EUROPEAN CENTRAL BANK

EUROSYSTEM

EURO AREA BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATISTICS

MARCH 2011

2010 QUALITY REPORT

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In 2011 all ECB publications feature a motif taken from the €100 banknote.

2010 QUALITY REPORT

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EXECUTIVE SUMMARY

This annual quality report is required by Article 6 of Guideline ECB/2004/15.[1] It follows the basic principles of the "Public commitment on European Statistics by the ESCB",[2] which was published in 2007 and further amended in 2009 and includes quantitative indicators.

In June 2010, the euro area Member States started to transmit new breakdowns for the quarterly balance of payments (b.o.p.) and international investment position (i.i.p.), namely breakdowns of investment fund shares/units (including money market fund shares/units) by sector within portfolio investment, according to the new requirements foreseen in Table 13 of Guideline ECB/2007/3. These new requirements were necessary for, in particular, the compilation of the quarterly euro area accounts.

In 2010, several national central banks completed the implementation of a regular compilation of security-by-security data on portfolio investment (flows and/or stocks), using data from the Centralised Securities Database (CSDB). In all euro area countries, a system is in place for the regular collection of security-by-security data on portfolio investment.

In 2010, various Member States also implemented enhancements that improved the methodological soundness, the coverage and the consistency of their contributions, which triggered sizeable revisions to the euro area statistics. In particular, the improvements in the methodology applied in Belgium had an impact on previous years' positions and flows as regards portfolio investment. In the case of the Netherlands, significant adjustments were made using additional sources such as issuance statistics and information on domestic holdings. These revisions, together with the revisions derived from the methodological changes implemented in the compilation of euro area portfolio investment liabilities, increased the bias component of the relative revisions to net portfolio investment.

Revisions to the net euro area i.i.p. at end-2008, published in November 2010, only increased the net liability position from €1,633 billion to €1,640 billion, with revisions to other investment (revised downwards by €161 billion) being almost fully cancelled out by revisions to combined portfolio and direct investment (revised upwards by €107 billion). The revisions to the net euro area i.i.p. at end-2009 increased the net liability position from €1,388 billion to €1,448 billion.

The size of 12-month cumulated euro area net errors and omissions has remained stable since the direct actions undertaken by euro area data compilers and the ECB in 2009, which ended the negative trend that had been recorded since 2004.[3] The change in the compilation methodology resulted in a sizeable contraction of the statistical discrepancy in the euro area b.o.p and kept net errors and omission below 0.4% of euro area GDP as from January 2004.

The consistency between b.o.p. and monetary statistics has improved further, and the bias component of the discrepancy between these statistics has also decreased significantly. The reason behind that development is the improved consistency in the recording of, for example, short-selling transactions in b.o.p statistics and in monetary statistics.

The implementation of the new ECB Regulation concerning the balance sheet of the monetary financial institutions[4] in June 2010 had an impact in several countries; further revisions to previous periods might be observed in the indicators in future reports.

1 See Official Journal of the European Union (OJ), L 354, 30.11.2004, p. 34, and amending Guideline ECB/2007/3, OJ L 159, 20.6.2007, p. 48.
2 Available on the ECB's website at http://www.ecb.europa.eu/stats/html/pcstats.en.html.
3 See Box 2 in "Euro area balance of payments and international investment position statistics – 2009 quality report", ECB, March 2010, page 22.
4 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 15/14, 20.1.2009.

This report includes, for the first time, a comparison between the euro area accounts and b.o.p./i.i.p. statistics (see Box 2). This comparison reveals that the existing differences are due to (i) remaining methodological differences, mainly the non-recording of insurance technical reserves in b.o.p./i.i.p. statistics, and, most importantly, to (ii) differences arising from compilation practices. Indeed, the decisions on eliminating asymmetries, on allocating net errors and omissions and on eliminating the breaks in the series prevent the euro area accounts from being fully consistent with the underlying b.o.p. and i.i.p. data.

The ECB regularly compares the euro area data with the closely corresponding data released by its main counterparts, namely the United Kingdom, the United States and Japan. Whereas the asymmetries between the euro area b.o.p. and those of the two latter countries seem to be limited, the asymmetries between the euro area b.o.p. and that of the United Kingdom have increased, in particular with respect to euro area exports of services to the United Kingdom and, lately, income debits.

In 2009, the euro area data show exports of services to the United Kingdom (€102.2 billion) that are almost double those recorded in the United Kingdom as imports from the euro area (€57.5 billion), while the discrepancies with respect to income debits have increased significantly from 12% in 2007 to 47% in 2009 (see Annex 3 for more detailed figures). In general, the flows recorded by the euro area largely exceed the mirror flows recorded by the United Kingdom for all the current account items, both credits and debits.

INTRODUCTION

This report is required by Article 6 of Guideline ECB/2004/15.[5] It follows the statistical principles of the "Public commitment on European Statistics by the ESCB",[6] which was published in 2007 and amended further in 2009. In line with its Mission Statement, the ECB has committed itself to adhering to values such as integrity, competence, efficiency and transparency. Moreover, the ECB published its Statistics Quality Framework (SQF) and quality assurance procedures in April 2008.[7] These contain the main principles and elements guiding the production of ECB statistics.

This report is organised in three sections. Section 1 focuses on the institutional environment in which statistics are produced. It reviews the following aspects: (i) independence; (ii) the legal mandate for data collection; (iii) impartiality and objectivity; and (iv) statistical confidentiality. Section 2 concentrates on the statistical processes, the relevant aspects of which are: (i) a sound methodology and appropriate statistical procedures; (ii) cost-effectiveness; and (iii) minimisation of the reporting burden. Finally, Section 3 deals with the quality of the statistical output, namely its: (i) relevance; (ii) accuracy and reliability (including stability); (iii) consistency (or coherence) and comparability; (iv) timeliness (including punctuality); and (v) accessibility and clarity.

The report includes quantitative indicators[8] for measuring reliability (or stability) and consistency. These quantitative indicators were computed on the basis of the monthly b.o.p. observations from January 2007 to December 2009 (36 observations), as released up to 29 October 2010. The results for that period are compared with those for the four previous three-year periods, i.e. from 2003 in the main text and from 1999 in Annex 2. By contrast, the study of the euro area i.i.p. revisions is based on the different vintages of the estimates for each year. The analysis of the i.i.p. revisions focuses on the data for positions from end-2005 to end-2009, as published on 29 October 2010.

1 INSTITUTIONAL ENVIRONMENT

The institutional environment has a direct impact on the quality of statistics. The statutory *independence* and accountability of the ECB, based on the provisions of the Treaty on the Functioning of the European Union (the "Treaty"),[9] also applies to its statistical tasks. The euro area b.o.p. and i.i.p. are based on the aggregation of statistics provided by 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 Protocol on the Statute of the European System of Central Banks and of the European Central Bank (the "ESCB Statute"), which deals with the collection of statistical information.[10] In application of this provision, Article 2 of the Council Regulation (EC) No 951/2009 amending Council Regulation (EC) No 2533/98 on the collection of statistical information by the ECB[11] defines the reference reporting population, including "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 obligation set out in the Treaty and Council Regulation (EC) No 951/2009 amending Council Regulation (EC) No 2533/98,

5 See OJ L 354, 30.11.2004, p. 34, and amending Guideline ECB/2007/3, OJ L 159, 20.6.2007, p. 48.
6 Available on the ECB's website at http://www.ecb.europa.eu/stats/html/pcstats.en.html.
7 Available on the ECB's website at http://www.ecb.europa.eu/stats/html/sqf.en.html.
8 Based on the work of a joint ECB (Directorate General Statistics)/European Commission (Eurostat) Task Force on Quality, in which representatives of most of the then 15 EU Member States were also involved. The Task Force report is available on the website of the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) at www.cmfb.org.
9 For further details, see the ECB's website at http://www.ecb.europa.eu/ecb/orga/governance/html/index.en.html.
10 Article 5.1 sets out 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".
11 OJ L 269, 14.10.2009, p. 1, and OJ L 318, 27.11.1998, p. 8.

form the basis for Guideline ECB/2004/15 and for the amending Guideline ECB/2007/3 of the ECB on the statistical reporting requirements of the ECB in the field of balance of payments (b.o.p.) and international investment position (i.i.p.) statistics, and the international reserves template. The Memorandum of Understanding of March 2003 between the ECB's Directorate General Statistics and Eurostat defines how responsibility in the field of b.o.p./i.i.p. statistics is shared between the European Commission and the ECB.[12]

The International Monetary Fund (IMF) has established a Special Data Dissemination Standard (SDDS) to guide its member countries in the provision of their economic and financial data to the public; 64 of its member countries have subscribed to the standard, including all euro area countries. The euro area as a whole also adheres to the SDDS. References to the IMF's SDDS framework are made in this report where appropriate.

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. First, the ECB has procedures in place to protect *statistical confidentiality*, as required in Council Regulation (EC) No 951/2009. Second, the Statistics Committee (STC) of the European System of Central Banks (ESCB) and the Committee for Monetary, Financial and Balance of Payments Statistics (CMFB)[13] have assisted the ECB's Directorate General Statistics and the European Commission (Eurostat) in developing the data quality framework.

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[14] and 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 by the Treaty (Article 5 of the ESCB Statute).

2 STATISTICAL PROCESSES

2.1 METHODOLOGICAL SOUNDNESS

The methodologies applied in Member States when compiling the b.o.p. and i.i.p. statistics are covered in the country chapters of the ECB's publication "European Union balance of payments/international investment position statistical methods" (the "B.o.p. Book").[15] 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 reporting population, the sources, the periodicity of surveys, the estimation methods and the legal framework. In order to meet specific user requirements, the agreed methodology is set out in the IMF's Balance of Payments Manual (BPM5). Moreover, the ECB and Eurostat are together coordinating the necessary steps for the adoption of the sixth manual (BPM6)[16] by 2014 (See Box 1 on the next page). The methods for compiling the statistics on the international reserves (flows and outstanding amounts) of the ECB and the Eurosystem are described in a separate document.[17]

12 The Memorandum of Understanding, dated 10 March 2003, is available on the ECB's website at http://www.ecb.europa.eu/ecb/legal/pdf/en_mou_with_eurostat1.pdf.
13 http://www.cmfb.org.
14 The Eurosystem is the central banking system of the euro area. It comprises the ECB and the national central banks of the 17 EU Member States that have the euro as their currency.
15 Latest update: May 2007 (available at: http://www.ecb.europa.eu/pub/pdf/other/bop_052007en.pdf).
16 *Balance of Payments and International Investment Position Manual – 6th Edition*, IMF, 2009.
17 *Statistical treatment of the Eurosystem's international reserves,* ECB, October 2000.

Box 1

TOWARDS THE IMPLEMENTATION OF THE 6TH EDITION OF THE IMF'S BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION MANUAL (BPM6)

The new international standards that will apply to the EU and euro area balance of payments statistics are defined in the Balance of Payments and International Investment Position Manual – 6th Edition (BPM6), which was published in 2009. The changes introduced by the new manual need to be translated into new data requirements and integrated in the EU's legal framework (namely Guideline ECB/2007/3 and EC Regulation No 184/2005). Once included in the legal framework, reporting of the data in accordance with the new requirements will become mandatory. This translation of the data requirements into legal texts requires comprehensive and intensive cooperation with the Member States. The technical discussions about the updating of the requirements are proceeding in a coordinated fashion in the committees and working groups hosted by the ECB and by the European Commission (Eurostat).

The new data requirements were in practice finalised at the end of 2010. After reaching an agreement on the contents of the new requirements with the EU Member States on a working level, the procedure for amending the legal base is starting. The goal is to take the procedural steps for the revision of the legal base in 2011, so that the amended legal acts can be published in 2012, allowing sufficient time for the Members States to start implementing the new requirements. It has been agreed that, at the EU level, national central banks and national statistical institutes will report according to the new standards as from 2014. At the moment, new data structure definitions and codifications for the BPM6 are under preparation, taking into consideration the advances in SDMX (Statistical Data and Metadata eXchange).

Many of the changes introduced by the BPM6 are clarifications and presentational changes made in cooperation with the bodies responsible for the revision of the System of National Accounts (SNA), and some have already been implemented in the SNA and the European System of Accounts (ESA). These aside, the main changes introduced by the BPM6 are:

- an extended breakdown by institutional sectors;
- the indirect measurement of financial services on loans and deposits (currently recorded under income);
- a shift of merchanting from services to goods;
- a shift of goods for processing from goods to services;
- the addition of liabilities related to SDRs;
- the introduction of insurance, pension and standardised guarantee schemes.

In addition, the ECB's website contains an up-to-date methodological note on the compilation of the euro area b.o.p. and i.i.p., including, among other things, the aggregation procedures, the compilation method and valuation.[18]

In June 2010, the euro area Member States started to transmit new breakdowns for the quarterly b.o.p. and i.i.p. according to the new requirements foreseen in Table 13 of the Guideline ECB/2007/3, namely sectoral breakdowns for equity securities, investment funds and money market fund shares within

18 See the ECB's website at https://stats.ecb.europa.eu/stats/download/eas_ch07/eas_ch07/eas_note_ch7.pdf.

portfolio investment for the first quarter of 2010 in the case of transactions, and for the fourth quarter of 2009 and the first quarter of 2010 in that of outstanding positions. These new requirements were needed for, in particular, the compilation of the euro area quarterly sector accounts.

The ESCB has completed the implementation of a regular collection of security-by-security data on portfolio investment (flows and/or stocks), except for data on non-residents' client accounts within the Slovak central securities depository, which are still collected at an aggregated level. Since 2009, all national compilers of b.o.p. and i.i.p. statistics have been able to use harmonised characteristics, as extracted from the ECB's Centralised Securities Database (CSDB), to classify securities by sector and residence of the issuers, by type of instrument, by maturity, by currency of issue, etc. In addition, this database assists compilers when reconciling transactions and positions, or when calculating the income on portfolio investment. The CSDB also provides information on monthly average and end-month prices.

In 2010, De Nederlandsche Bank started using the CSDB in the compilation of portfolio investment data that were already collected on a security-by-security basis. This change improved the coverage and consistency along the series, on one hand, and triggered revisions to back data and a number of breaks in the time series, on the other. Moreover, the National Bank of Belgium started to produce portfolio investment data fully based on a security-by-security data collection system.

Further breakdowns of the euro area b.o.p. and i.i.p. by currency contribute to the ECB's annual review of the international role of the euro.[19] Data on cross-border transactions in goods and services of certain euro area countries (Belgium, Germany, Greece, Spain, France, Italy, Cyprus, Luxembourg, Austria, Portugal and Slovenia) with countries outside the euro area are broken down by currency on an annual basis and released on the ECB's website.[20]

Since joining the euro area in 2008, Malta has been complying only partially with the residency definition for those enterprises that are incorporated in Malta but have no physical presence there.

2.2 COST-EFFECTIVENESS AND MINIMISATION OF THE REPORTING BURDEN

Since 2003, the ECB's Directorate General Statistics and Eurostat have fully aligned their release and revision calendars. This has increased the comparability of their statistics, while also easing the reporting burden of Member States.

The CSDB and security-by-security data collection, which have been implemented in all the euro area countries as from March 2009, provide extensive flexibility in the compilation of statistics without increasing the burden on respondents.

