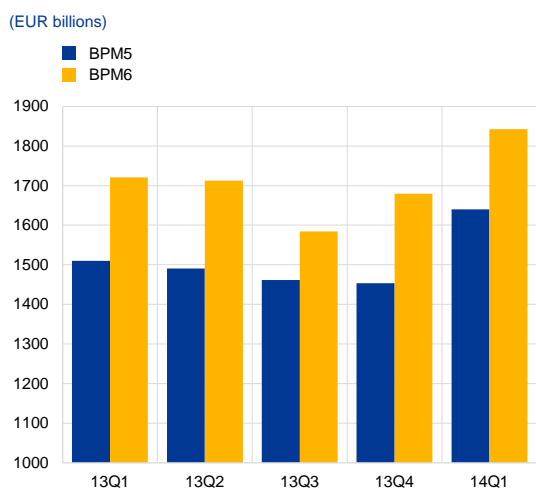
In the field of foreign direct investment, in order to cover complex multi-economy corporate structures, the concept of a direct investment relationship has been extended to encompass fellow enterprises and other companies in the same group not previously covered by the 10% direct influence rule (i.e. ownership of at least 10% of the equities in an enterprise). Therefore, some transactions and positions previously reported under other types of investment, such as portfolio or other investment, may now be reclassified under direct investment. In addition, foreign direct investment is now presented primarily on a gross assets and liabilities basis, as opposed to the directional principle (investment abroad and in the euro area) prevailing under the BPM5. Owing to their analytical relevance, the nature of the flows included in direct investment will now be separately identified as (i) investment by a direct investor in a direct investment enterprise (directly or indirectly controlled), (ii) reverse investment (flows from the direct investment enterprises to the direct investor) and (iii) investment between fellow enterprises (enterprises under the control or influence of the same direct investor, i.e. companies that belong to the same group, even if they do not exhibit any relationship of influence).

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<sup>31</sup> For example, an SPE resident in Malta, whose investor is resident in Switzerland, and which invests in a Dutch company will increase the direct investment liabilities of the euro area and will therefore reduce the euro area's net i.i.p., but if the Maltese SPE invests in the United Kingdom, euro area direct investment assets will increase as much as the liabilities, so the net i.i.p. will not be affected.

**Chart D**

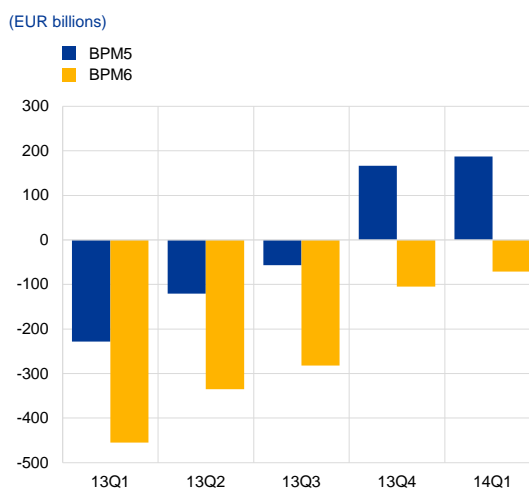
## Euro area net direct investment position



Source: ECB

**Chart E**

## Euro area net other investment position



Source: ECB

Charts D and E illustrate how the broader definition applied to foreign direct investment in the BPM6 is reflected as a reclassification in the euro area aggregates from other investment in the BPM5 to foreign direct investment positions in the BPM6. Special drawing rights (SDRs) are international reserve assets created by the IMF and allocated to IMF members to supplement existing official reserve assets. Under the BPM6, new distributions of SDRs to participants in the IMF SDR Department are recorded as increases in gross reserve assets (holdings of SDRs) and, at the same time, in long-term debt liabilities of the authorities (allocations of SDRs). Holdings of SDRs by an IMF member have been always recorded as an asset (in terms of reserve asset positions), while the corresponding liability, “allocations of SDRs”, was not recorded at all under the BPM5. The updated international standards regard the allocation of SDRs as the incurrence of a debt liability of the member receiving them because of a requirement to repay the allocation in certain circumstances and also because interest accrues on these allocations. This new treatment has increased the gross external debt and net external debt of the monetary authorities/central governments<sup>32</sup> and decreased the euro area net i.i.p. by €45 billion.<sup>33</sup>

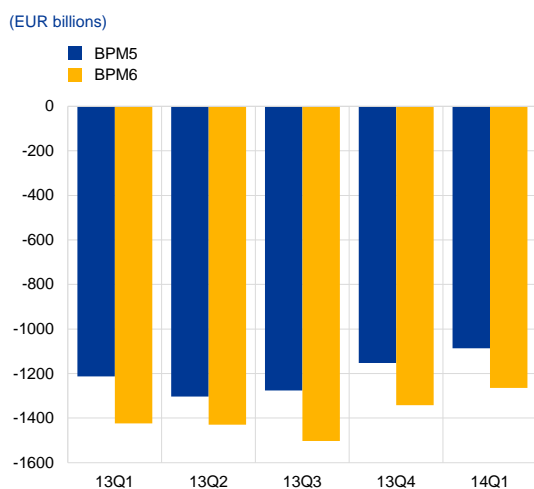
Chart F reflects the changes for the total euro area net international investment position. These changes are explained (i), methodologically, by the inclusion of the SDR allocation as liabilities in other investment, and (ii), not directly related to the methodological changes, by the increase in portfolio investment liabilities. This increase is due to the fact that the euro area aggregates compiled under the BPM6 standards are not yet subject to any adjustment to correct net errors and

<sup>32</sup> In the agreements between Latvia and Greece and the IMF, the SDR allocations were classified as liabilities of the central government.

<sup>33</sup> The IMF implemented a \$250 billion general allocation of special drawing rights (SDRs) on 28 August 2009. In addition, under the Fourth Amendment of the Fund's Articles of Agreement, the IMF implemented a special allocation of SDRs of \$33 billion on 9 September 2009. The euro area increased its SDR holdings and allocations by €45 billion.

## Chart F

### Euro area net international investment position



Source: ECB

standards have not significantly changed the assessment of economic and financial developments, the improved consistency between the statistical areas and between countries is crucial for policy-making in an economic and monetary union. Furthermore, the new information collected by the ECB will increase the relevance of the statistics for monetary policy, macroeconomic surveillance, analysis of the financial integration of the euro area and other uses.

omissions in the euro area balance of payments. Under BPM5, aggregates were adjusted to correct an overestimation of the euro area equity securities liabilities in portfolio investment.<sup>34</sup>

### Concluding remarks

The ECB as producer and user of statistics welcomes the introduction of the new statistical standards as an important step towards improving the quality of European statistics, by bringing them into line with changes in the economic and financial environment. Relevant and timely statistics are vital for monetary policy purposes and other ESCB functions. While the changes owing to the introduction of the new

The ECB disseminated BPM6-compliant euro area b.o.p./i.i.p. data for the first time at the end of October 2014. This comprised monthly and quarterly data from 2013 onwards (main current account items back to 2008), with a detail similar to the former BPM5 dataset, as well as a more granular geographical breakdown of the quarterly international investment positions comparable to the former annual breakdown. Since the beginning, comprehensive seasonally and working day adjusted data for the main current account items have also been made available.

In March 2015, the ECB started publishing the b.o.p. for the enlarged euro area, i.e. including Lithuania, which joined the euro area on 1 January 2015. Consistent time series for the b.o.p. and i.i.p. of the enlarged euro area back to January 2013 (2008 for the current account) were updated and made available in the ECB's Statistical Data Warehouse (SDW).

In April 2015, this dataset was extended back to 2009 (main current account items back to 1999), but excluding some detail, namely the most granular geographical breakdown. In October 2015, the ECB disseminated comprehensive monthly b.o.p. and quarterly b.o.p./i.i.p. data for the reference year 2008, including the most detailed geographical breakdown for the period 2008-2012.