3 HIGH OUTPUT QUALITY

3.1 RELEVANCE OF THE STATISTICAL OUTPUT

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

19 *The international role of the euro*, ECB, July 2010 (available at http://www.ecb.int/pub/pdf/other/euro-international-role201007en.pdf).

20 See the ECB's website at http://www.ecb.europa.eu/stats/external/balance/shared/files/Exports_imports_IRE_pub2009.pdf.

3.2 ACCURACY AND RELIABILITY (STABILITY) OF THE STATISTICAL OUTPUT

When compiling the euro area aggregates at all frequencies, the ECB performs quality assurance procedures on the contributions received from all euro area Member States, and from the ECB itself (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 compiler in the country involved has to check, change or confirm the figures; in the latter case, a further explanation with regard to the underlying economic developments is often supplied.

The ECB publishes its revision practices. The euro area b.o.p. and i.i.p. are revised in line with the following predetermined schedule: quarterly data are revised with the publication of the following quarter's statistics, and twice a year thereafter, namely in April and November; monthly b.o.p. data are revised with the publication of the following month's statistics, as well as with the revisions of the relevant quarter; and the annual i.i.p. is revised with the publication of the same data for the two subsequent years. In addition, extraordinary revisions are justified in the case of major changes in methodology, coverage or data collection systems in the Member States, or when the composition of the euro area changes.

The first release of the monthly b.o.p. for the euro area occurs seven weeks after the end of the reference period and is based on the contributions sent by national compilers four working days earlier. This report also involves a revision analysis to asses the *reliability* (or stability**)** of the euro area's monthly b.o.p., based on a number of indicators that measure the proximity of these first assessments to the final assessments. Similarly, the i.i.p. revisions are analysed with due consideration of the different vintages resulting from the annual revisions.

Revisions are necessary to improve the data quality as the first assessments may be based, in part, on estimates due to 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.

When reviewing the stability indicators, it should be borne in mind that all changes in the underlying data collection or compilation methods, or methodological changes in one or a few Member States, may lead to breaks in, or substantial backward revisions to, the euro area series. At the same time, these reforms generally increase the accuracy of the statistics and may be expected to increase the stability of the series over time.

Moreover, it is clear that the quality of the b.o.p. and i.i.p. might be negatively affected by increasing globalisation that may blur the cross-border character of transactions, especially inside multinational groups, and also by the growing complexity of the phenomena to be measured. The requirement to limit, and sometimes even to reduce, the statistical reporting burden of economic agents could also be a major risk for the accuracy and reliability of the statistics if it is considered to be a greater priority than the actual production of the statistics.

The main results of the stability indicators are presented in the following sub-sections.

3.2.1 The directional reliability shows improvements in the estimates of net income and portfolio investment assets, while the situation has deteriorated for direct investment assets

The directional reliability indicator summarises how often the first assessments correctly predicted an increase or decrease of the final value in comparison with the previous observation. The stability of the direction of the month-on-month changes constitutes a simple measure of reliability, which is applicable to all b.o.p. items. Chart 1 contains the results of this

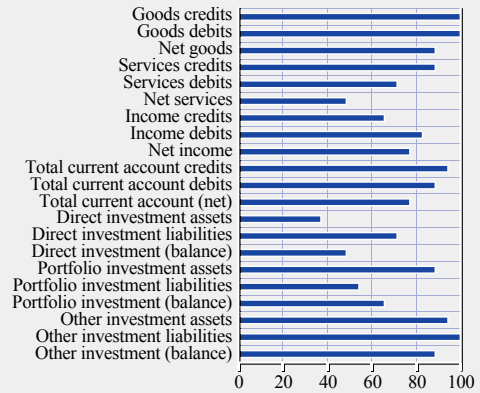
indicator for the main items of the b.o.p. for the period from 2007 to 2009.

Chart 1 shows the weakest result for direct investment assets (69%), with deterioration since the previous three-year period (74% for the period from 2006 to 2008, see the indicator Q in Table 3 in Annex 2). The reliability indicator for net services is weak as well, although it is stable over time. On the other hand, the result for the net income item has improved to 89%, from 77% in the previous period. It is usually among the poorest in Chart 1, due to the uncertainty of the reinvested earnings, which are based entirely on estimates in the first assessment.

The reliability of portfolio investment assets data has improved to 94% (from 91% in the period from 2006 to 2008, see indicator Q in Table 6 in Annex 2); while that of the liabilities side has deteriorated to 77% (from 80% in the previous period). The revisions related to the refinement of the compilation systems in Belgium and the Netherlands, as well as the new compilation system for euro area portfolio investment liabilities, are the main reasons for this deterioration.

Chart 1 Overview of directional reliability

(correctly predicted sign of the month-on-month change in the first estimates as a percentage of all monthly estimates in the period from 2007 to 2009)



Source: ECB.

3.2.2 The mean absolute percentage error shows a steady improvement of the stability of the estimates of income

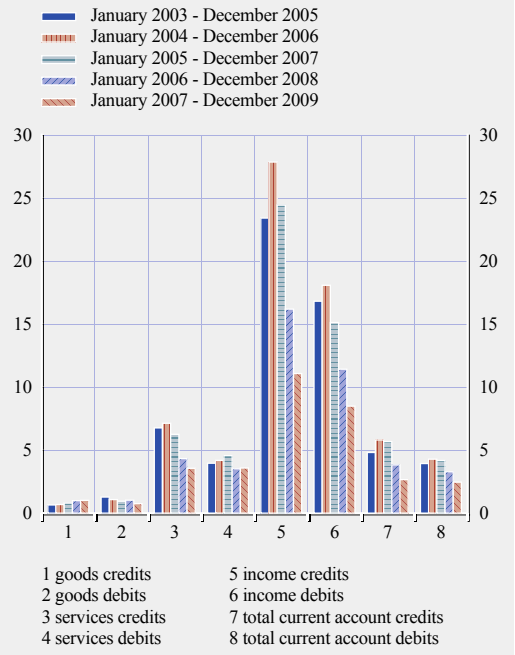
The mean absolute percentage error (MAPE) has been calculated for the gross series of the euro area current account. The MAPE is equal to the average of the absolute revisions in relation to the size of the respective flow. Chart 2 shows the results for five three-year periods: 2003-05, 2004-06, 2005-07, 2006-08 and 2007-09. The results for previous periods back to 1999 are included in Annex 2.

The relative magnitude of the revisions continues to be larger for income, albeit with a clear trend towards more stable income estimates, reflecting the fact that in 2009, the results of companies' balance sheets were lower than the initial estimates, contrary to what happened in previous periods when the first assessments were usually underestimated. This stable trend is also observed in both services credits and debits in the latter three-year periods.

The lower stability for income is due both to the difficulty of estimating the profits of the affiliates, i.e. the frequent correction of the first estimate of the reinvested earnings sub-item, and to the changes in the compilation system for portfolio investment. In general, the stability of income credits and debits has improved since 2008. The estimates of income credits continued to be overestimates of the final assessments, while the initial assessments of income debits have been overestimates since early 2009, reversing the trend due to the deteriorating corporate profits. Moreover, the initial and final assessments of both services credits and debits are getting closer and the bias has been gradually reduced for services credits. As a result of these developments, the stability of the current account credits and debits has improved (See Table 4 and Chart 4 in Annex 2) and the relative magnitudes of the revisions to the current account maintained their downward trend, (see Chart 2).

Chart 2 Revisions to the euro area current account as a percentage of the respective flow

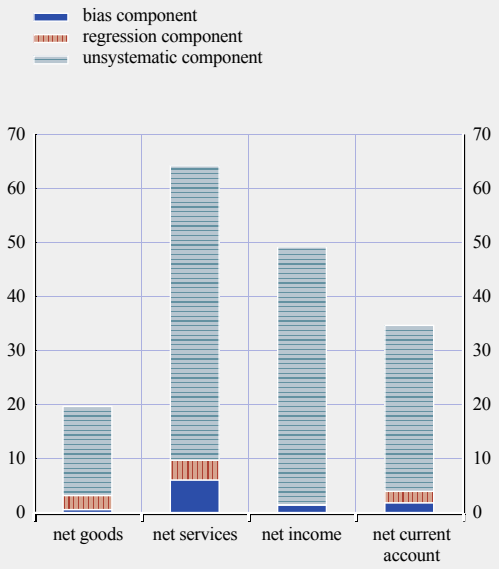
(MAPE)



Source: ECB.

Chart 3 Breakdown of the revisions to the euro area current account as a percentage of volatility in the period from 2007 to 2009

(RMSRE)



Source: ECB.

3.2.3 Reduced bias in the estimates of net services is shown by the root mean square relative error

For both the net items of the current account and the balancing items of the financial account, another type of indicator is used on account of the difficulty in correctly estimating very volatile series, namely the root mean square relative error (RMSRE). This indicator measures the distance between the first assessment and the final assessment in relation to the volatility of each time series. The volatility of each series is estimated by its standard deviation, assuming that the series fluctuate around the average in a stable way.[21]

Chart 3 contains the results for the period from 2007 to 2009, and their further breakdown into a bias, a regression and an unsystematic component. The results for all periods are shown in the tables in the Annex 2. The revisions to the current account balance have decreased slightly in comparison with the previous period, mainly on account of smaller relative revisions to the net income items. Furthermore, a bias component of the revisions in the current account has appeared, although it is not significantly different from zero.

The results of the breakdown by item show that the relative revisions to net goods have a rather small bias component of less than 1% of the RMSRE. In addition, the bias component for net services has continued to decrease (from 16% to 6% of the RMSRE value), while that for the net income items is insignificant, as it was in last year's report. The reduced bias in services indicates that some Member States are producing better first estimates. In turn, the regression component is relevant for net services and net goods (4% and 3% of the RMSRE respectively), given that both are responsible of the regression component for the net current account.

21 The assumption of stationarity for the net/balancing items has been confirmed by standard statistical tests. In order to remove the effect of large outliers, mainly in the financial account, the standard deviation is calculated without considering the two most extreme observations in the period concerned.

3.2.4 The mean absolute comparative error shows the highest revisions to the estimates of direct investment

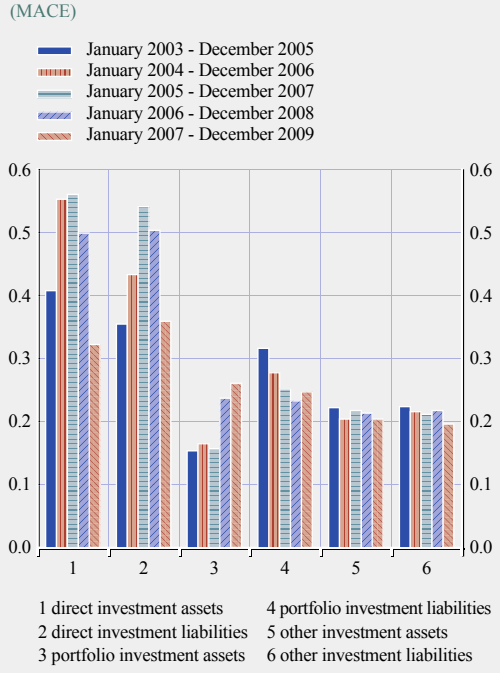
The indicator used to evaluate the revisions to the preliminary estimates of assets and liabilities in the financial account is the mean absolute comparative error (MACE). The MACE is equal to the average of the absolute revisions in relation to the corresponding outstanding amount in the i.i.p.

Chart 4 presents the results for the estimates of direct, portfolio and other investment assets and liabilities. The average revisions to the preliminary estimates of direct investment continue to be the highest, both abroad (assets) and in the euro area (liabilities); however, the stability of the estimates for direct investment abroad increased significantly in the last three-year period (from 0.50% in the previous three-year period to 0.32%). Conversely, the relative revisions to the portfolio investment assets and liabilities increased quite moderately in the last three-year period. Moreover, while the relative revisions to portfolio investment assets were already increasing since the period 2006–08, the small increase in the relative revisions to portfolio investment liabilities occurred after an on-going decrease at a moderate pace since the period 2002-04 (see Table 6 and Chart 6 in Annex 2 for data prior to 2003) thus reversing the trend.

In spite of this trend towards more stable data, the revisions to portfolio investment data in October 2010 triggered an increase in the relative revisions; these revisions were due mainly to the introduction and/or refinement of systems to collect and compile portfolio investment data on a security-by-security basis, which have been in place in all euro area countries since 2009.

Chart 4 Revisions to the euro area financial account assets and liabilities as a percentage of the corresponding i.i.p. item

(MACE)



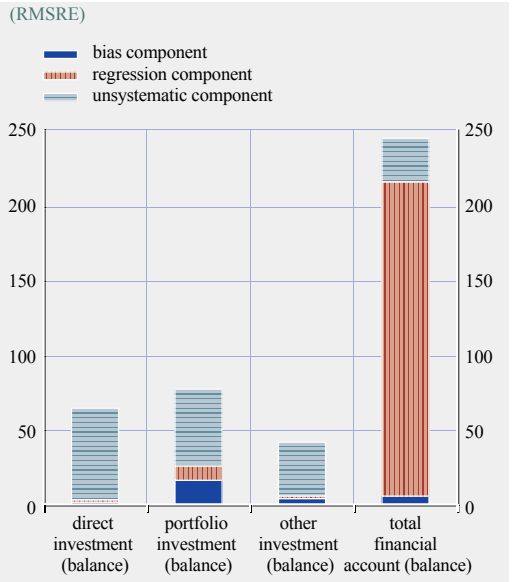
Source: ECB.

3.2.5 Increasing bias in the revisions to estimates of portfolio investment

The preliminary estimates of net direct investment show revisions in relation to their volatility that are similar to those in previous periods and are quite stable over time. The relative revisions to the estimates of net portfolio investment are the same as in the previous three-year period (78%), although the bias component has slightly increased and continues, as already set out in last year's report, to be significantly different from zero for the period shown in Chart 5. This is related both to the methodology implemented in 2009 and to the refinement of the compilation systems implemented in 2010. Furthermore, the relative revisions to the other investment estimates have decreased slightly (see Tables 5, 6 and 7 in Annex 2).

Consequently, the balancing item of the financial account as a whole shows a very large increase in the RMSRE value that is attributed mainly to the regression component. This deterioration,

Chart 5 Breakdown of the revisions to the euro area financial account as a percentage of volatility in the period from 2007 to 2009



Source: ECB.

which was also visible in last year's report, is related to the methodology applied since 2009, and reflects two simultaneous factors, namely (i) a moderate increase in revisions and (ii) a significant decrease in the volatility of the financial account series.

3.2.6 Stability of the international investment position

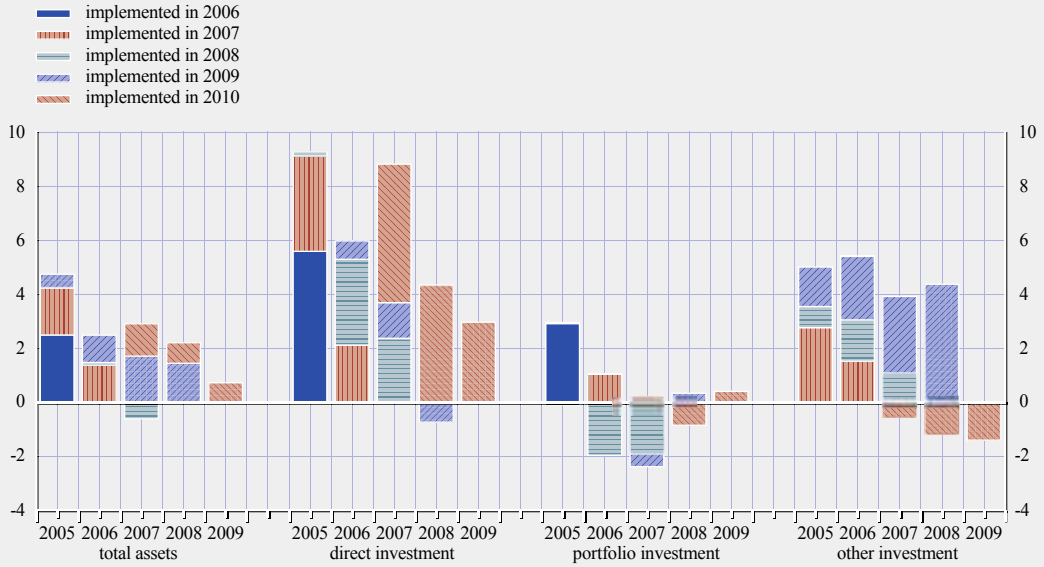
The revisions by vintages for the main items of euro area i.i.p. assets and liabilities are shown in Charts 6 and 7 respectively. The main regular revisions implemented in 2010 refer to 2007, 2008 and 2009 data, and the relative revisions were larger than the comparable revisions implemented in 2009 for both inward and outward direct investment and, to a lesser extent, for other investment liabilities, while the regular revisions to portfolio investment liabilities implemented in 2010 were smaller than those implemented in 2009. The charts also show the relative revisions to other investment assets and portfolio investment liabilities implemented in 2010 on account of the new euro area compilation method introduced in 2009, which resulted in a higher asset position in loans and deposits abroad, and in a lower liability position both in equity securities and in net errors and omissions.

Total relative revisions to the direct investment items have been reduced in the last few years; however, they usually still tend to be upward revisions. In addition, at the balance sheet level, most of these revisions were cancelled out, except those for 2005 and 2008 data (see Chart 8). The total relative revisions to portfolio investment assets have likewise remained stable in the last few years. Furthermore, the small revisions to the 2008 data (i.e. the revisions to the first assessment of end-2008 that was released with a lag of four months) may be related to the full implementation of the security-by-security data compilation systems.

All in all, the revisions to the total asset positions as at end-2008 amounted to €304 billion, which represents 2.2% of the total assets, while the revisions to positions as at end-2007 amounted to €323 billion (2.3% of the total assets), only 0.1% more despite the fact that one vintage more of revisions is included. On the liabilities side, the corresponding revisions to the end-2008 positions amounted to €234 billion (1.5% of total liabilities), while the revisions to the end-2007 positions came to €221 billion (1.4% of total liabilities).

Chart 6 Revisions to the first estimates of the euro area i.i.p. – assets by reference period

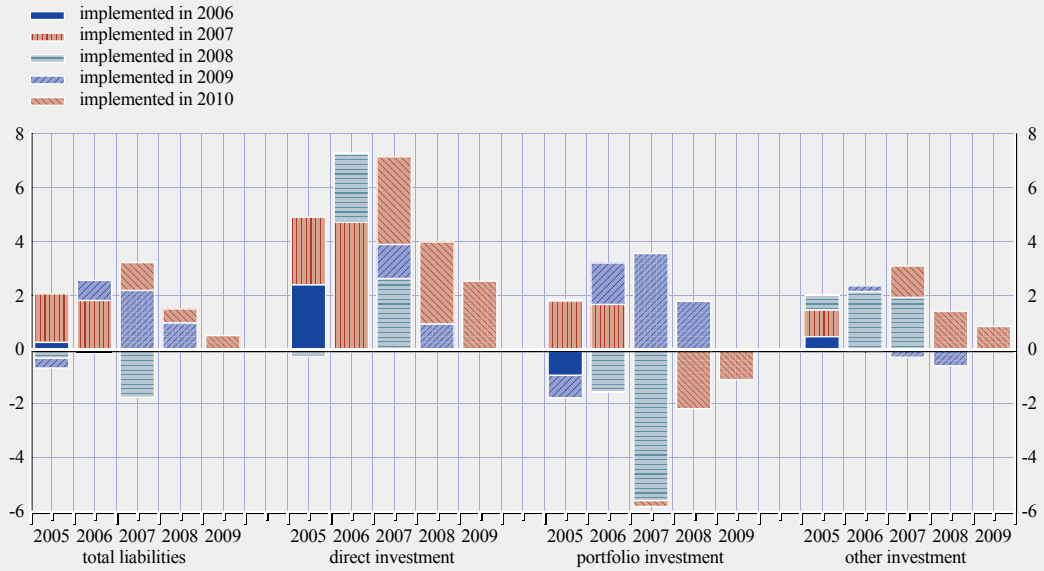
(percentage of the i.i.p.)



Source: ECB.
Note: The first assessment is based on the quarterly i.i.p.

Chart 7 Revisions to the first estimates of the euro area i.i.p. – liabilities by reference period

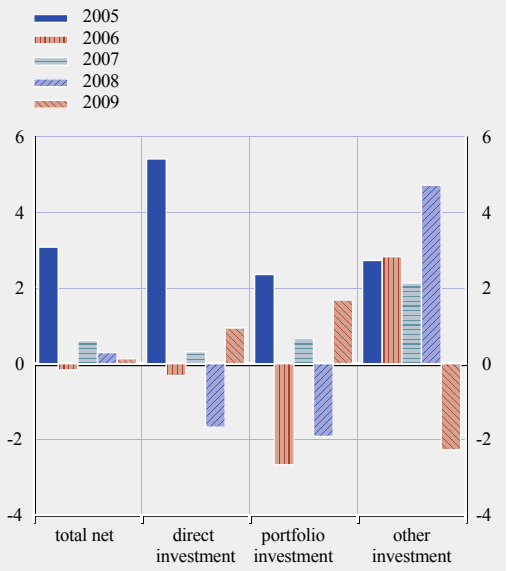
(percentage of the i.i.p.)



Source: ECB.

Chart 8 Total revisions to the first estimates of the end-year net euro area i.i.p. by reference period

(percentage of average i.i.p. assets and liabilities)



Source: ECB.

Chart 8 shows that the overall revisions to the estimates for total assets and liabilities almost offset each other, except in the case of 2005 data, as the revisions to the 2005 i.i.p. were much larger on the assets side of direct, portfolio and other investment than on the liabilities side. The overall revisions to the end-2009 i.i.p. were smaller than those to end-2008 data, as the Member States are now fine-tuning their collection systems after the move to the security-by-security reporting in 2009.

3.3 CONSISTENCY AND COMPARABILITY OF THE STATISTICAL OUTPUT

Consistency indicators deal with several aspects: (i) consistency over time, (ii) consistency within a single dataset (internal consistency), (iii) consistency across datasets (external consistency) and (iv) consistency across frequencies; in addition, they must be (v) comparable with statistics of other regions and countries (comparability with their main partners). For the euro area b.o.p. and i.i.p., internal consistency is assessed by the item on net errors and omissions, and external consistency is measured by discrepancies vis-à-vis other statistics such as foreign trade statistics and external MFI balance sheets.

Furthermore, consistency covers the effect of a given transaction on subsequent b.o.p. and i.i.p. data (e.g. a change in positions may affect future income flows), or the same recording of a single transaction by both parties involved. Since 2007, the ECB has published an annual reconciliation between b.o.p. and i.i.p. statistics.[22] In particular, the change in the annual positions (i.i.p.) is broken down by b.o.p. transactions, price changes, exchange rate changes and other adjustments. A box included in the 2007 annual quality report explained the reconciliation between the financial transactions included in the b.o.p. and the stocks reflected in the i.i.p.

3.3.1 Internal consistency

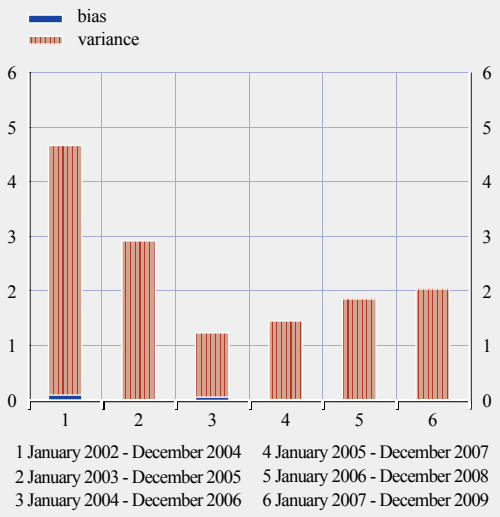
Net errors and omissions constitute the overall balancing item of the b.o.p., and thus provide an indicator of its internal consistency. In fact, the principle of double-entry bookkeeping implies that the sum of all transactions with the rest of the world should be equal to zero in the b.o.p. statement.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

The root mean square error (RMSE) indicator was calculated from the time series on net errors and omissions as a percentage of the gross flows in the euro area current account. This indicator is also used to identify a potential bias (as positive and negative errors and omissions should normally cancel each other out within a given timeframe).

22 See Table 7.3.1, entitled "Summary financial account" in the ECB's Monthly Bulletin for the reconciliation between flows and stocks.

Chart 9 RMSE of net errors and omissions as a percentage of gross flows in the euro area current account

(RMSE)

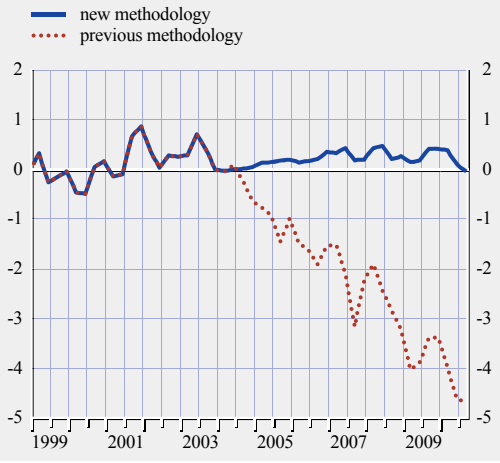


Source: ECB.

In the period from January 2007 to December 2009, the RMSE of the net errors and omissions of the euro area b.o.p. amounted to 2.0% of the average gross current account flows, showing a small deterioration compared with the period from 2006 to 2008. Chart 9 shows that the internal consistency of the b.o.p. has largely improved after the implementation of the new compilation system[23] for the euro area aggregates implemented in November 2009, with backwards revisions from January 2004.

Chart 10 Net errors and ommissions of the euro area balance of payments

(cumulated totals; Q1 1999-Q3 2010; as a percentage of euro area GDP)



Sources: ECB and ECB calculations.

The new methodology implemented in 2009 has significantly reduced the statistical discrepancy in the euro area b.o.p. (Chart 10). For the period from the first quarter of 2004 to the third quarter of 2010, these revisions resulted in a reduction of negative cumulated net errors and omissions from €427 billion (4.7% of the euro area GDP) to €4 billion (less than 0.1% of euro area GDP).

3.3.2 External consistency

3.3.2.1 Consistency with other statistics

The b.o.p. series have also been compared with the corresponding data published by Eurostat for euro area foreign trade statistics,[24] and with the external transactions derived from the MFI balance sheet statistics published by the ECB. Although the methodologies used for those series are not fully consistent with that used for the euro area b.o.p., they broadly reflect the same economic phenomena. Therefore, the differences should be fairly stable over time. In addition, this part of the report includes a comparison with the rest of the world account of euro area accounts statistics in Box 2.

For the time being, *foreign trade statistics* are the source used to compile the goods balance of the b.o.p. statistics in all euro area countries except Greece. The conceptual adjustments to the external trade data mainly reflect the differences in the definition of foreign transactions applied in the two statistics. While trade statistics consider a transaction to have taken place when there is a physical movement of goods across borders, the b.o.p. compiler has to measure goods on a change-of-ownership basis.

23 Further information is available in the "Balance of payments and international investment position" sub-section of the "Statistics" section on the ECB's website (http://www.ecb.europa.eu/stats/external/balance/html/index.en.html).

24 Comparison based on data published at end-December 2010.

Table 1 Euro area goods in the b.o.p. and in external trade statistics

(month-on-month growth rate in percentage points)

	Period	Exports	Imports
Average of absolute differences	2003-2005	0.93	0.75
	2004-2006	0.72	0.70
	2005-2007	0.48	0.61
	2006-2008	0.41	0.54
	2007-2009	0.56	0.53
Average of differences	2003-2005	0.02	0.01
	2004-2006	-0.05	-0.09
	2005-2007	-0.04	-0.07
	2006-2008	-0.01	-0.07
	2007-2009	-0.03	0.01

Sources: ECB and Eurostat.

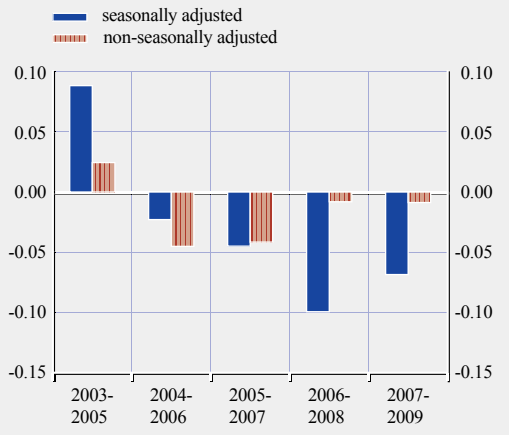
Table 1 contains the results for the average of the absolute differences between the growth rates of exports and imports. The indicators show that this discrepancy has gradually decreased for exports since 2003, and that it rose in the period from 2007 to 2009. The gap between the two datasets for goods imports has shown a steady reduction, contrasting with last year's report where the consistency for imports was diverging. The ordinary averages of the differences do not reveal any systematic divergence of the growth rates of the two series.

Both statistics are also published adjusted for seasonal and calendar effects. Charts 11 and 12 show 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-adjusted data and raw data. In both cases, the indicator for the adjusted data reveals more differences than that for the raw data. This shows that the different methodologies applied by the ECB and Eurostat to adjust the raw data affect the consistency of (Eurostat's) trade and (the ECB's) b.o.p. statistics. [25]

25 For more information on the different methodologies applied by the ECB and Eurostat, see Table 3 in "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 11 Exports of goods in the b.o.p. and external trade statistics

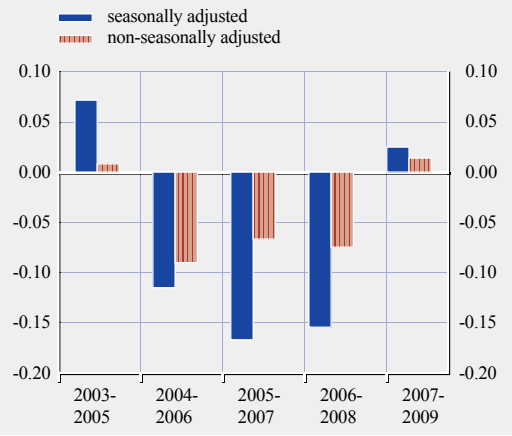
(three-year average of the differences in month-on-month growth rates; percentage points)



Sources: ECB and Eurostat.