<sup>34</sup> For further information, see *Euro area balance of payments and international investment position statistics – 2009 quality report*, ECB, March 2010, available at <http://www.ecb.europa.eu/pub/pdf/other/euroareabalanceofpaymentsandiipstatistics201003en.pdf>

Regarding back-data, the dissemination of the financial account (including the respective detail) for reference periods as far back as 1999, is still outstanding. Consequently, estimates of quarterly BPM6 data back to 1999 will be derived from available country data and complemented with euro area BPM5 indicators where appropriate. It is expected that these quarterly back-data will be disseminated in the first half of 2016.

The under-coverage of special purpose entities (SPEs) in Cyprus and Malta has improved in the context of the national BPM6 implementation plans. However, there is still room for improvement in terms of coverage, timing and geographical detail, given the limited information collected in this regard.

## 2.2 Appropriate statistical procedures

The data used in the compilation of euro area aggregates are compiled by national statistical authorities, comprising national central banks (NCBs) and some national statistical institutes. The ECB provides guidance for data structures, transmission, reporting guidelines, quality control, reporting lists, methodological conventions and revision policy in a regularly-updated document entitled *The exchange of balance of payments, international investment position statistics and the international reserve template within the ESCB – BPM6* (the “Booklet”).

## 2.3 Cost-effectiveness and minimisation of the reporting burden

The centralised securities database (CSDB) and security-by-security data collection, which were implemented in all euro area countries as of March 2009, provide extensive flexibility in the compilation of statistics without increasing the burden on respondents.

Since 2009, a network for foreign direct investment statistics (the “FDI network”) has been working to facilitate the secure exchange of information on large FDI transactions between national compilers in the EU to increase the quality of the statistics produced. In 2012 the FDI network began an annual exercise to exchange information on FDI positions in order to better understand bilateral inconsistencies. The participating countries have assessed the associated burden to be acceptable and have confirmed that the exercise helps them to identify the reasons behind mismatched positions. One of the typical differences is the use of different valuation methods to record the positions vis-à-vis partner countries. The national data and euro area aggregates have already benefited from the establishment of the network, as it has triggered a reduction in asymmetries in the euro area b.o.p. and i.i.p., as well as fewer and/or earlier revisions to these data.



## 3 High output quality

### 3.1 Relevance of the statistical output

ECB statistics must fulfil stated or implied user needs, particularly of a policy nature. These needs may vary over time as a result of changes in the economic environment. The ECB addresses user needs regularly via the annual work programme and the associated mid-year review. Proposals for new statistics or substantial changes to existing statistical requirements are assessed in terms of their merits and costs.

### 3.2 Accuracy and reliability (stability) of the statistical output

When compiling euro area aggregates at both monthly and quarterly frequencies, the ECB performs quality assurance procedures on the national contributions received from all euro area countries, and from the ECB itself (i.e. on the data derived from its accounting ledgers). The aim of these checks is to detect inaccurate, inconsistent or implausible data. Outliers in time series and inconsistencies with other data sources are analysed as well. If a potential problem is detected, the relevant expert in the country involved is required to review and/or confirm the figures. In the latter case, explanations with regard to the underlying economic developments are often supplied.

In the case of revisions, it is acknowledged that these are necessary in order to improve the data quality, as first assessments may be partly based on estimates, owing to incomplete, late or erroneous responses by reporting agents. Revisions also provide users with more accurate data for time series analysis and forecasting. However, large or systematic revisions may signal weaknesses in the data collection or compilation systems that need to be resolved.

In this quality report, only monthly revisions are assessed. Those relating to the i.i.p. (i.e. quarterly revisions) are not included, as the short time span renders only three observations available. Under these circumstances, the reliability of similar indicators would be questionable.

For the monthly revisions, two types of indicator are used, both of which are based on a comparison between the first assessments that are reported (i.e. data which are transmitted to the ECB six weeks after each reference period) and the last available assessments (i.e. subsequently revised data). For the first assessments, the analyses in this report utilise data from the reference month of October 2014, while, for the last assessments, all observations as reported for the euro area data release of 7 October 2015 (i.e. reference month of June 2015) are used. In this context, the indicators are computed using nine observations. Owing to this relatively short time span, the indicators can only provide preliminary results on the empirical stability of the b.o.p. data since the release of BPM6-compliant data.

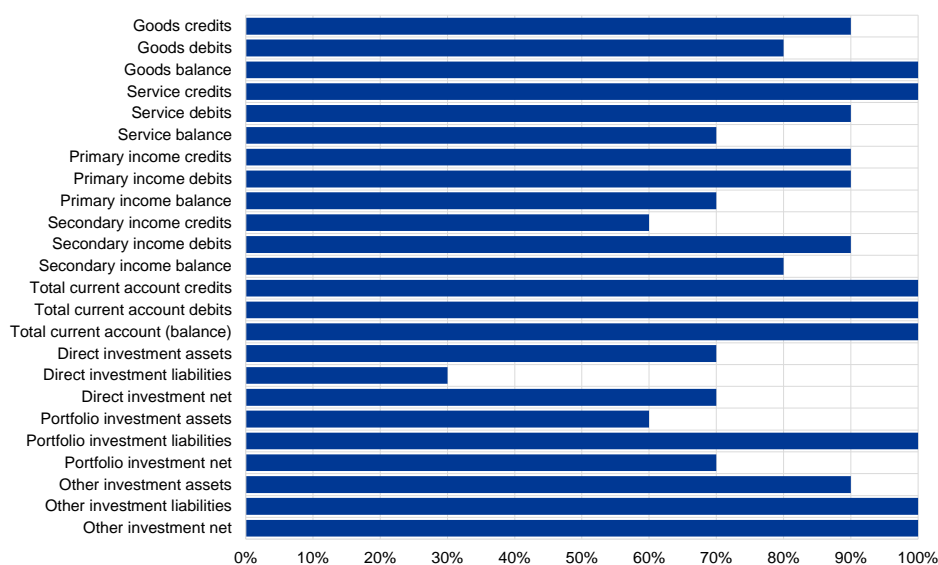
For the revisions analysis, the two types of indicator used (as applicable, based on the characteristics of the underlying time series) are the following:

1. *Directional reliability indicators*, which measure how often the first assessment is subsequently revised while keeping the same direction of the month-on-month changes; and,
2. *Size indicators*, which measure the difference between the first and the last assessments. The absolute difference may be quantified relative to the underlying series (when strictly positive) or to the underlying outstanding amounts.

The directional reliability indicator summarises how often the first assessments were able to correctly predict an increase or decrease in the final value in comparison with the previous observation. The predictability of the direction of the month-on-month changes constitutes a simple measure of reliability, which is applicable to all b.o.p. items. A value of 100% indicates complete reliability, while, for the purpose of this report, values over 60% are considered satisfactory.

### Chart 1

Overview of directional reliability of the b.o.p. for the period from October 2014 to June 2015<sup>35</sup>



Source: ECB

Chart 1 contains the results of the directional reliability indicator for the main components of the b.o.p., broken down by balances, credits/assets and debits/liabilities, for the period from October 2014 to June 2015. One can conclude that the first assessments of the majority of the current account components are satisfactory or even completely reliable. For the financial account, the components

<sup>35</sup> Correctly predicted sign of the month-on-month change in the first assessments, as a percentage of all monthly estimates, in the period from October 2014 to June 2015.