Chart 12 Imports of goods in the b.o.p. and external trade statistics

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



Sources: ECB and Eurostat.

Even though, in principle, both the b.o.p. and the *MFI balance sheet items* (BSI) comply with international statistical standards, a number of differences can be identified with regard to their practical implementation, including the use of different statistical sources, differences in the timeliness of the data reporting and simplifications in one or the other reporting system, which are accepted for the sake of reducing the reporting burden. In terms of compilation systems, the b.o.p. transactions for the MFI sector are reported directly by the 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 transaction data, in particular if a large proportion of transactions are denominated in foreign currencies and if the volatility of exchange rates or security prices is high.

In general, the methodological differences between the b.o.p. data and the transactions derived from the MFI balance sheets are very limited. In certain cases, information that is available for the b.o.p. is not identified separately in the BSI data: accrued interest on external assets and liabilities, for instance, would imply the collection of additional data within MFI balance sheet statistics. The different treatment of (i) border line cases between loans and securities, as well as between securities and derivatives, and (ii) inter-company financing should be resolved with the implementation of the current update of international statistical standards in the medium term. Furthermore, the implementation of the new ECB Regulation concerning the balance sheet of the monetary financial institutions sector[26] in June 2010 revealed some discrepancies, and further revisions to both the BSI data and to the b.o.p. data, within other investment, that might be observed in the indicators in future reports.

In Table 2, the RMSRE reflects the distance between the recording of net deposits and loans of MFIs excluding the Eurosystem in b.o.p. and monetary statistics, in relation to the volatility of the b.o.p. series concerned. This indicator shows that after an increase in the period 2005-07, the levels in the latest three-year periods have become similar to those of previous periods. The bias component also decreased for the period 2007-09, thus increasing the unsystematic component. The bias component had reflected some methodological issues such as the different recording, by some NCBs, of short-selling transactions in b.o.p and monetary statistics, which were resolved.

26 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 15/14, 20.1.2009).

Table 2 Euro area deposits/loans of MFIs (excluding the Eurosystem) – comparison with corresponding net transactions from monetary statistics

Period	RMSRE	Bias component (%)	Regression component (%)	Unsystematic component (%)
2003-2005	7.7	1.9	1.1	97.1
2004-2006	7.4	10.8	0.1	89.1
2005-2007	9.6	4.0	8.6	87.4
2006-2008	7.9	1.6	0.0	98.4
2007-2009	7.5	0.4	0.1	99.5

Source: ECB.

Box 2

CONSISTENCY OF THE EURO AREA B.O.P. AND I.I.P. WITH THE REST OF THE WORLD ACCOUNT OF THE EURO AREA ACCOUNTS

Since 2007 the ECB has published, in cooperation with Eurostat, quarterly integrated financial and non-financial accounts by institutional sector (euro area accounts (EAA)). The EAA present a complete and consistent set of data for all institutional sectors. They provide comprehensive information not only on the economic activities of households, non-financial corporations, financial corporations and the general government, but also on the interactions between these sectors (of the euro area) and the rest of the world. Transactions with non-residents and the financial claims of residents on non-residents, or vice versa, are recorded in the "rest of the world" account. Although the euro area b.o.p. and i.i.p. statistics are the major source for the rest of the world account in the EAA, some methodological differences and the EAA integration process imply that the final data shown in the rest of the world account are not identical to the corresponding b.o.p./i.i.p. data, but they should nevertheless broadly reflect the same economic phenomena.

In methodological terms, there are a few differences between the EAA and b.o.p./i.i.p. that have a larger impact on the financial account and i.i.p. than on the current and capital account, such as the recording of insurance technical reserves with a particular cumulative effect in the positions.

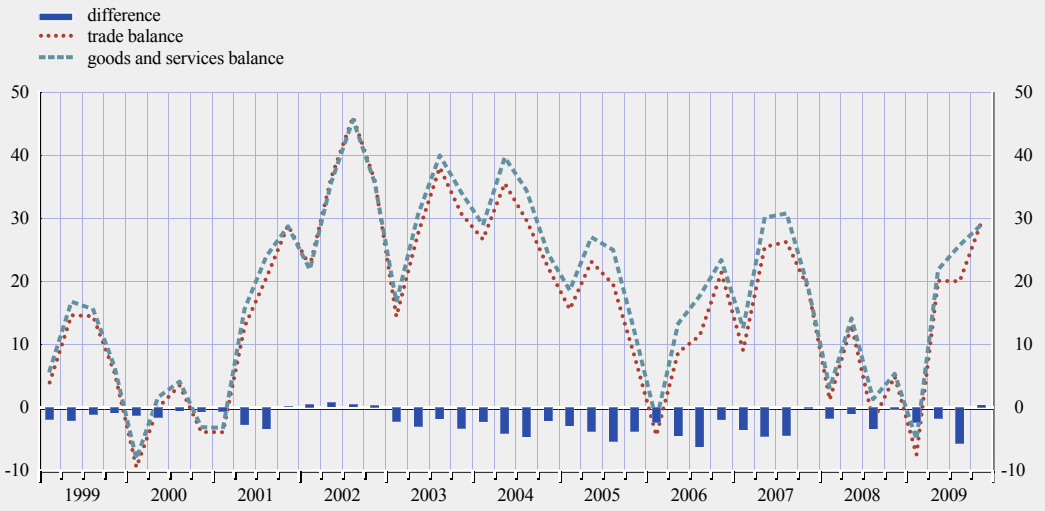
By construction, the EAA are reconciled horizontally (by item) and vertically (by sector). Horizontal balances imply that for each (non-financial and financial) transaction category and each financial balance sheet category, total use equals total resources, and total financial assets equal total financial liabilities, when added up across all institutional sectors and the rest of the world. On the other hand, vertical balances imply that for each institutional sector and for the rest of the world, the balance of all current and capital transactions should be equal to the balance of all financial transactions (vertical consistency).

The EAA, like the b.o.p./i.i.p., are compiled on the basis of national contributions. Furthermore, the EAA also takes into account euro area aggregates from other statistics, such as MFI statistics and the b.o.p./i.i.p. In practice, a comparison of the national b.o.p./i.i.p. contributions to cross-border economic relationships reveals discrepancies (so-called "asymmetries"). These asymmetries arise from intra-euro area transactions/positions that are not recorded consistently by the various euro area countries: for example, while exports and imports within the euro area should be identical, this does not hold true in practice, owing to differences in the compilation, data sources and vintages. The EAA eliminate these asymmetries, as well as further discrepancies that arise between building block data and national contributions to obtain a consistent set of accounts for the euro area. Consequently, the adjustments made to the euro area's rest of the world account lead to differences between the EAA and b.o.p./i.i.p.

In addition, although the b.o.p. is balanced by definition, the recorded debits may, in practice, exceed recorded credits, giving rise to statistical discrepancies (net errors and omissions), which may partly reflect the asymmetries mentioned earlier. One of the challenges in the integration of the EAA is how to allocate the errors and omissions of the euro area b.o.p. The analysis below focuses on the goods and services balance and on the total financial account compared with the corresponding figures published in the EAA.

Chart A Trade balance (EEA) vs goods and services balance (b.o.p.)

(EUR billions)



Source: ECB.

Chart A shows, at quarterly frequency, the differences between the trade balance in the EAA and the goods and services balance in the b.o.p. The b.o.p. figure is usually larger than the figure for the EAA. Furthermore, differences can be observed, especially from 2003 to 2007.

Table A shows the results for the RMSRE indicator applied to the differences between the goods and services balance (b.o.p.) and the trade balance (EAA). The results are coherent with Chart A and mainly indicate higher differences in the period 2005-07, and a constant decrease afterwards. Despite being significant, the bias has decreased since 2003.

Net lending/net borrowing is computed in the EAA as total transactions in financial assets minus total transactions in liabilities, also known as changes in net financial worth (wealth) due to transactions. Despite the conceptual difference related to the recording of insurance technical reserves, net lending/net borrowing for the rest of the word account is quite comparable with the financial account of the b.o.p. Chart B shows that the largest part of the differences between both sets of statistics is related to the net errors and omissions in the b.o.p., which are mostly allocated to the financial account in the EAA.

Table A Euro area goods and services balance – comparison with corresponding net transactions from euro area accounts

Period	RMSRE	Bias component (%)	Regression component (%)	Unsystematic component (%)
2003-2005	41.2	90.7	0.1	9.1
2004-2006	37.2	88.8	0.0	11.2
2005-2007	43.1	81.4	0.0	18.6
2006-2008	29.8	52.0	1.3	46.6
2007-2009	21.1	34.0	0.8	65.1

Source: ECB.

Table B Net financial transactions – comparison with corresponding net transactions from euro area accounts

Period	RMSRE	Bias component (%)	Regression component (%)	Unsystematic component (%)
2003-2005	135.4	3.9	41.9	54.3
2004-2006	56.9	58.0	0.0	42.0
2005-2007	78.7	4.6	5.9	89.5
2006-2008	63.4	0.1	1.3	98.6
2007-2009	68.2	1.4	4.7	93.8

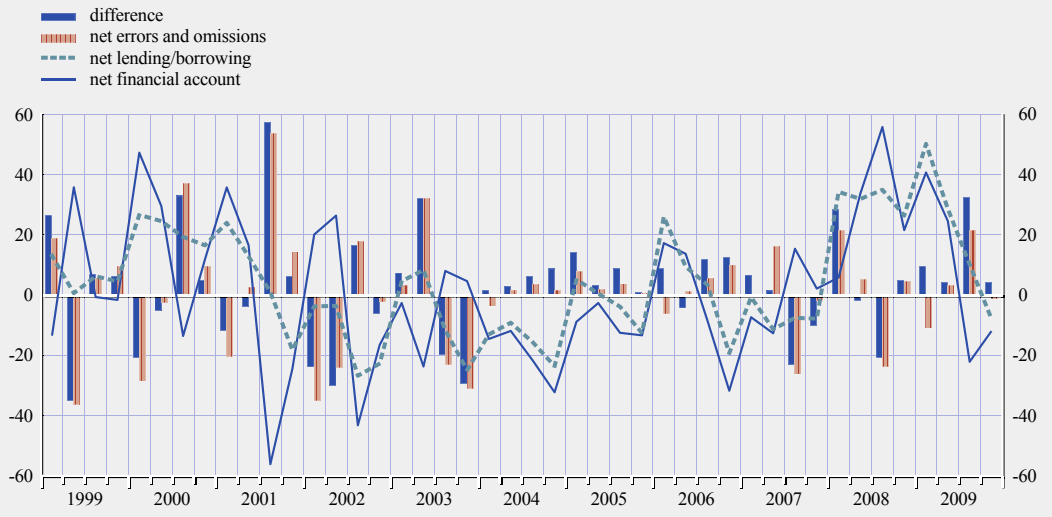
Source: ECB.

Table B shows the results for the RMSRE indicator applied to the differences between the net financial account (b.o.p.) and net lending/net borrowing (EEA). The results show that the relative differences were larger for 2003-05 and that the levels were reduced thereafter and have thus far remained stable. This decrease is related to the enhancement of the internal consistency in the euro area b.o.p. from January 2004.[1] The bias component was statistically significant for the period 2004-06, where net lending/net borrowing flows was larger than the net financial flows for most of the quarters (see Chart B).

1 The 2009 Quality Report explained, in Box 2, the methodological changes in the compilation of the euro area b.o.p. and i.i.p. implemented by the ECB in November 2009 to enhance the internal consistency of the euro area b.o.p. (see http://www.ecb.europa.eu/pub/pdf/other/euroareabalanceofpaymentsandiipstatistics201003en.pdf).

Chart B Net lending (+)/net borrowing (-) (EEA) vs net financial account (b.o.p.) and statistical discrepancies (b.o.p.)

(EUR billions)

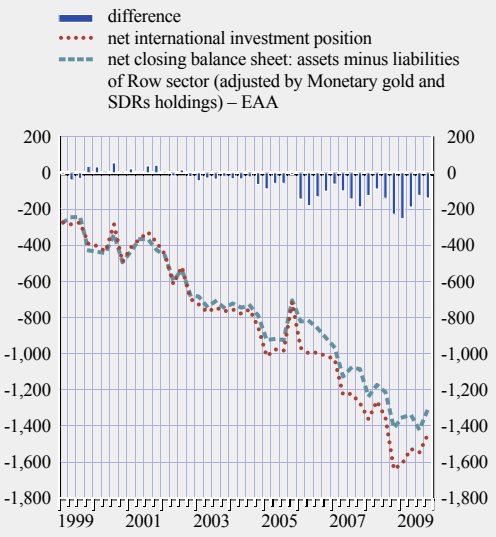


Source: ECB.

Chart C shows that since the fourth quarter of 2002, the net i.i.p. has repeatedly been lower than the net closing balance sheet of the EAA statistics. These differences in net positions are more significant as from the first quarter of 2006, and parts thereof are related to the impact of insurance technical reserves and to the effect on positions of the allocation of net errors and omissions. Furthermore, the differences are also related to different compilation strategies. The EAA take directly as a benchmark the end-quarter i.i.p. (currently the fourth quarter of 2005) and compile the balance sheets for the other reference periods by adding (i) the financial transactions, (ii) the changes due to revaluations (price and exchange rate changes) and (iii) the other changes in volume (e.g. reclassifications and write-downs) to the initial outstanding amounts. By contrast, the i.i.p. is compiled directly from the end-quarter positions reported by euro area Member States. This practice can lead to time series breaks due to the revisions policy followed with respect to the euro area i.i.p. (sliding window of three years), as well as to changes in the compilation systems.

Chart C Net euro area financial position with the rest of the world

(EUR billions)



Source: ECB.

To conclude, the comparison between the EAA and b.o.p./i.i.p. statistics highlights two core aspects that contribute to the existing differences: first, the impact of remaining methodological differences, mainly the non-recording of insurance technical reserves in the b.o.p./i.i.p., and, second and most importantly, differences arising from compilation practices. Indeed, the decisions to eliminate asymmetries, allocating net errors and omissions and eliminating the breaks in the series in the EEA, imply differences between the EEA and the underlying b.o.p. and i.i.p.

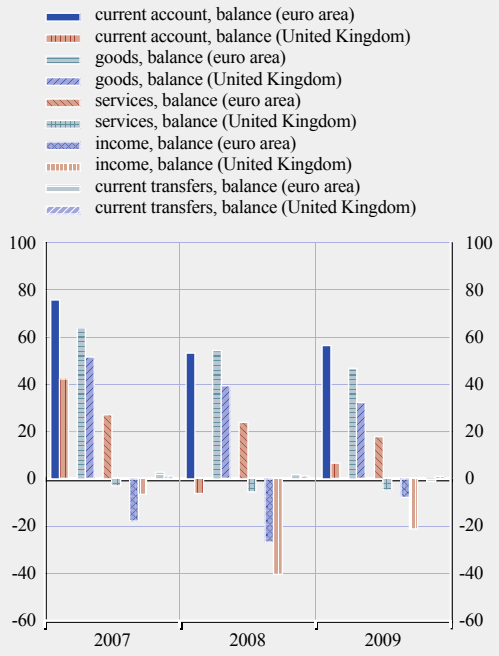
3.3.2.2 Comparability with statistics released by the main euro area counterparts

With regard to the consistency of the euro area data with the data released by its main counterparts, the asymmetries between the current account balance of the euro area and that of the United Kingdom mainly relate to services exports from the euro area to the United Kingdom in 2007-09, followed by income expenditure in the United Kingdom in 2008 and 2009 (see Table 9 in Annex 3). The euro area data show considerable higher exports of services to the United Kingdom than those recorded as imports from the euro area in the United Kingdom. The relative difference increased steadily from 46% in 2007 to 50% in 2008, and reached 56% in 2009. With respect to imports of services, the euro area figures are likewise than the UK figures for exports to the euro area, with a relative difference of 25% in 2007, which rose to 36% and 46% in 2008 and 2009 respectively.

For income debits, the discrepancies have increased significantly since 2008, (from 12% to 39% in 2008, and to 47% in 2009). The revisions in both statistics have worsened the consistency for previous years in the case of both credits and debits. The same applies for the asymmetries in goods credits and debits

Chart 13 Euro area current account transactions with the United Kingdom from 2007 to 2009

(EUR billions)



Sources: ECB and the Office for National Statistics of the United Kingdom (2010 edition of the Pink Book).
Note: For the sake of comparability, the UK data have been adjusted, excluding financial intermediation services indirectly measured (FISIM) from services and including them in the income account.

where goods credits show a pattern similar to that in services, i.e. the flows recorded by the euro area largely exceed the mirror flows recorded by the United Kingdom, while the trend for goods debits has reversed and the imports from the United Kingdom recorded by the latter are now higher that the exports from the United Kingdom recorded by the euro area. The relative discrepancies for exports and imports of goods reached 17% and 11% respectively in 2008.

In general, the current account balance in 2009 shows a surplus for the euro area countries, compared with a slight deficit for the United Kingdom. The euro area exhibits a surplus of €56.4 billion vis-à-vis the United Kingdom, while the United Kingdom shows a small deficit of €6.4 billion vis-à-vis the euro area.

The current account balances of the euro area and the United States showed less sizeable asymmetries (see Table 10 in Annex 3). The revisions published by the ECB and the US Bureau of Economic Analysis (BEA) in 2010 have had a generally positive impact on the consistency of 2007 and 2008 data for the current account balances. The asymmetries for 2009 have been reduced for euro area goods debits and credits, services exports to the United States and income receipts from the United States, while they have increased considerably for euro area services imports from the United States and income expenditure in the United States. All in all, the asymmetries for the balances of the current account decreased in 2009, although those of services and income increased.

The current account balances of the euro area and Japan show asymmetries that, although not large in absolute terms, have deteriorated in relative terms in the last period (from 2% in 2008 to 18% in 2009). Estimates for services flows continued to be the main source of differences (see Table 11 in Annex 3).

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 counterpart are available on a quarterly basis. Moreover, the euro area i.i.p. statistics are published quarterly, and since April 2010 their release has been combined with the monthly b.o.p. statistics press release. Additional details on foreign direct investment (FDI) and breakdowns by geographical counterpart, as well as a reconciliation between b.o.p. and i.i.p. statistics, are provided with an annual frequency.

Together with the monthly release of the non-seasonally adjusted b.o.p. data, the ECB publishes seasonally and working day-adjusted data for the b.o.p. current account 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.[27]

In 2010, the ECB fully complied with its advance release calendar, also having shortened the publication process of the euro area monthly b.o.p. by one day, i.e. the data were published four working days after they were received by the ECB. Monthly data were published seven weeks after the end of the respective month, thereby also making an assessment of the quarterly and annual flows possible within two months (e.g. the first assessment for the full year 2009 was published on 19 February 2010).[28] Quarterly b.o.p details, as well as the quarterly i.i.p., were published three-and-a-half months after the end of the reference quarter.[29] The annual i.i.p. with further details was released ten months after the end of the reference year.

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. In 2010, the number of press releases was reduced to 14 – as from the publication of data for the fourth quarter of 2009 (April 2010), the press releases on the quarterly and monthly data were combined in the month in which the quarterly publication took place. The most recent data and longer time series with the current or historical composition of the euro area, and the corresponding metadata, can be downloaded via the Statistical Data Warehouse (SDW),[30] the ECB's interactive database, or from the ECB's website in the form of pre-defined CSV and PDF files. The data are also included in the issue of the ECB's Monthly Bulletin that is published after the press release.

The ECB has a specific e-mail address for external users of statistics, namely statistics@ecb.europa.eu, which serves to provide assistance to users in accessing and analysing the data.

27 See http://www.ecb.europa.eu/stats/pdf/sa_procedures.pdf.
28 The benchmark in the IMF Special Data Dissemination Standard (SDDS) is three months.
29 For example, the end-2009 i.i.p. was published in April 2010. The benchmark in the SDDS is nine months.
30 http://sdw.ecb.europa.eu.

ANNEXES

1 METHODOLOGICAL DOCUMENTATION FOR QUALITY INDICATORS[1]

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

1 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. Assessing reliability involves comparing estimates over time. In other words, assessing reliability refers to revisions*".[2]

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 $\{l_1, l_2, \ldots, l_k\}$. 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 (DG-S)/Commission (Eurostat) Task Force on Quality (TF-QA) 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.

1.1 SIMPLE MEASURES OF REVISIONS

1.1.1 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 ($|\bar{R}|$) is generally seen as a better stability indicator.

1.1.2 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 an undercoverage 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).

upward revisions ratio = (# 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 of the early estimates $\Delta x_{t_1} = x_{t_1} - x_{(t\text{-}1)_1}$, while the rows consist of positive and negative changes of 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

1 Based on the report by the joint ECB (DG-S)/Commission (Eurostat) Task Force on Quality.

2 Carson, Carol S. and Laliberté, Lucie, "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.

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.

1.2 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 indicators 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).

1.2.1 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 that revisions of opposite sign cancel out in the resulting indicator. So, if the average is calculated with the absolute values, we get $\overline{\left|\frac{R}{X}\right|}$, the *mean absolute percentage error* (MAPE).

1.2.2 Net transactions or balances between assets and liabilities

In the case of net data, revisions cannot be properly related to the series value itself because the observations may have different signs and, even more importantly, the values of the series may often be close to zero.

1.2.2.1 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 $\frac{R}{P}$, were 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 that revisions of opposite signs cancel 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.[3]

1.2.2.2 Net transactions in the current account and balances in the financial account

For the b.o.p balancing items, the i.i.p. can have positive and negative observations as well. Therefore, a measure of the volatility of the series X is used as a reference for the size of the revisions. This measure reflects that in practice it is more difficult to correctly estimate values of a volatile series.

The *mean absolute relative error (MARE)* is then defined as $\frac{\overline{|R|}}{vol\,(X_k)}$.

There are several ways of calculating the volatility of X, using the standard deviation, the average distance from the mean or the median of the distances from the median.[4] In principle,

3 Before 2003, this is done with annual data.

4 For more detailed information, refer to Annex 1 of "Euro area balance of payments and international investment statistics: annual quality report", ECB, January 2005, or to the report by the joint ECB (DG-S)/Commission (Eurostat) Task Force on Quality http://www.cmfb.org/pdf/TF-QAreport_final_CMFB_jul04.pdf, and to "Quantitative quality indicators for statistics – and application to euro area balance of payments", *Occasional Paper Series*, No 54, ECB, November 2006.

the volatility should be calculated for the latest assessment X_k, because those values should be the most accurate ones.

An advantage of using the average distance from the mean is that with a small transformation that indicator can be decomposed into a bias and a variance component. This indicator is calculated as the square root of the ratio between the average of the square revisions and the variance of the series (S^2). It is called the *root mean square relative error* (RMSRE):

$$RMSRE = \sqrt{\frac{\overline{R^2}}{S^2}}$$

The value of the RMSRE is 0 when the *first assessment* always equals the latest, 1 if the first assessment is only as accurate as the reference *forecast*, which is the time series average, and greater than 1 when the *first assessment* is less accurate than such a forecast of the series.[5] The square of the RMSRE can be decomposed as follows:

$$RMSRE^2 = \left[\frac{\overline{X}_k - \overline{X}_1}{S_{X_k}}\right]^2 + \left[r_{X_k X_1} - \frac{S_{X_1}}{S_{X_k}}\right]^2 + \left[1 - (r_{X_k X_1})^2\right]$$

where $r_{X_k X_1}$ is the correlation between the two series, S_{X_k} and S_{X_1} and are the respective standard deviations.

The three components can be interpreted as follows:

1) The *bias component* provides an indication of systematic error, since it measures the extent to which the average values of the early and later assessments deviate from each other. The revisions can be considered biased if the mean of the revisions is significantly different from zero.[6]

2) The *regression component* is another systematic component which reflects whether the overall pattern of the series with the early estimates was close to that of the series with the later estimates. If the initial estimates correctly reflect the pattern/volatility of the later estimates, the correlation between both series will be quite high and this component of the indicator will be close to zero.

3) The *unsystematic* component is the variance of the residuals obtained by regressing the early estimates on the later estimates. This reflects more random revisions.[7]

The limitations of this indicator are: (i) in the case of non-stationary series, its value and decomposition become meaningless and (ii) its interpretation is less straightforward.

After successful tests of the stationarity of the series, this indicator has been applied to assess the revisions in the net current and capital accounts as well as to the balancing items in the financial account.[8]

The following table shows which measures of revisions for the b.o.p. are used in the annual quality report:

Measures of b.o.p. revisions

	Debits	Credits	Net
Current account items	MAPE	MAPE	RMSRE
	Assets	**Liabilities**	**Balance**
Financial account items	MACE	MACE	RMSRE

5 Other measures, like the median and the trimmed mean, were tested as well. Assuming that the b.o.p. financial account net flows are stationary, the average was chosen owing to its simplicity and its ease of interpretation, and because it enables a decomposition of the indicator into meaningful components. If the series is not stationary, the indicator can still be applied using the previous value of the series as the reference value, or using the first difference of the series.

6 Assuming normality for revisions, so as to be able to apply the t test.

7 However, the unsystematic part could still hide systematic non-linear patterns.

8 To calculate the indicator for every period (36 observations), the two extreme values have been removed in order to make the results more comparable over time.

2 SERVICEABILITY/CONSISTENCY

In the IMF's Data Quality Assessment Framework (DQAF), consistency is defined as: (i) over time; (ii) between data collected at different frequencies; (iii) internationally; (iv) across variables, either vertically (across transactions), horizontally (across institutional sectors), and/or between flows and stocks. The TF-QA focused on the following sub-categories:

- internal consistency, e.g. within the integrated statistics (b.o.p./i.i.p. or national accounts); and
- external consistency (between different sources of data and/or different statistical frameworks); this may include mirror statistics, as international statistics should be the same also when they are compiled by different institutions or by different units of the same institution.

2.1 INTERNAL CONSISTENCY

According to the IMF's 2001 DQAF for the b.o.p., internal consistency implies checking that "over the long run the 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:[9]

$$RMSE^2 = bias\ component + variance\ component$$

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

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

Besides, the number of positive EO divided by the number of observations can be used to assess the relative frequency of positive EO:

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

2.2 EXTERNAL CONSISTENCY

Although minor discrepancies arising from methodological differences can still be present in two sets of data stemming from different sources and/or different statistical frameworks,[10] a comparison of these two datasets can still provide a useful measure of consistency.

2.2.1 Size indicators

2.2.1.1 Series with positive values

Simple indicators of external consistency relate the differences to the values of the variable that is compared. A simple indicator measuring the consistency between b.o.p. and international trade statistics (ITS) can be computed using the latest assessment of both series.

A preferable indicator is similar to the MAPE ($\overline{|P|}$), but with the percentage differences calculated as proportions of the average of both time series.[11] This indicator captures the magnitude of the discrepancies in absolute value, and relates it to the average size of both series.

Another simple measure is based on the average differences of the growth rates. This also has the advantage that it abstracts from differences

9 Following the simplest MSE decomposition. See Diebold, Francis X., *Elements of Forecasting*, 2001.

10 For example, the comparison between the euro area goods item (b.o.p.) and Eurostat's external trade data, or the comparison between the b.o.p. flows of the MFI sector and flows derived from the consolidated MFI balance sheet from money and banking statistics.

11 $C=\frac{1}{a}\sum_{t=T-a}^{T}\frac{|x_t-y_t|}{(x_t+y_t)/2}$

Based on Keuning, S. and Algera, S., "Some elements of a quality framework for CMFB statistics", Statistics Netherlands, October 2001.

in levels between time series, e.g. the imports of goods are measured on a c.i.f. basis in the external trade statistics and on a f.o.b. basis for the b.o.p., while in both statistics exports are measured on a f.o.b. basis. A simple indicator of external consistency then becomes:

$$G=\overline{\left|G_x - G_y\right|}$$

2.2.1.2 Series with positive and negative values

Differences between b.o.p. transactions and similar transactions derived from the MFI balance sheet can be attributed to a variety of factors: time of recording and reporting, revision policies and valuation methods.

Relative indicators for assessing reliability can also be used to assess consistency between comparable net flows. The RMSRE indicator is calculated for the latest assessment of each series, using the b.o.p. series as the benchmark.

2.2.2 Directional indicators

Similar to the directional indicators set out in Sub-section 1.1.2, such indicators can also be constructed to check whether the signs of the changes are typically the same in both the series being compared.