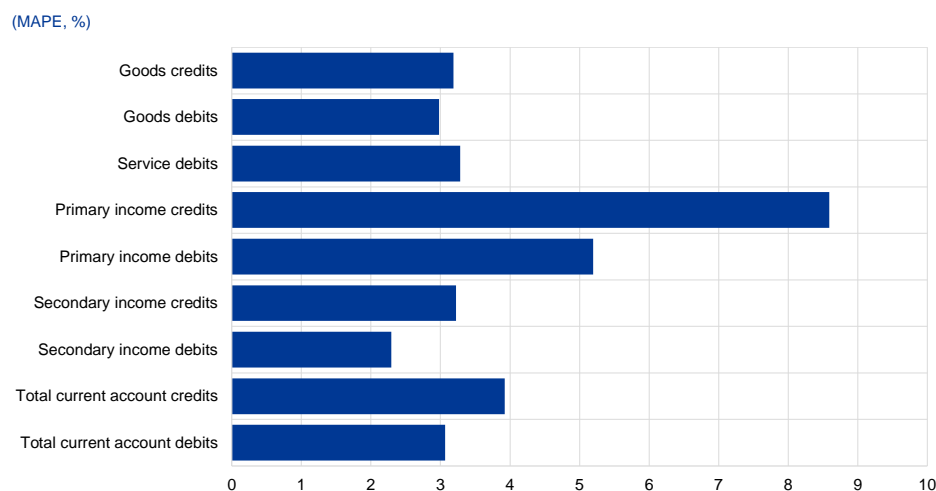
generally follow the same pattern of reliability as the current account, with scores ranging from 60% to 100%, and with assets appearing generally less reliable than liabilities. The exception is direct investment liabilities (with a score of 30%), which is the least reliable of all the financial account components.

For the euro area current account, the mean absolute percentage error (MAPE) indicator is used to measure the size of revisions. The MAPE is equal to the average of the absolute revisions in relation to the size of the respective flow, and a MAPE value of 0% is optimal.

Chart 2 contains the results for the period from October 2014 to June 2015. In this chart, it is observed that the magnitude of the revisions for primary income credits (8.6%) and primary income debits (5.2%) are much larger than for the other components, where the MAPE values range from 2.3% to 3.3%. This apparently lower stability of the primary income credits and debits is mainly due to direct investment income, in particular reinvested earnings, which are entirely based on estimates in the first assessment, as companies' profit and loss accounts are known only six to nine months after the reference period. In addition, the lack of monthly security-by-security collection systems in some countries results in preliminary first assessments for portfolio investment income which are subsequently revised when the data from quarterly surveys become available.

## Chart 2

Revisions of the euro area current account as a percentage of the respective flow for the period from October 2014 to June 2015

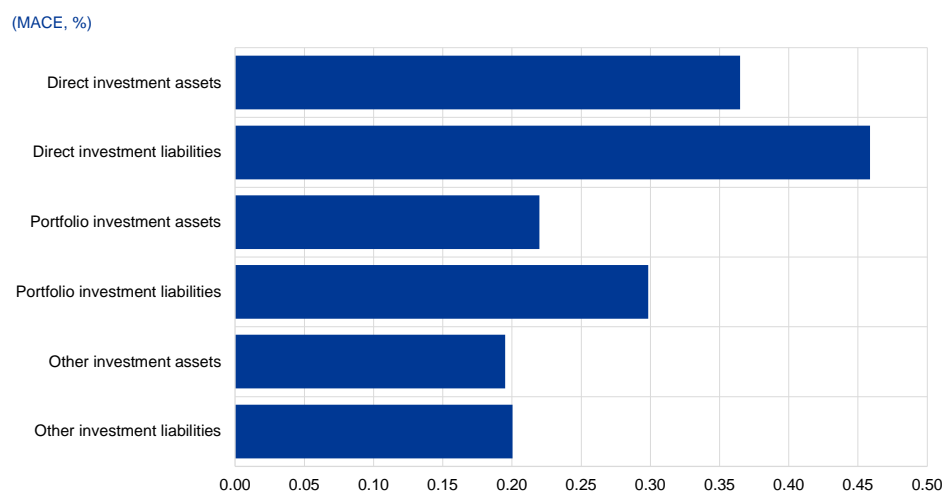


Source: ECB

To evaluate the revisions to the preliminary estimates of assets and liabilities in the financial account, the mean absolute comparative error (MACE) indicator is used. The MACE is equal to the average of the absolute revisions in relation to the corresponding outstanding amount in the i.i.p., and a MACE value of 0% is optimal.

### Chart 3

Revisions of the euro area financial account assets and liabilities as a percentage of the corresponding i.i.p. item for the period from October 2014 to June 2015



Source: ECB

Chart 3 presents the results for the indicators of the assets and liabilities of direct investment, portfolio investment and other investment. It is generally observed that the average revisions to the preliminary estimates for direct investment assets and liabilities are noticeably higher (around 0.4%) than for the remaining components of the financial account. This used to also be the case for the former BPM5 aggregates.<sup>36</sup> In general, the average revisions for all other financial account components are below 0.3%, so these first assessments can be considered reliable.

## 3.3 Consistency and comparability of the statistical output

Consistency indicators can be applied from different perspectives, namely consistency over time, consistency within a single dataset (internal consistency), consistency across datasets (external consistency), consistency across frequencies, and, finally, consistency across geographical regions or between countries (comparability with their main partners). For the euro area b.o.p. and i.i.p., internal consistency is primarily assessed by looking at net errors and omissions, and external consistency is measured by discrepancies vis-à-vis other euro area statistics, such as monetary financial institution (MFI) balance sheets, foreign trade statistics, euro area rest-of-the-world accounts, money market fund statistics and other investment fund statistics.

<sup>36</sup> See *Euro area balance of payments and international investment position statistics – 2013 quality report*, ECB, April 2014, available at <https://www.ecb.europa.eu/pub/pdf/other/euroareabalanceofpaymentsiipstatistics201404en.pdf>.

### 3.3.1 Net errors and omissions

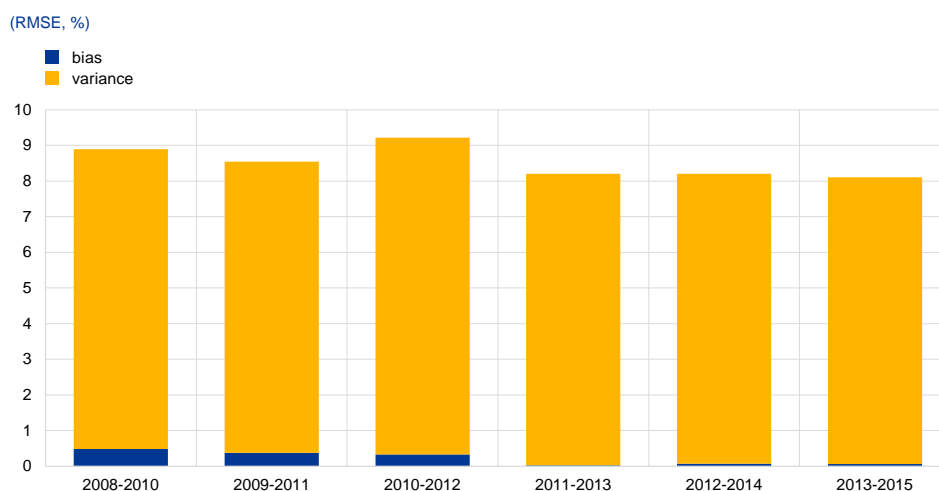
Net errors and omissions is the overall balancing item between credits/assets and debits/liabilities in the b.o.p., and thus provides an indicator of internal consistency. In fact, the principle of double-entry bookkeeping implies that the sum of all transactions with the rest of the world should be equal to zero in the b.o.p. statement. A large or persistent residual may hinder data analysis and interpretation.

The root mean square error (RMSE) indicator is calculated for the time series on net errors and omissions as a percentage of gross flows in the euro area current account (the sum of credits and debits). This indicator is also used to identify a potential bias component (as positive and negative errors and omissions should normally cancel each other out over time). An RMSE of 0% is optimal.

In Chart 4 the RMSE of the net errors and omissions of the euro area, as a percentage of gross flows in the current account, is presented for the period from January 2008 to June 2015 in overlapping intervals of three years.