2 RESULTS OF STABILITY INDICATORS

Chart 1 Euro area goods

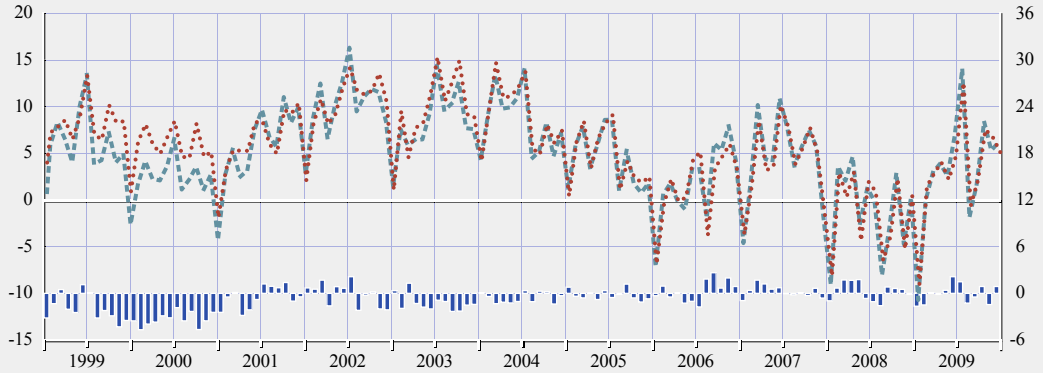
(EUR billions)

revision (right-hand scale)
first assessment (left-hand scale)
final assessment (left-hand scale)

a) Credits

b) Debits

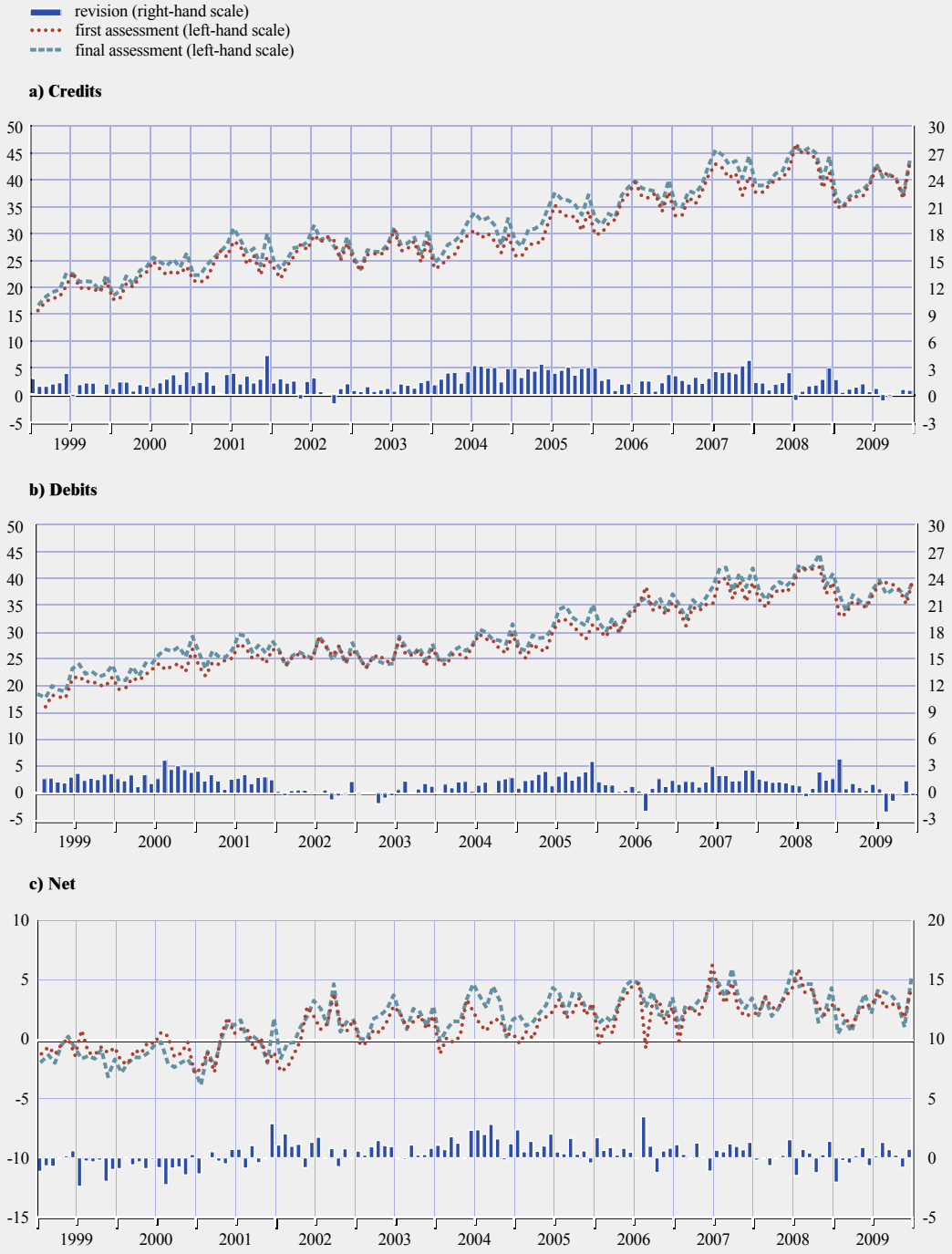
c) Net



Source: ECB.

Chart 2 Euro area services

(EUR billions)



Source: ECB.

Table 1 Stability indicators for euro area goods

Quality indicator	Reference period (Jan.-Dec.)	Goods		
		Credits	Debits	Net
$\overline{R}$ *(EUR billions)*	1999-2001	1.34	3.27	-1.93
	2000-2002	0.83	2.15	-1.31
	2001-2003	0.38	0.98	-0.61
	2002-2004	0.61	1.25	-0.64
	2003-2005	0.29	0.96	-0.67
	2004-2006	0.58	0.72	-0.14
	2005-2007	0.86	0.73	0.14
	2006-2008	0.90	0.60	0.30
	2007-2009	0.52	0.35	0.17
$\lvert\overline{R}\rvert$ *(EUR billions)*	1999-2001	1.80	3.67	2.26
	2000-2002	1.48	2.58	1.93
	2001-2003	1.18	1.47	1.32
	2002-2004	1.07	1.35	1.16
	2003-2005	0.61	1.06	0.95
	2004-2006	0.72	1.06	0.82
	2005-2007	0.95	1.05	0.78
	2006-2008	1.23	1.26	0.92
	2007-2009	1.23	0.94	0.88
MAPE/ RMSRE *(%)*	1999-2001	2.49	5.55	0.78
	2000-2002	1.79	3.42	0.53
	2001-2003	1.40	1.89	0.41
	2002-2004	1.24	1.72	0.45
	2003-2005	0.65	1.27	0.34
	2004-2006	0.69	1.08	0.26
	2005-2007	0.82	0.94	0.26
	2006-2008	0.99	1.03	0.24
	2007-2009	1.01	0.76	0.20
Q *(%)*	1999-2001	100.00	94.29	88.57
	2000-2002	97.14	94.29	88.57
	2001-2003	97.14	94.29	91.43
	2002-2004	94.29	97.14	91.43
	2003-2005	97.14	100.00	97.14
	2004-2006	97.14	97.14	91.43
	2005-2007	100.00	97.14	91.43
	2006-2008	100.00	97.14	91.43
	2007-2009	100.00	100.00	94.29

Source: ECB.
Note: The MAPE is used for credits and debits and the RMSRE for net data.

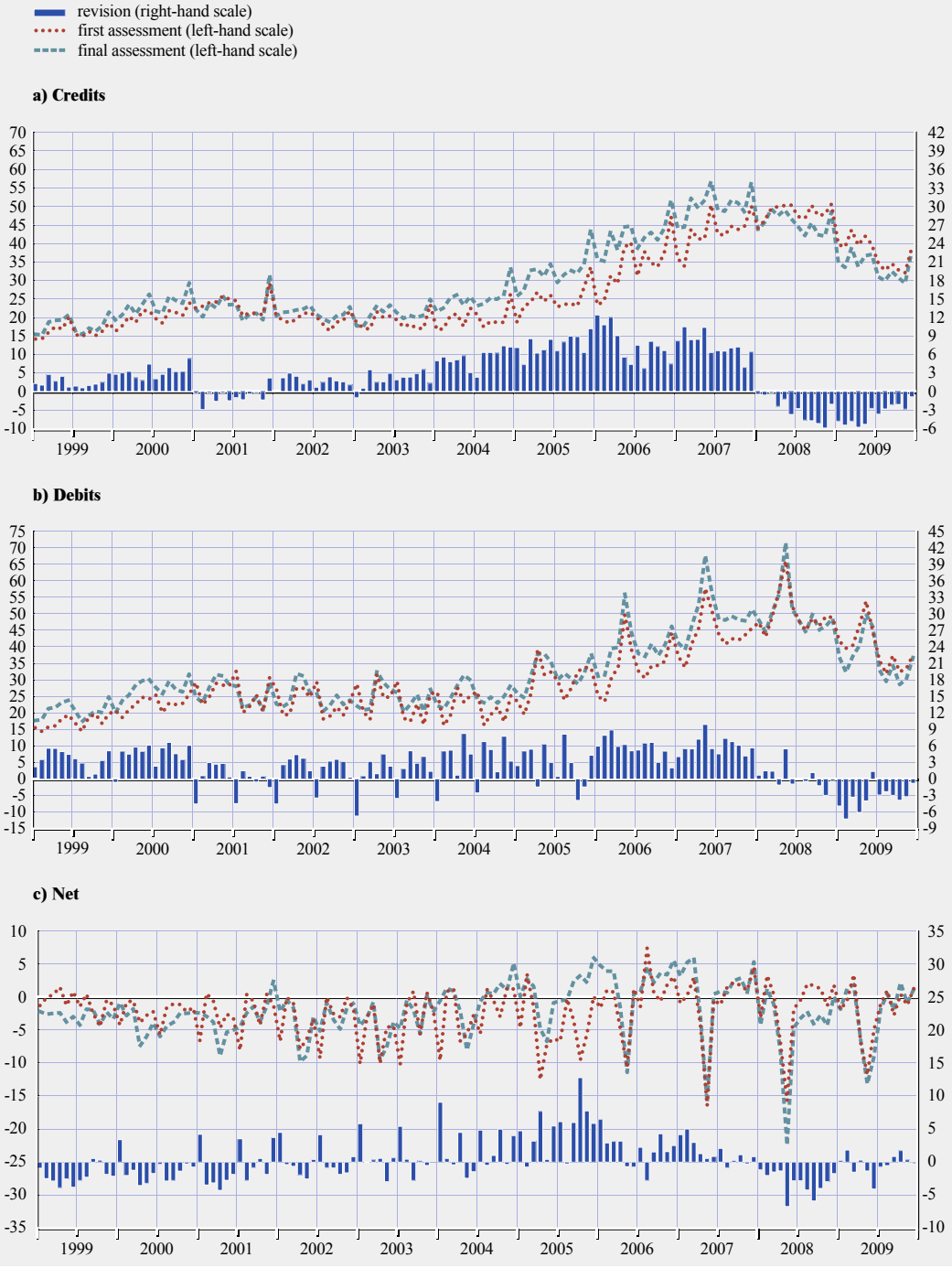
Table 2 Stability indicators for euro area services

Quality indicator	Reference period (Jan.-Dec.)	Services		
		Credits	Debits	Net
$\overline{R}$ *(EUR billions)*	1999-2001	1.38	1.79	-0.40
	2000-2002	1.30	1.25	0.05
	2001-2003	1.12	0.62	0.50
	2002-2004	1.32	0.42	0.90
	2003-2005	1.95	0.98	0.98
	2004-2006	2.15	1.12	1.03
	2005-2007	2.11	1.36	0.75
	2006-2008	1.60	1.13	0.47
	2007-2009	1.31	1.10	0.21
$\lvert\overline{R}\rvert$ *(EUR billions)*	1999-2001	1.40	1.79	0.79
	2000-2002	1.38	1.32	0.85
	2001-2003	1.21	0.82	0.80
	2002-2004	1.40	0.61	1.02
	2003-2005	1.95	1.10	1.02
	2004-2006	2.15	1.22	1.13
	2005-2007	2.11	1.47	0.91
	2006-2008	1.63	1.26	0.82
	2007-2009	1.39	1.30	0.72
MAPE/ RMSRE *(%)*	1999-2001	6.46	8.09	0.83
	2000-2002	5.80	5.53	0.62
	2001-2003	4.79	3.25	0.62
	2002-2004	5.16	2.33	0.86
	2003-2005	6.77	3.96	1.04
	2004-2006	7.13	4.19	1.19
	2005-2007	6.26	4.57	1.05
	2006-2008	4.33	3.52	0.88
	2007-2009	3.55	3.58	0.64
Q *(%)*	1999-2001	88.57	82.86	80.00
	2000-2002	91.43	88.57	77.14
	2001-2003	88.57	91.43	77.14
	2002-2004	94.29	91.43	74.29
	2003-2005	94.29	88.57	65.71
	2004-2006	88.57	94.29	68.57
	2005-2007	85.71	97.14	74.29
	2006-2008	85.71	94.29	74.29
	2007-2009	94.29	85.71	74.29

Source: ECB.
Note: The MAPE is used for credits and debits and the RMSRE for net data.

Chart 3 Euro area income

(EUR billions)



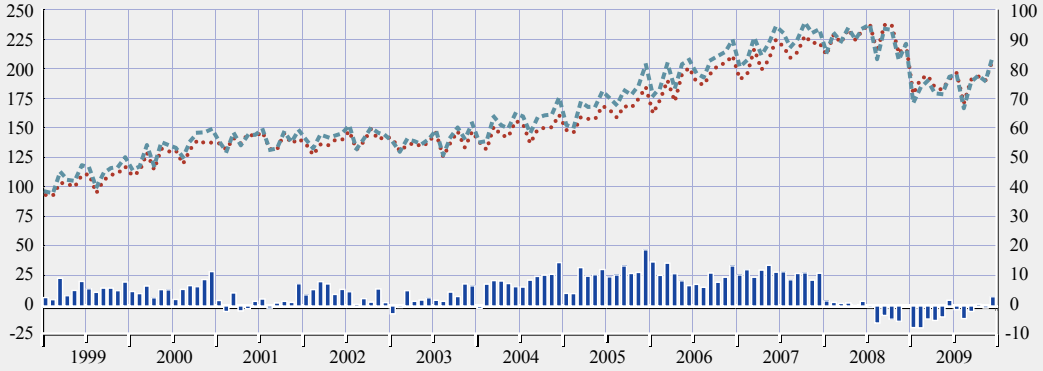
Source: ECB.

Chart 4 Euro are current account

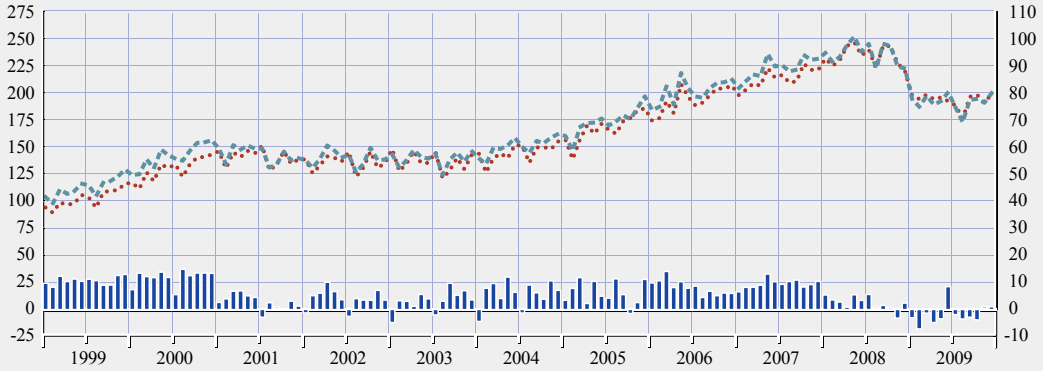
(EUR billions)

revision (right-hand scale)
first assessment (left-hand scale)
final assessment (left-hand scale)

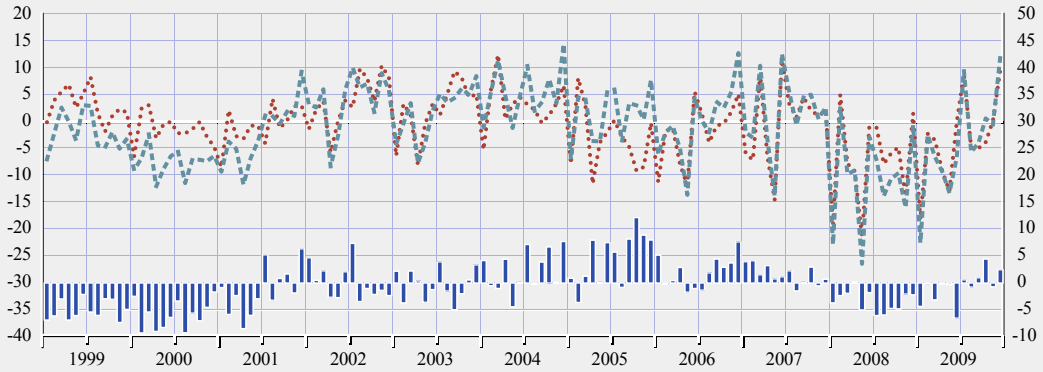
a) Credits



b) Debits



c) Net



Source: ECB.

Table 3 Stability indicators for euro area income

Quality indicator	Reference period (Jan.-Dec.)	Income		
		Credits	Debits	Net
$\bar{R}$ *(EUR billions)*	1999-2001	1.33	2.72	-1.39
	2000-2002	1.37	2.10	-0.73
	2001-2003	0.97	1.05	-0.08
	2002-2004	3.00	2.18	0.82
	2003-2005	4.97	2.48	2.48
	2004-2006	6.87	3.92	2.94
	2005-2007	7.55	4.77	2.78
	2006-2008	4.11	4.00	0.12
	2007-2009	0.36	0.99	-0.62
$\lvert\bar{R}\rvert$ *(EUR billions)*	1999-2001	1.91	3.36	2.29
	2000-2002	1.95	3.19	2.12
	2001-2003	1.60	2.67	2.02
	2002-2004	3.06	3.55	2.05
	2003-2005	5.02	3.79	3.16
	2004-2006	6.87	4.66	3.51
	2005-2007	7.55	5.15	3.12
	2006-2008	5.98	4.38	2.47
	2007-2009	4.63	3.66	1.95
MAPE/ RMSRE *(%)*	1999-2001	9.72	16.22	1.46
	2000-2002	9.54	13.62	1.10
	2001-2003	8.16	11.40	1.02
	2002-2004	16.08	16.64	0.95
	2003-2005	23.41	16.82	1.33
	2004-2006	27.86	18.08	1.40
	2005-2007	24.45	15.13	1.15
	2006-2008	16.19	11.42	0.58
	2007-2009	11.08	8.49	0.49
Q *(%)*	1999-2001	80.00	77.14	71.43
	2000-2002	80.00	80.00	74.29
	2001-2003	80.00	80.00	80.00
	2002-2004	88.57	65.71	74.29
	2003-2005	94.29	57.14	62.86
	2004-2006	91.43	65.71	57.14
	2005-2007	88.57	77.14	65.71
	2006-2008	80.00	85.71	77.14
	2007-2009	82.86	91.43	88.57

Source: ECB.
Note: The MAPE is used for credits and debits and the RMSRE for net data.

Table 4 Stability indicators for the euro area current account

Quality indicator	Reference period (Jan.-Dec.)	Current account		
		Credits	Debits	Net
$\bar{R}$ *(EUR billions)*	1999-2001	4.29	8.47	-4.18
	2000-2002	3.83	6.29	-2.46
	2001-2003	2.79	3.37	-0.58
	2002-2004	5.10	4.42	0.68
	2003-2005	7.31	5.10	2.21
	2004-2006	9.77	6.75	3.02
	2005-2007	10.69	7.93	2.76
	2006-2008	6.73	6.65	0.08
	2007-2009	2.48	3.30	-0.82
$\lvert\bar{R}\rvert$ *(EUR billions)*	1999-2001	4.59	8.63	4.95
	2000-2002	4.12	6.64	4.17
	2001-2003	3.25	4.10	2.98
	2002-2004	5.29	5.27	2.84
	2003-2005	7.50	5.83	3.74
	2004-2006	9.78	7.10	3.85
	2005-2007	10.69	7.99	3.35
	2006-2008	7.79	6.82	2.68
	2007-2009	5.55	5.25	2.44
MAPE/ RMSRE *(%)*	1999-2001	3.79	7.32	1.17
	2000-2002	3.06	5.00	0.75
	2001-2003	2.33	2.99	0.62
	2002-2004	3.66	3.80	0.70
	2003-2005	4.82	3.94	0.98
	2004-2006	5.81	4.28	0.90
	2005-2007	5.68	4.17	0.83
	2006-2008	3.84	3.29	0.40
	2007-2009	2.66	2.46	0.35
Q *(%)*	1999-2001	85.71	85.71	71.43
	2000-2002	85.71	85.71	71.43
	2001-2003	88.57	94.29	68.57
	2002-2004	91.43	85.71	65.71
	2003-2005	91.43	74.29	68.57
	2004-2006	94.29	71.43	77.14
	2005-2007	97.14	82.86	85.71
	2006-2008	97.14	91.43	91.43
	2007-2009	97.14	94.29	88.57

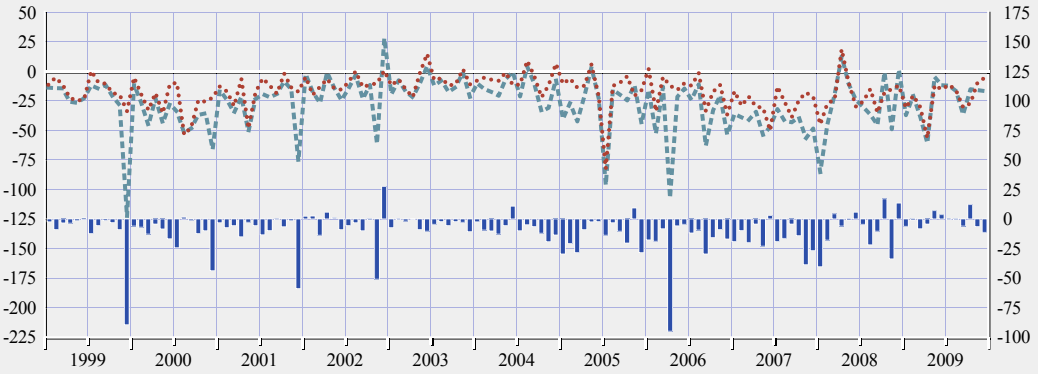
Source: ECB.
Note: The MAPE is used for credits and debits and the RMSRE for net data.

Chart 5 Direct investment

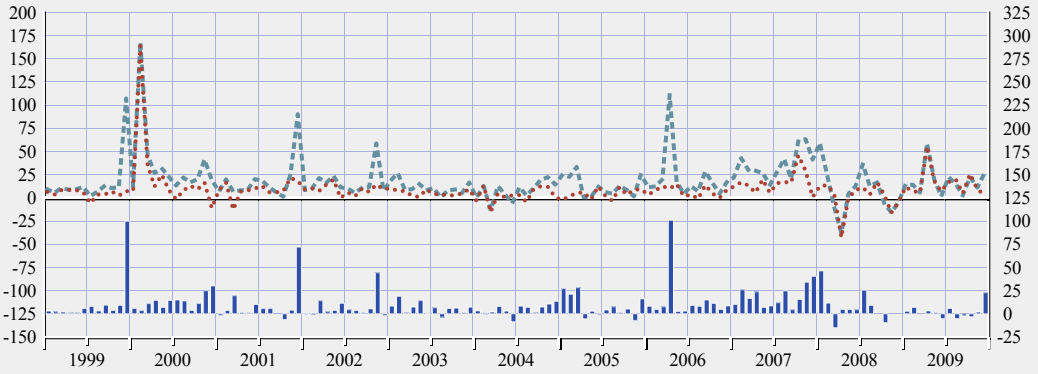
(EUR billions)

revision (right-hand scale)
first assessment (left-hand scale)
final assessment (left-hand scale)

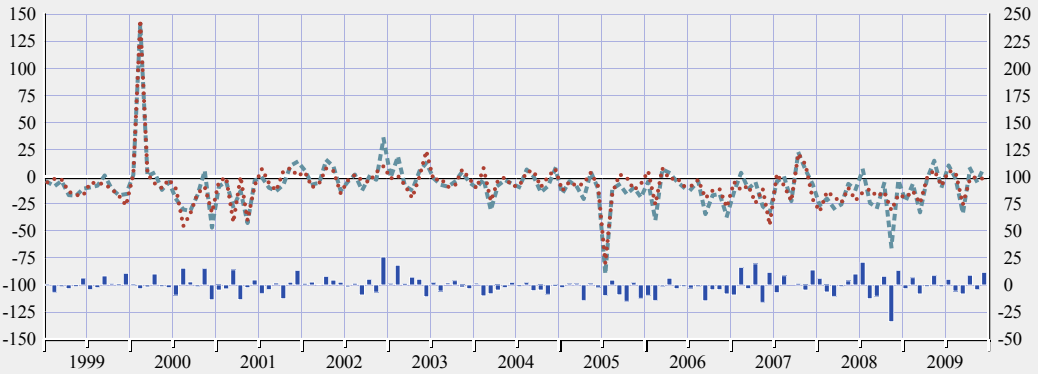
a) Abroad



b) In the euro area



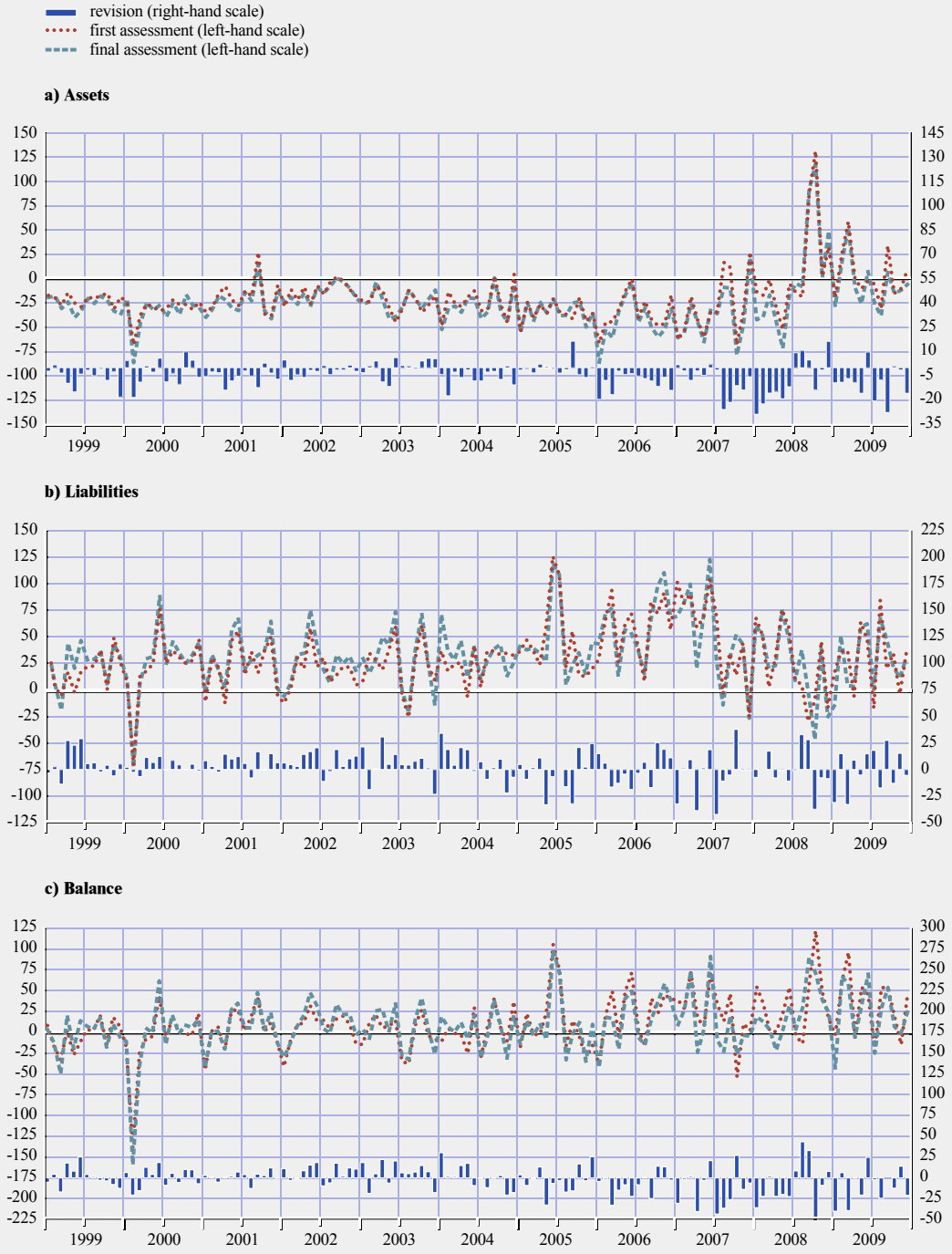
c) Balance



Source: ECB.

Chart 6 Euro area portfolio investment

(EUR billions)



Source: ECB.

Table 5 Stability indicators for euro area direct investment

Quality indicator	Reference period (Jan.-Dec.)	Direct investment		
		Abroad	Euro area	Net
$\overline{R}$ *(EUR billions)*	1999-2001	-11.52	11.51	-0.01
	2000-2002	-9.16	9.84	0.68
	2001-2003	-6.72	7.56	0.85
	2002-2004	-5.75	5.91	0.16
	2003-2005	-8.66	6.28	-2.37
	2004-2006	-13.79	9.36	-4.44
	2005-2007	-16.49	14.01	-2.48
	2006-2008	-14.72	13.49	-1.23
	2007-2009	-8.58	9.21	0.63
$\lvert\overline{R}\rvert$ *(EUR billions)*	1999-2001	11.63	11.94	5.72
	2000-2002	11.37	10.42	6.33
	2001-2003	8.85	8.38	5.86
	2002-2004	8.48	6.80	4.95
	2003-2005	9.77	7.74	5.12
	2004-2006	14.90	10.58	5.42
	2005-2007	17.16	14.72	7.09
	2006-2008	17.13	14.85	8.88
	2007-2009	12.25	11.45	8.92
MACE/ RMSRE *(%)*	1999-2001	0.74	0.97	0.58
	2000-2002	0.61	0.69	0.54
	2001-2003	0.44	0.49	0.70
	2002-2004	0.40	0.35	0.61
	2003-2005	0.41	0.35	0.71
	2004-2006	0.55	0.43	0.61
	2005-2007	0.56	0.54	0.68
	2006-2008	0.50	0.50	0.68
	2007-2009	0.32	0.36	0.65
Q *(%)*	1999-2001	82.86	65.71	74.29
	2000-2002	82.86	71.43	82.86
	2001-2003	91.43	57.14	85.71
	2002-2004	85.71	60.00	85.71
	2003-2005	80.00	57.14	82.86
	2004-2006	77.14	74.29	82.86
	2005-2007	71.43	77.14	74.29
	2006-2008	74.29	85.71	77.14
	2007-2009	68.57	85.71	74.29

Source: ECB.
Note: The MACE is used for assets and liabilities and the RMSRE for balance data.