#### Chart 4

Net errors and omissions of the euro area as a percentage of gross flows in the current account for the period from January 2008 to June 2015



Source: ECB

In general, a fairly stable RMSE is observed of around 8-9% of the gross current account flows. In addition, very small bias component (below 0.5%) is observed in the earlier time intervals. When compared to BPM5 data, the RMSE is higher under the BPM6 (e.g. for the period 2008-2010, the BPM5 RMSE was around 1.5% when using the correction mechanism that was in place under the BPM5 and around 7% for the unadjusted, original net errors and omissions). This is explained mainly by two factors: (i) euro area aggregates are not yet subject to any adjustment to minimise net errors and omissions under the BPM6 standards (unlike under the BPM5); and (ii) the denominator used to calculate the RMSE (i.e. the addition of the credits and debits of the total current account) is now lower owing to the methodological changes introduced by the BPM6, which nets out some of the

transactions that are presented on a gross basis under the BPM5, such as the new treatment of manufacturing service and the net export of goods under merchanting.

### 3.3.2 External consistency

#### Consistency with other statistical domains

The euro area b.o.p. and i.i.p. series were compared with other comparable datasets, namely: (i) the corresponding data on external transactions derived from the MFI balance sheet (ECB dataset); (ii) data for euro area foreign trade statistics (published by Eurostat); (iii) the euro area rest-of-the-world accounts (ECB dataset); (iv) money market fund statistics (ECB dataset); and (v) other investment fund statistics (ECB dataset).

#### Consistency with MFI balance sheet items (BSI)

In this series of checks, the b.o.p. series is compared with the external transactions derived from *MFI balance sheet items (BSI)* statistics. Even though, in principle, both the b.o.p. and BSI statistics comply with international statistical standards, a number of differences can be identified with regard to the *practical implementation* of these standards, including the use of different statistical sources, differences in the timeliness of the data reporting and simplifications in one reporting system or the other which are accepted for the sake of reducing the reporting burden. In terms of compilation systems, the b.o.p. transactions of the MFI sector are reported directly by MFIs in some countries, whereas, in the BSI data, transactions are derived from differences in stock data (adjusted for reclassifications, foreign exchange rate changes and price revaluations). In practice, this may give rise to a number of differences in the resulting net transactions data, in particular if a large proportion of transactions are denominated in foreign currencies and if the volatility of exchange rates or securities prices is high.

In general, the *methodological differences* between the b.o.p. data and the transactions derived from the MFI balance sheets are limited, and issues such as the different treatment of (i) borderline cases between loans and securities, and between securities and financial derivatives, (ii) inter-company financing, (iii) short-selling and reverse transactions, and (iv) reinvested earnings and the accrued interest that should be reported together with the asset to which it relates, have been partly resolved with the update of the European System of Accounts (ESA2010) that has influenced the updated (recast) BSI Regulation<sup>37</sup> which provides the legal basis for the compilation of BSI statistics.

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<sup>37</sup> Regulation (EU) No 1071/2013 of the European Central Bank of 24 September 2013 concerning the balance sheet of the monetary financial institutions sector (recast) (ECB/2013/33) (OJ L 297, 7.11.2013, p. 1), which became applicable from 1 January 2015.

More specifically, the quality indicators used in this report compare the differences between b.o.p. and BSI transactions for the “other MFIs” sector (i.e. MFIs excluding the Eurosystem) for three types of financial instrument, namely (i) net transactions (assets minus liabilities) in loans and deposits combined, (ii) transactions in equity securities assets, and (iii) transactions in debt securities assets.

In Table 1 the average of absolute differences and the average of (ordinary) differences, per type of financial instrument, for overlapping intervals of three years are shown. These indicators give an idea of the development of the differences over time. For example, when assessing the average of absolute differences, it is clear that systematic, but relatively minor, discrepancies exist for equity securities assets. On the other hand, a clear decreasing trend is observed in the case of (the larger) differences for net loans and deposits. In the case of debt securities assets, the trend is not so clear and absolute differences appear to be increasing again in the later years. Note that the largest differences, observed across all instrument categories in the period 2008-2010, were on account of the implementation in June 2010 of the old BSI Regulation<sup>38</sup>, where the adjustments introduced to the reporting were not consistent in both datasets.

**Table 1**  
Differences between b.o.p. and BSI transactions for euro area other MFIs

(BSI minus b.o.p., average over the period, EUR billions)

|                                 | Period                 | Net loans and deposits | Equity securities assets | Debt securities assets |
|---------------------------------|------------------------|------------------------|--------------------------|------------------------|
| Average of absolute differences | 2008-2010              | 8.97                   | 2.69                     | 10.32                  |
|                                 | 2009-2011              | 9.89                   | 2.29                     | 7.06                   |
|                                 | 2010-2012              | 9.82                   | 2.42                     | 5.48                   |
|                                 | 2011-2013              | 6.46                   | 2.16                     | 3.71                   |
|                                 | 2012-2014              | 4.62                   | 2.30                     | 4.20                   |
|                                 | 2013-2015*             | 4.56                   | 2.74                     | 5.48                   |
|                                 | Average of differences | 2008-2010              | -2.07                    | -0.46                  |
| 2009-2011                       |                        | -1.32                  | 0.23                     | 1.46                   |
| 2010-2012                       |                        | -1.04                  | 0.54                     | 0.89                   |
| 2011-2013                       |                        | 0.54                   | -0.41                    | 0.55                   |
| 2012-2014                       |                        | -0.03                  | -0.54                    | 0.99                   |
| 2013-2015*                      |                        | -0.53                  | -1.25                    | 0.81                   |

Source: ECB  
\* Data until June 2015

## Consistency with foreign trade statistics

Nowadays, *foreign trade statistics* are the source used to compile the goods balance of the b.o.p. statistics in all euro area countries. Therefore, the minor discrepancies between the two sets of statistics reflect the differences in the underlying statistical concepts. While trade statistics record a transaction when there is a physical

<sup>38</sup> Regulation (EC) No 25/2009 of the European Central Bank of 19 December 2008 concerning the balance sheet of the monetary financial institutions sector (ECB/2008/32) (OJ L 15, 20.1.2009, p. 14).

movement of goods across borders, the b.o.p. concept measures goods on a change-of-ownership basis. Moreover, trade statistics record imports including insurance and freight (CIF), whereas b.o.p. records the same transactions free on board (FOB).

Table 2 depicts two indicators showing the month-on-month growth rates in the average of the absolute differences and the average of differences for the exports and imports series on the basis of b.o.p and trade statistics data. The results of the indicator on the average of the absolute differences reveals, for both exports and imports, relatively minor discrepancies (i.e. consistently low month-on-month growth rates of less than 1 percentage point). For exports, a generally decreasing trend is observed, while, for imports, the level of differences remains steady. This positive development (particularly for exports) is a result of revisions implemented in the two datasets from the reference period of 2007 onwards, which confirms that data vintages were one of the main sources of discrepancies between the two datasets. Furthermore, when assessing the second indicator, it can be observed that the average of differences in growth rates for both exports and imports is generally close to zero.

**Table 2**  
Euro area goods in the b.o.p. and in external trade statistics

(month-on-month growth rates, percentage points)

|                                        | Period     | Exports | Imports |
|----------------------------------------|------------|---------|---------|
| <b>Average of absolute differences</b> | 2008-2010  | 0.86    | 0.85    |
|                                        | 2009-2011  | 0.74    | 0.68    |
|                                        | 2010-2012  | 0.75    | 0.75    |
|                                        | 2011-2013  | 0.68    | 0.72    |
|                                        | 2012-2014  | 0.73    | 0.80    |
|                                        | 2013-2015* | 0.59    | 0.76    |
| <b>Average of differences</b>          | 2008-2010  | 0.00    | 0.05    |
|                                        | 2009-2011  | 0.04    | 0.01    |
|                                        | 2010-2012  | 0.09    | 0.00    |
|                                        | 2011-2013  | 0.03    | -0.04   |
|                                        | 2012-2014  | 0.02    | 0.00    |
|                                        | 2013-2015* | 0.02    | 0.10    |

Sources: ECB and Eurostat  
\* Data until June 2015

Both sets of statistics are also published after adjustments for seasonal and calendar day effects. Chart 5 shows the three-year averages of the differences in month-on-month growth rates for exports and imports of goods on the basis of both seasonally and calendar-day adjusted data and raw data. For both exports and imports, the indicator for seasonally adjusted data reveals greater differences than that for raw data. This shows that different seasonal adjustment methodologies, as applied by

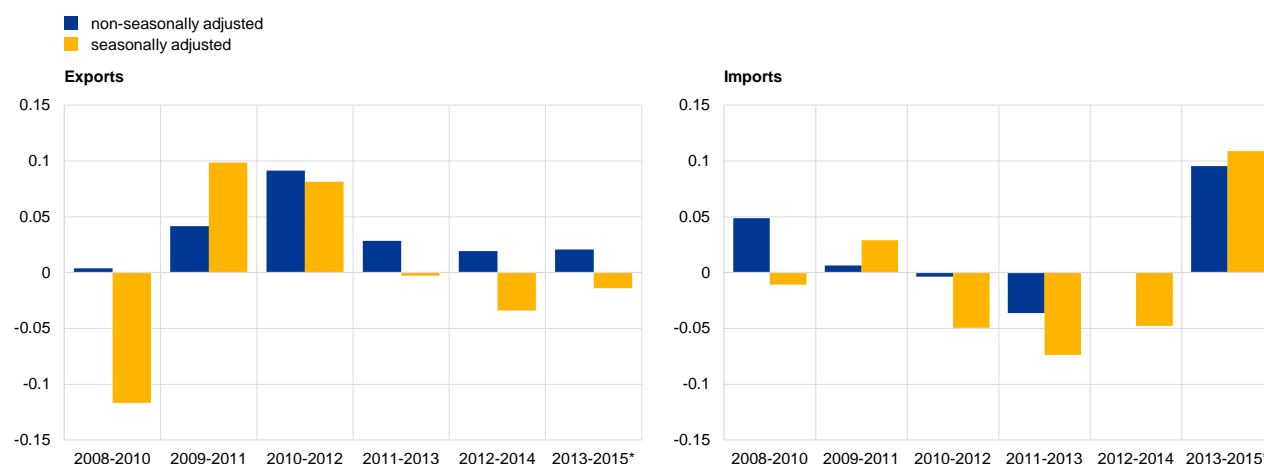


the ECB and Eurostat to these data, also affect the consistency of (Eurostat's) trade and (the ECB's) b.o.p. statistics.<sup>39</sup>

## Chart 5

### Comparison between exports and imports of goods in b.o.p. and foreign trade statistics

(three-year average of differences in month-on-month growth rates, percentage points)



Sources: ECB and Eurostat  
\* Data until June 2015

## Consistency with euro area sector accounts

The euro area accounts (EAA) present a complete and consistent set of data for all institutional sectors, including the interactions between these sectors (of the euro area) and the rest of the world (“rest-of-the-world” account). Whereas the euro area b.o.p. and i.i.p. statistics are the major data source for the compilation of the rest-of-the-world account in the EAA and the changeover to the new standards brought methodological consistency, the EAA integration process, including the removal of horizontal discrepancies (mostly asymmetries) and vertical discrepancies (errors and omissions), implies that the final data shown in the rest-of-the-world account are not necessarily identical to the corresponding b.o.p./i.i.p. data. They should nevertheless broadly reflect the same economic developments.

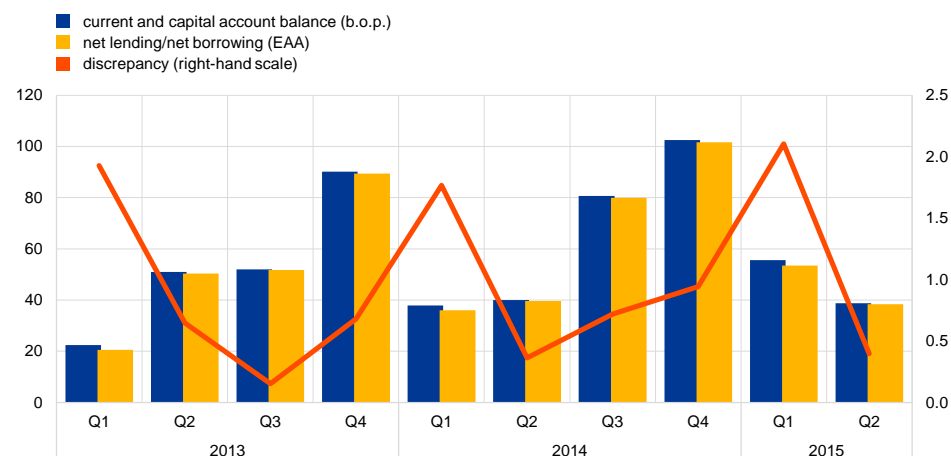
The comparison looks into the consistency of the total non-financial (current and capital accounts) and financial accounts (b.o.p. financial account and i.i.p.). Chart 6 shows the quarterly differences between the b.o.p. and the EAA for net lending/net borrowing as compiled from the (non-financial) current and capital accounts. The b.o.p. and the EAA are now fully consistent, as the b.o.p. data are directly used as a primary data source in the compilation of the EAA figures. The minor differences (below €2 billion per quarter) arise from the EAA's reconciliation of goods and services account.

<sup>39</sup> For more information on the different methodologies applied by the ECB and Eurostat, see Table 3 in the *Euro area balance of payments and international investment position statistics – 2009 quality report*, ECB, March 2010, available at <http://www.ecb.europa.eu/pub/pdf/other/euroareabalanceofpaymentsandiipstatistics201003en.pdf>

### Chart 6

#### Comparison between the b.o.p and EAA net lending/net borrowing (compiled from the current and capital account)

(EUR billions)



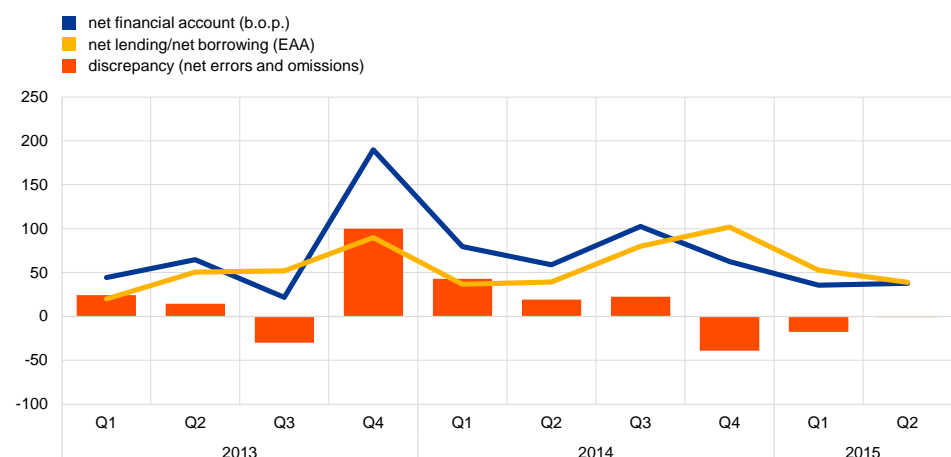
Source: ECB

By contrast, the differences for net lending/net borrowing as compiled from the financial account are sizable and equal to the b.o.p. errors and omissions (see Chart 7). This is the case because the EAA reconciles the rest-of-the-world account vertically, i.e. it completely allocates the b.o.p. errors and omissions to specific financial instruments on the basis of relative data reliability and the EAA's horizontal constraints.

### Chart 7

#### Comparison between the b.o.p and EAA net lending/net borrowing (compiled from the financial account)

(EUR billions)

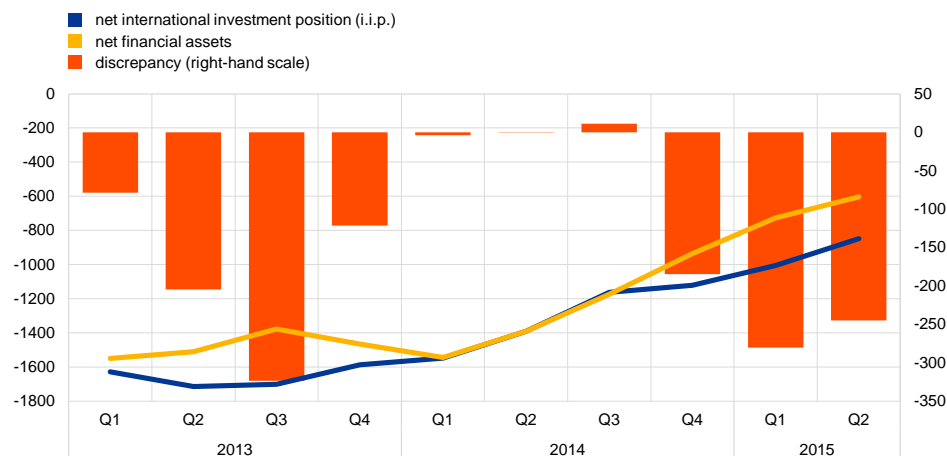


Source: ECB

## Chart 8

### Comparison between net financial assets and net i.i.p.

(EUR billions)



Source: ECB

Chart 8 above shows that the net i.i.p. has been persistently lower than the net closing balance sheet of the rest-of-the-world sector in the EAA. In the first three quarters of 2013 the differences increased gradually before reaching a peak in the third quarter of 2013. In 2014 the two datasets were broadly consistent before starting to diverge again towards the end of 2014. The differences arise mostly from inherited discrepancies in transactions, i.e. from the impact on stocks of the elimination of b.o.p. errors and omissions and from the reconciliation of “other flows”.

## Consistency with money market fund statistics

Details on money market fund (MMF) shares are collected by the ECB in the b.o.p./i.i.p. statistics, within portfolio investment. MMF data are also collected under the BSI statistics of the MFI sector, of which MMF is a subset (MMF-BSI).

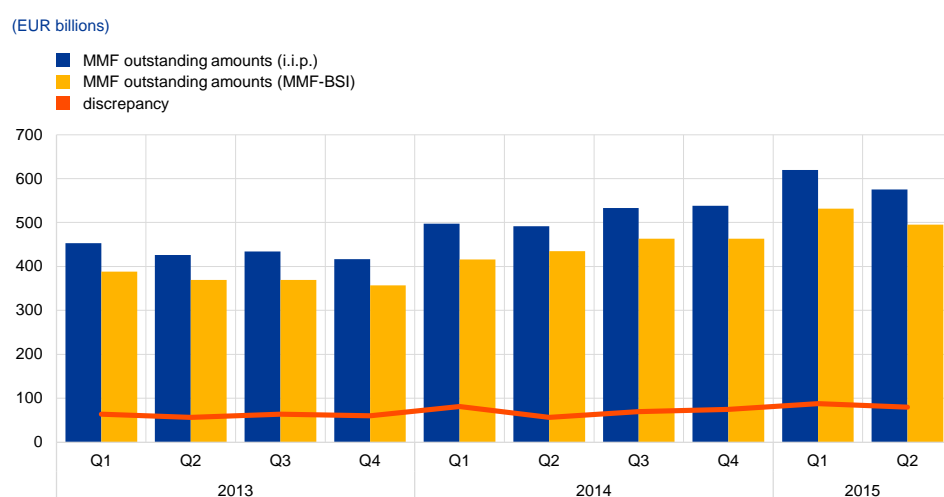
In principle, these statistics follow similar international statistical standards in terms of valuation, residency, instrument coverage and time of recording. Differences arise from compilation practices as regards geographical counterparty breakdown. Under the BSI Regulation, the outstanding amounts and transactions in MMF shares issued (liabilities) are collected directly from countries with a geographical breakdown (intra- and extra-euro area) and simply aggregated to the euro area, but in b.o.p./i.i.p. statistics, MMF share liabilities for the euro area are estimated by the ECB using the “residual approach”.<sup>40</sup>

<sup>40</sup> In theory (in a world without asymmetries), the amount of MMF and investment fund (IF) shares issued in the euro area and held by euro area residents would be the same whether compiled from the asset or the liability side. Therefore, the intra-euro area holdings of MMF and IF shares issued in the euro area are deducted from the total amount of shares issued by euro area countries in order to estimate the amount of MMF and IF shares issued in the euro area and held abroad.

As estimated for the i.i.p., the total outstanding amount of MMF shares issued in the euro area and held by non-residents (liabilities) is consistently higher than the values reported in BSI. Chart 9 below shows this comparison for the period from the first quarter of 2013 to the second quarter of 2015. The series follow the same trend, but the discrepancies between the two datasets range between €57 billion and €88 billion.

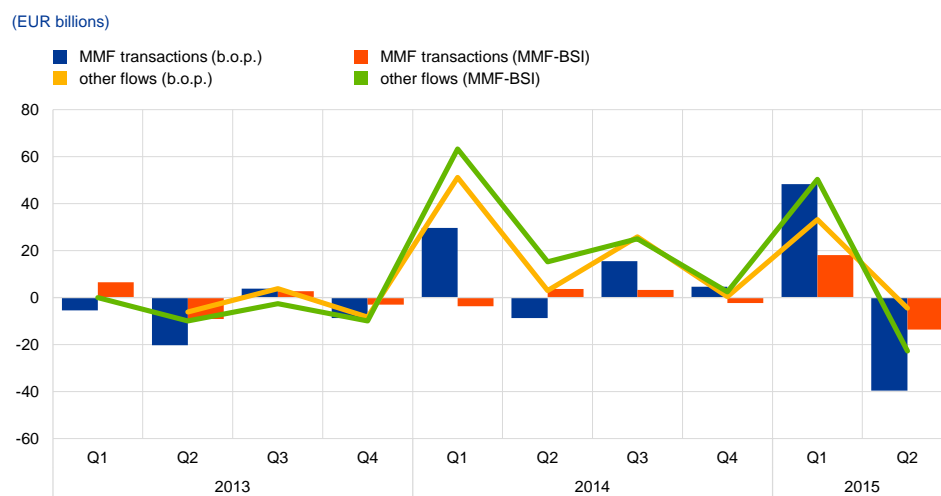
### Chart 9

#### Comparison of MMF outstanding amounts data between i.i.p. and MMF-BSI



Source: ECB

Having assessed the parallel evolution of the stock series, fairly consistent transactions would be expected. However, the correlation between b.o.p. and the MMF-BSI transaction series is much lower than that for outstanding amounts. Also, as can be seen in Chart 9, the b.o.p. MMF liabilities are significantly more volatile than the corresponding MMF-BSI series and, for four of the periods under examination, the transactions reported are even of the opposite sign. In other words, as also illustrated in Chart 10, “other flows” (price revaluations and other changes in volume) play a major role in explaining the changes in the i.i.p. and BSI-MMF outstanding amounts. Although the “other changes” series in the two datasets follow the same development, the absolute values in b.o.p./i.i.p. statistics data are always lower.

**Chart 10****Comparison of MMF transactions data between b.o.p. and MMF-BSI**

Source: ECB

**Comparison of investment fund shares issued**

Details on other investment fund (IF) shares issued are collected by the ECB in the b.o.p./i.i.p. statistics within portfolio investment. IF data are also collected under the Investment Funds Regulation<sup>41</sup> (IVF dataset).

In principle, these statistics follow similar international standards in terms of valuation, residency, instrument coverage and time of recording. As in the case of MMFs, differences arise from compilation practices as regards geographical counterparty breakdown. Under the Investment Funds Regulation, the outstanding amounts and transactions in IF shares issued (liabilities) are collected directly from countries with a geographical breakdown (intra- and extra-euro area) and simply aggregated to the euro area, but in b.o.p./i.i.p. statistics, IF share liabilities for the euro area are estimated by the ECB using the “residual approach”.<sup>42</sup>

As in the case of MMFs, as described above, the i.i.p. consistently overestimates euro area IF liabilities in comparison with IVF dataset. The size of the discrepancy remains around €180 billion throughout the period. Chart 11 plots the discrepancies in IF liabilities between i.i.p. and IVF data for euro area aggregates (with a geographical dimension), and the sum of the national (i.i.p./IVF) discrepancies for the euro area countries (without a geographical dimension). The two series are not

<sup>41</sup> Regulation (EU) No 1073/2013 of the European Central Bank of 18 October 2013 concerning statistics on the assets and liabilities of investment funds (recast) (ECB/2013/38) (OJ L 297, 7.11.2013, p. 73). Investment funds are defined as “other financial intermediaries except insurance corporations and pension funds” and exclude MMFs.

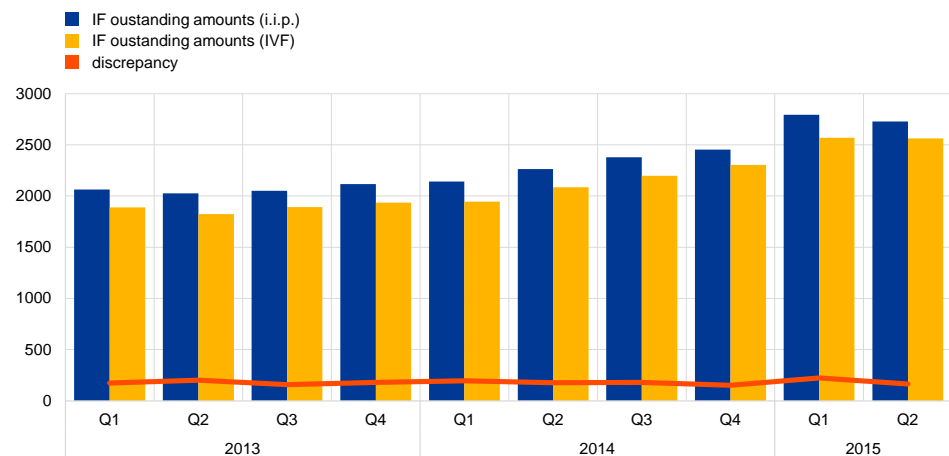
<sup>42</sup> In theory (in a world without asymmetries), the amount of MMF and IF shares issued in the euro area and held by euro area residents would be the same whether compiled from the asset or the liability side. Therefore, the intra-euro area holdings of MMF and IF shares issued in the euro area are deducted from the total amount of shares issued by euro area countries in order to estimate the amount of MMF and IF shares issued in the euro area and held abroad.

directly comparable because of the geographical dimension. However, the Chart 11 does illustrate that the significant differences between the i.i.p. and IVF datasets arise mainly from the estimated geographical allocation of IF holdings.<sup>43</sup>

### Chart 11

#### Comparison of IF outstanding amounts data between i.i.p. and IVF

(EUR billions)

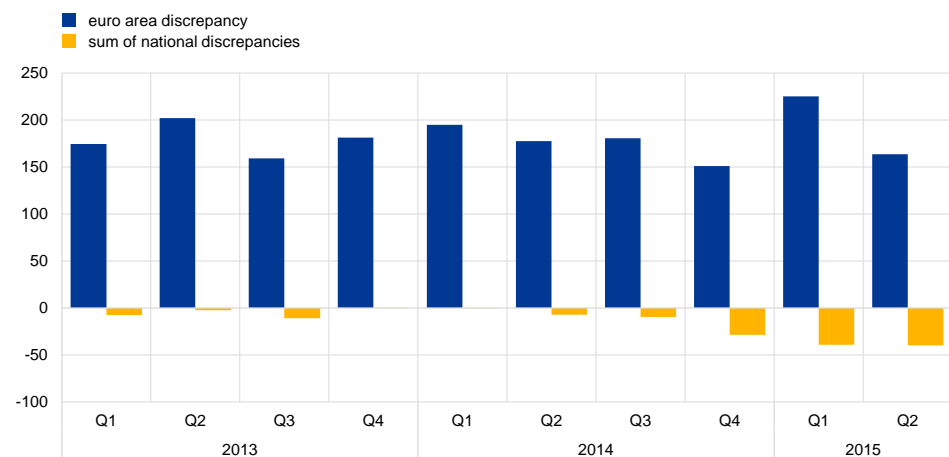


Source: ECB

### Chart 12

#### Discrepancies in IF outstanding amounts data between i.i.p. and IVF

(EUR billions)



Source: ECB

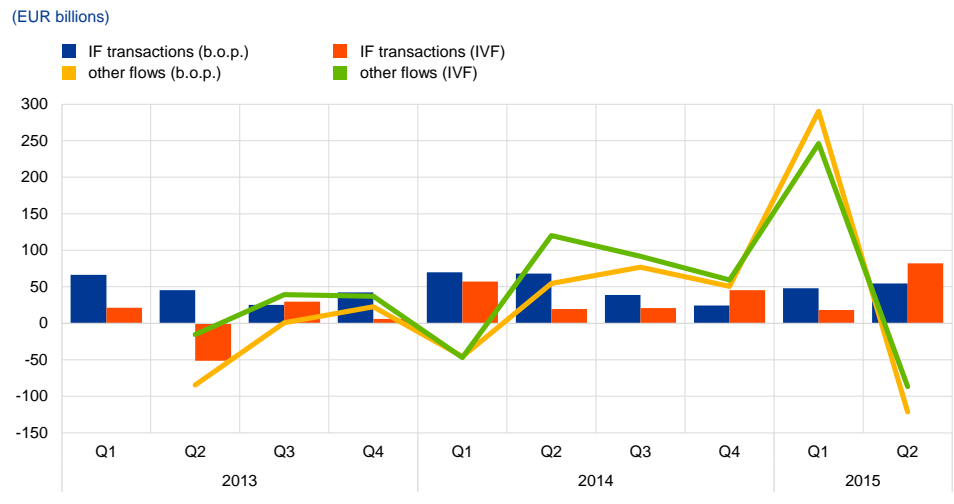
The fairly consistent discrepancies apparent in the outstanding amounts as described above are not reflected in the transactions data (Chart 12) as would be expected; the correlation of IF transactions between b.o.p. and IVF series is much lower than that for outstanding amounts. In addition, the discrepancies are volatile, ranging from €97 billion in the second quarter of 2013 to -€27 billion in the second

<sup>43</sup> This issue is under investigation in the context of euro area errors and omissions.

quarter of 2015. Different estimations of exchange rate changes (Chart 13) as well as a different treatment of the reinvested earnings add an additional source of discrepancy between b.o.p. and IVF data.

**Chart 13**

Comparison of IF transactions and other flows data between b.o.p. and IVF



Source: ECB

### 3.4 Timeliness (and punctuality) of the statistical output

The euro area b.o.p. statistics are published on a monthly basis. Additional breakdowns by sector, instrument and geographical counterparty are available on a quarterly basis, together with the euro area i.i.p. and gross external debt statistics.

The monthly release of b.o.p. statistics comprises both, non-seasonally adjusted and seasonally and working-day adjusted data for the current account and major component items. These data facilitate the interpretation of the latest developments by removing the seasonal pattern, as well as variations due to working-day and holiday effects. A note on the methodology used for the seasonal adjustment of the euro area b.o.p. can be found on the ECB's website.<sup>44</sup>

In 2015 the ECB fully complied with its advance release calendar, which is published on the ECB's website.<sup>45</sup> Monthly data were published around seven weeks after the end of the respective month, thereby also making an assessment of the quarterly flows possible within two months. Quarterly b.o.p. and i.i.p. data were published around 13 weeks after the end of the reference quarter.

<sup>44</sup> *Monthly seasonal adjustment of euro area balance of payments statistics*, ECB, available at [http://www.ecb.europa.eu/stats/pdf/sa\\_procedures.pdf](http://www.ecb.europa.eu/stats/pdf/sa_procedures.pdf)

<sup>45</sup> Release calendar for external statistics, available at <http://www.ecb.europa.eu/press/calendars/statscal/ext/html/stprbp.en.html>

## 3.5 Accessibility and clarity of the statistical output

The press releases on euro area b.o.p. and i.i.p. data are published through wire services and on the ECB's website in accordance with the advance release calendar. Since 2013 the ECB's website has also provided updated information<sup>46</sup> on the Eurosystem's implementation of the IMF's Balance of Payments and International Investment Position Manual (BPM6). Data compliant with BPM6 standards have been published since October 2014. For the majority of the series, the historical series starts in January 2008 or the first quarter of 2008, while for selected indicators, data are available from January 1999 or the first quarter of 1999.

In each calendar year, 12 monthly press releases and four quarterly press releases are published. The most recent data and longer time series for the current composition of the euro area<sup>47</sup> and the corresponding metadata can be downloaded from the Statistical Data Warehouse (SDW) – the ECB's interactive database – or from the ECB's website in the form of predefined CSV and PDF files<sup>48</sup>. The data are also included in the issue of the ECB's Economic Bulletin that is published after the press release.

The ECB has a Statistical Information Request facility for external users of statistics which helps users access and analyse the data. The facility is accessible via the ECB's website at <https://ecb-registration.escb.eu/statistical-information>.

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<sup>46</sup> *Implementing the new Balance of Payments and International Investment Position Manual (BPM6)*, available on the ECB's website at <http://www.ecb.europa.eu/stats/external/bpm6/html/index.en.html>

<sup>47</sup> Data on the historical composition are available for a limited set of monthly time series.

<sup>48</sup> CSV (comma-separated values); PDF (Portable Document Format).



# Annex

## Methodological documentation for quality indicators

This annex contains the methodology used for a select set of quantitative indicators used to assess reliability/stability and serviceability/consistency.

### Reliability/stability

In the IMF's terminology, the study of revisions is normally referred to as reliability, while some quality work at the European level is also referred to as stability. The underlying concept is, however, the same and can be defined as "the closeness of the initial estimated value(s) to the subsequent estimated values"<sup>49</sup>. Assessing reliability involves comparing estimates over time, and thus also refers to revisions.

The number of revisions observed depends on the revision policy/practice of a statistical agency or department, which normally decides beforehand (sometimes in collaboration with the users) how many times and when the estimates should be revised and communicated to the public.

As an example, with reference to a series  $X$  with  $N$  observations, the statistical agency can decide to publish it  $k$  times with predefined time lags  $\{1, 2, \dots, k\}$ . From the  $k$  sets of data, revisions can easily be derived, normally as the difference between two subsequent assessments. Therefore, a revision variable or series can be defined as the difference  $R_{ij} = X_j - X_i$ , where  $i$  and  $j$  identify two specific time-lags, with  $j > i$ . The joint ECB/European Commission (Eurostat) task force on quality suggested measuring revisions by means of the difference between the first and latest assessments:  $R = X_k - X_1$ .

Revisions may also be calculated over a transformation of the original series, such as the respective first difference or the growth rate.

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<sup>49</sup> Carson, C. and Laliberté, L., "Assessing accuracy and reliability: a note based on approaches used in national accounts and balance of payments statistics", *Working Paper Series*, No 02/24, IMF, February 2002.

## Simple measures of revisions

### Size indicators

Simple indicators of revisions express the changes in relation to the size of the variable X.

An average of these revisions ( $\bar{R}$ ) then provides an indication of how far on average the first assessment was from the latest assessment. However, if large positive and negative revisions almost cancel out, this may provide a spuriously positive impression of data quality. Therefore, the average of the absolute revisions ( $\overline{|R|}$ ) is generally seen as a better stability indicator.

### Directional indicators

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

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

To assess whether the information on the direction of changes as contained in the earlier estimates has been altered by the revisions, a 2 x 2 contingency table can be set up. In this contingency table, the columns consist of positive and negative first differences in the early estimates  $\Delta x_{t_1} = x_{t_1} - x_{(t-1)_1}$ , while the rows consist of positive and negative changes in the latest values  $\Delta x_{t_k} = x_{t_k} - x_{(t-1)_k}$ .

#### Contingency table for directional reliability

|                         | $\Delta x_{t_1} > 0$ | $\Delta x_{t_1} \leq 0$ | Subtotal        |
|-------------------------|----------------------|-------------------------|-----------------|
| $\Delta x_{t_k} > 0$    | $n_{11}$             | $n_{12}$                | $n_{11}+n_{12}$ |
| $\Delta x_{t_k} \leq 0$ | $n_{21}$             | $n_{22}$                | $n_{21}+n_{22}$ |
| Subtotal                | $n_{11}+n_{21}$      | $n_{12}+n_{22}$         | N               |

The directional reliability indicator (Q) is then as follows:

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

This coefficient Q is equal to 1 if the changes following the earliest and the latest estimates always have the same sign ( $n_{11} + n_{22} = N$ ), while it is equal to 0 when

there is a total dissociation ( $n_{11} + n_{22} = 0$ ). Obviously, higher values of this indicator are preferred.

## Relative measures of revisions

It is often useful to also provide relative measures, which relate the revisions to dimensional measures of the variable concerned. Two main types of indicator have been developed depending on whether the observations of a time series have only positive values (series on gross transactions or on asset or liability positions) or can have either positive or negative values (series on net transactions or balances).

### Gross transactions or asset/liability positions

In the case of gross data, the relative revision equals the percentage change of the initial assessment  $\left(\frac{R}{X}\right)$ . If the average over time  $\overline{\left(\frac{R}{X}\right)}$  is then computed, this is called the mean percentage error (MPE).

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

the result is  $\overline{\left|\frac{R}{X}\right|}$ , the mean absolute percentage error (MAPE).

### Transactions in assets and liabilities

A solution for assets and liabilities of the b.o.p. financial account is to use the corresponding item in the i.i.p. for assessing the relative size of the revision. This provides a relative measure that the user can easily interpret.

The indicator will be expressed as  $\frac{R}{P}$ , where  $P$  is the related i.i.p. item. As for the gross data, an average of the absolute value of this ratio can be taken over time in order to avoid revisions of opposite signs cancelling each other out in the resulting indicator.

The *mean absolute comparative error (MACE)* is defined as  $\overline{\left|\frac{R}{P}\right|}$ .

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

## Internal consistency

According to the IMF's Data Quality Assessment Framework (DQAF) for the b.o.p., internal consistency implies checking that, "over the long run, the net errors and omissions item **has not been large** and **has been stable** over time".

A measure of the size of this item can be provided by the *average of the absolute net errors and omissions*,  $\overline{|EO|}$ .

As with revisions, an alternative measure of the size is the *root mean square error of the net errors and omissions*.

$$RMSE(EO) = \sqrt{\overline{EO^2}}$$

As before, this indicator can be decomposed into bias and variance components<sup>50</sup>:

$$RMSE^2 = \text{bias component} + \text{variance component}$$

$$RMSE^2 = \overline{EO}^2 + S^2$$

where S is the standard deviation of the net errors and omissions.

In addition, the number of positive net errors and omissions divided by the number of observations can be used to assess the relative frequency of positive net errors and omissions:

$$CP(EO) = \frac{\text{Count}(EO_t > 0)}{N}$$

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<sup>50</sup> Following the simplest MSE decomposition. See Diebold, F., *Elements of Forecasting*, 2001.

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