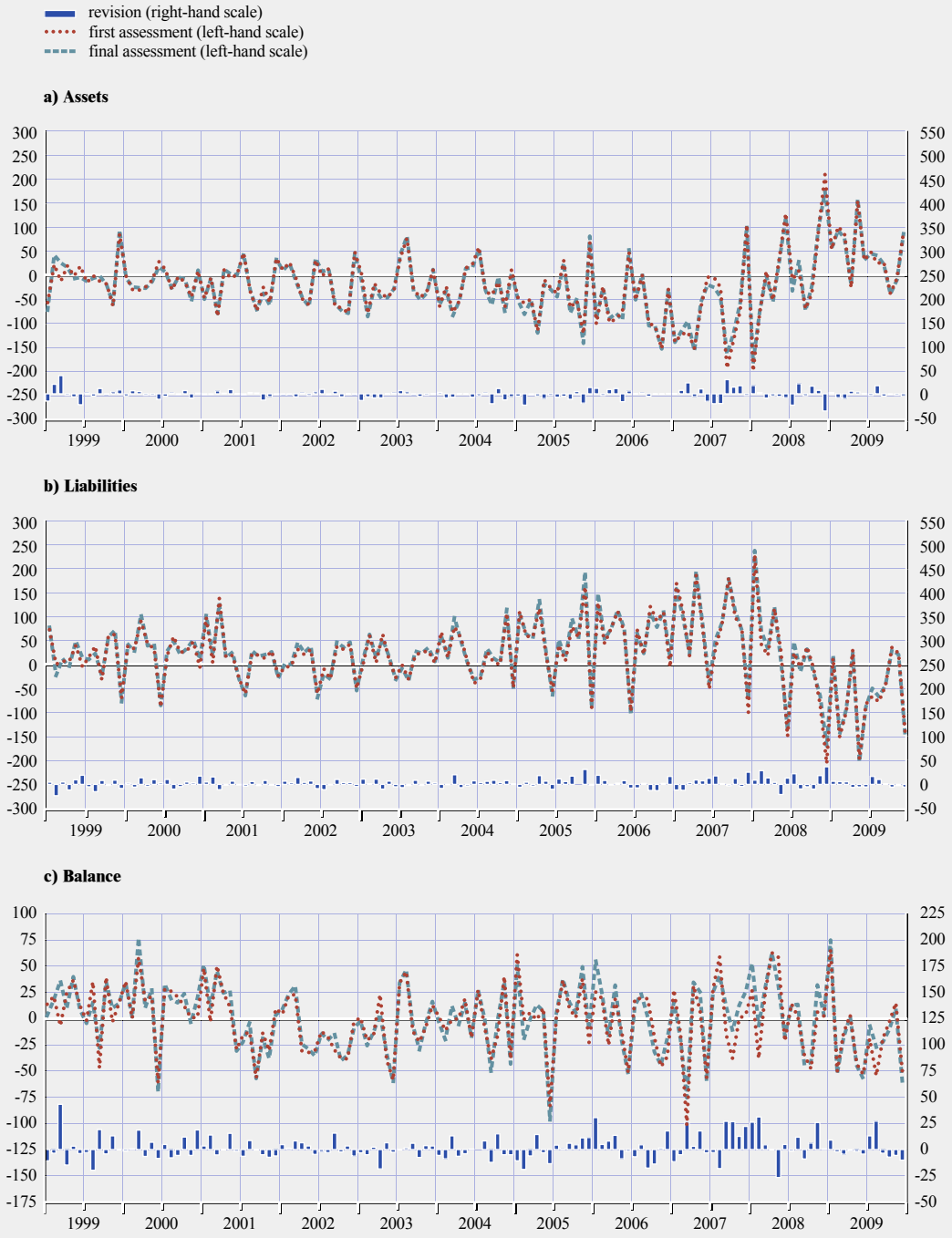
Table 6 Stability indicators for euro area portfolio investment

Quality indicator	Reference period (Jan.-Dec.)	Porfolio investment		
		Assets	Liabilities	Balance
$\overline{R}$ *(EUR billions)*	1999-2001	-4.49	5.57	1.08
	2000-2002	-3.27	6.10	2.83
	2001-2003	-2.27	6.60	4.34
	2002-2004	-2.38	6.44	4.06
	2003-2005	-1.73	2.84	1.12
	2004-2006	-4.74	1.51	-3.23
	2005-2007	-5.36	-2.36	-7.71
	2006-2008	-7.78	-1.55	-9.33
	2007-2009	-7.99	-1.98	-9.97
$\lvert\overline{R}\rvert$ *(EUR billions)*	1999-2001	6.18	8.12	8.04
	2000-2002	5.29	7.99	8.18
	2001-2003	4.44	10.24	8.86
	2002-2004	4.45	11.71	10.93
	2003-2005	4.46	12.79	11.83
	2004-2006	5.89	13.16	11.81
	2005-2007	6.66	14.35	15.23
	2006-2008	10.24	14.26	18.80
	2007-2009	11.01	15.59	20.40
MACE/ RMSRE *(%)*	1999-2001	0.28	0.28	0.42
	2000-2002	0.22	0.25	0.41
	2001-2003	0.18	0.31	0.49
	2002-2004	0.17	0.33	0.62
	2003-2005	0.15	0.32	0.62
	2004-2006	0.17	0.28	0.58
	2005-2007	0.16	0.25	0.62
	2006-2008	0.24	0.23	0.78
	2007-2009	0.26	0.25	0.78
Q *(%)*	1999-2001	74.29	94.29	85.71
	2000-2002	88.57	85.71	82.86
	2001-2003	91.43	74.29	77.14
	2002-2004	88.57	65.71	74.29
	2003-2005	82.86	65.71	74.29
	2004-2006	85.71	68.57	80.00
	2005-2007	91.43	71.43	80.00
	2006-2008	91.43	80.00	82.86
	2007-2009	94.29	77.14	82.86

Source: ECB.
Note: The MACE is used for assets and liabilities and the RMSRE for balance data.

Chart 7 Euro area other investment

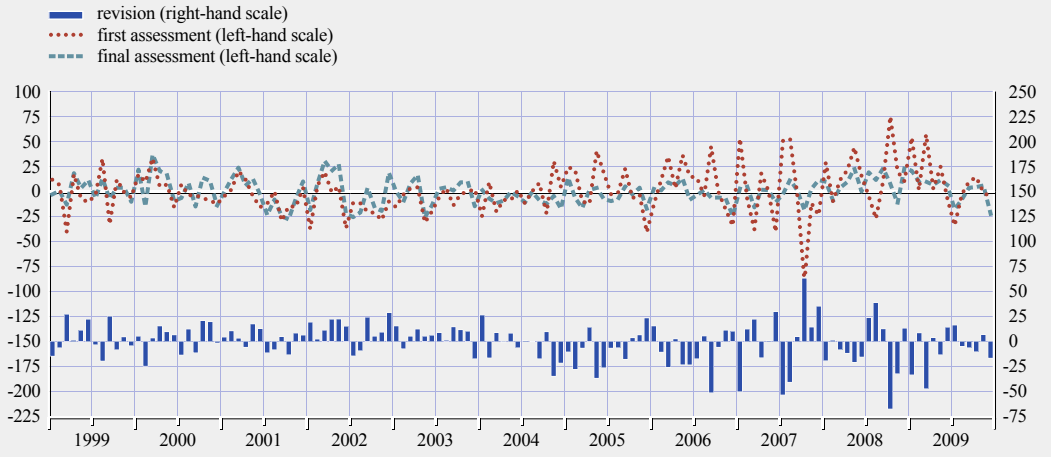
(EUR billions)



Source: ECB.

Chart 8 Total financial account – net

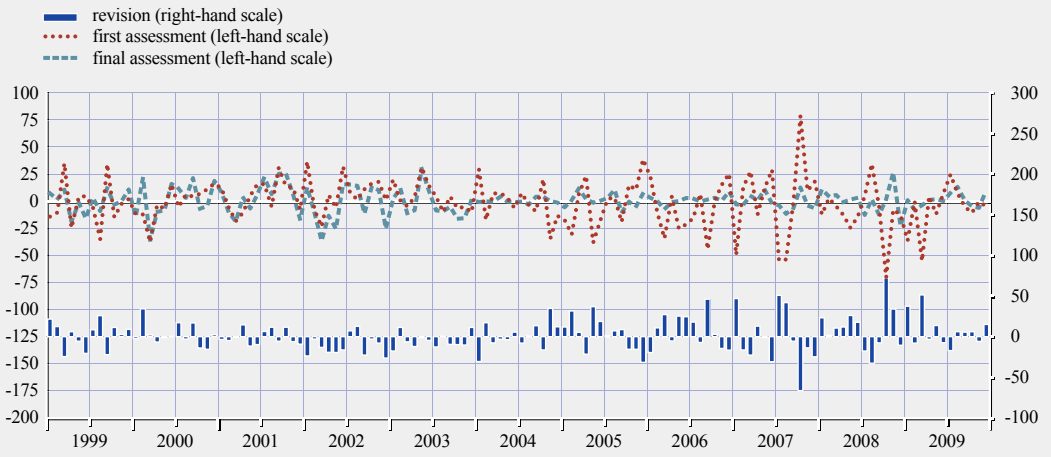
(EUR billions)



Source: ECB.

Chart 9 Euro area errors and omissions

(EUR billions)



Source: ECB.

Table 7 Stability indicators for euro area other investment

Quality indicator	Reference period (Jan.-Dec.)	Other investment		
		Assets	Liabilities	Balance
$\bar{R}$	1999-2001	0.20	1.31	1.51
(EUR	2000-2002	-0.72	2.42	1.70
billions)	2001-2003	-1.28	1.89	0.62
	2002-2004	-2.51	2.58	0.07
	2003-2005	-4.45	3.83	-0.62
	2004-2006	-3.08	3.70	0.62
	2005-2007	-0.70	4.23	3.53
	2006-2008	0.62	4.94	5.56
	2007-2009	0.08	4.86	4.93
$\lvert\bar{R}\rvert$	1999-2001	6.74	7.67	8.58
(EUR	2000-2002	4.17	6.52	6.43
billions)	2001-2003	4.29	6.13	5.41
	2002-2004	5.30	6.44	5.70
	2003-2005	7.08	7.50	6.92
	2004-2006	7.23	8.22	8.84
	2005-2007	9.56	9.43	11.40
	2006-2008	10.83	11.48	12.59
	2007-2009	10.73	10.81	11.47
MACE/	1999-2001	0.31	0.30	0.42
RMSRE	2000-2002	0.17	0.23	0.26
(%)	2001-2003	0.16	0.21	0.26
	2002-2004	0.19	0.21	0.29
	2003-2005	0.22	0.22	0.31
	2004-2006	0.20	0.22	0.38
	2005-2007	0.22	0.21	0.45
	2006-2008	0.21	0.22	0.48
	2007-2009	0.20	0.20	0.42
Q	1999-2001	88.57	91.43	88.57
(%)	2000-2002	94.29	91.43	82.86
	2001-2003	94.29	91.43	85.71
	2002-2004	97.14	94.29	88.57
	2003-2005	97.14	97.14	91.43
	2004-2006	97.14	100.00	91.43
	2005-2007	97.14	100.00	94.29
	2006-2008	97.14	100.00	94.29
	2007-2009	97.14	100.00	94.29

Source: ECB.
Note: The MACE is used for assets and liabilities and the RMSRE for balance data.

Table 8 Stability indicators for euro area errors and omissions, and for the total financial account

Quality indicator	Reference period (Jan.-Dec.)	Errors and omissions	Total financial account
$\bar{R}$	1999-2001	1.35	2.90
(EUR	2000-2002	-3.09	5.68
billions)	2001-2003	-5.62	6.33
	2002-2004	-5.02	4.31
	2003-2005	-0.25	-1.95
	2004-2006	3.98	-6.90
	2005-2007	2.78	-5.09
	2006-2008	5.34	-4.96
	2007-2009	5.40	-4.12
$\lvert\bar{R}\rvert$	1999-2001	10.56	11.02
(EUR	2000-2002	10.70	12.00
billions)	2001-2003	10.45	11.17
	2002-2004	12.07	12.41
	2003-2005	12.91	12.52
	2004-2006	15.98	14.97
	2005-2007	21.00	20.30
	2006-2008	22.68	22.50
	2007-2009	21.53	21.93
RMSRE	1999-2001	1.05	
	2000-2002	0.84	
	2001-2003	0.82	
	2002-2004	1.13	
	2003-2005	2.22	
	2004-2006	4.68	
	2005-2007	4.23	
	2006-2008	3.90	
	2007-2009	3.60	
Q	1999-2001	71.43	
(%)	2000-2002	74.29	
	2001-2003	82.86	
	2002-2004	71.43	
	2003-2005	71.43	
	2004-2006	65.71	
	2005-2007	68.57	
	2006-2008	57.14	
	2007-2009	48.57	

Source: ECB.

3 CURRENT ACCOUNT TRANSACTIONS BETWEEN THE EURO AREA AND ITS MAIN PARTNER COUNTRIES

Table 9 Current account transactions between the euro area and the United Kingdom from 2007 to 2009

(EUR billions)

Item in euro area b.o.p.	2007		2008		2009		2007		2008		2009	
	as recorded by						differences					
	Euro area	United Kingdom	Euro area	United Kingdom	Euro area	United Kingdom	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Current account, balance	75.8	-42.0	53.3	6.5	56.4	-6.4	33.8	57.4	59.9	200.0	50.0	159.4
Exports to United Kingdom	534.5	410.5	492.9	380.4	391.0	268.9	124.0	26.2	112.5	25.8	122.1	37.0
Imports from United Kingdom	458.7	452.5	439.6	373.9	334.5	275.3	6.1	1.3	65.6	16.1	59.3	19.4
Goods, balance	64.0	-51.4	54.3	-39.3	46.8	-32.1	12.6	21.8	15.0	32.1	14.7	37.3
Exports to United Kingdom	240.4	167.4	230.0	159.2	183.7	124.9	73.0	35.8	70.8	36.4	58.8	38.1
Imports from United Kingdom	176.4	218.8	175.8	198.5	136.8	157.0	-42.4	-21.5	-22.7	-12.1	-20.2	-13.7
Services, balance	27.2	3.0	24.0	5.7	18.0	4.9	30.2	200.0	29.7	200.0	22.8	200.0
Exports to United Kingdom	117.3	73.5	114.1	68.2	102.2	57.5	43.9	46.0	45.9	50.4	44.7	55.9
Imports from United Kingdom	90.2	70.4	90.1	62.4	84.3	52.7	19.7	24.6	27.6	36.2	31.6	46.1
Income, balance	-18.0	6.8	-26.7	40.8	-7.7	21.6	-11.2	90.7	14.1	41.7	13.8	94.2
Receipts from United Kingdom	162.1	167.0	135.4	150.6	93.1	84.3	-4.9	-3.0	-15.2	-10.6	8.8	9.9
Expenditure in the United Kingdom	180.1	160.2	162.1	109.7	100.9	62.8	19.9	11.7	52.4	38.5	38.1	46.6
Current transfers, balance	2.7	-0.4	1.8	-0.8	-0.6	-0.7	2.3	145.5	1.0	80.3	-1.3	200.0
Receipts from United Kingdom	14.7	2.6	13.4	2.5	11.9	2.1	12.0	138.9	10.9	137.5	9.8	139.4
Expenditure in the United Kingdom	12.0	3.1	11.6	3.3	12.6	2.8	8.9	118.5	8.4	112.6	9.8	127.2

Sources: ECB and UK Office for National Statistics.
Note: The relative differences are calculated as the absolute value of the difference divided by the average of the absolute values of both estimates.

Table 10 Current and capital account transactions between the euro area and the United States from 2007 to 2009

(EUR billions)

Item in euro area b.o.p.	2007		2008		2009		2007		2008		2009	
	as recorded by						differences					
	Euro area	United States	Euro area	United States	Euro area	United States	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Current account, balance	34.0	-24.2	-5.7	0.9	-11.1	19.6	9.8	33.7	-4.8	147.9	8.4	54.9
Goods, balance	57.5	-67.0	47.2	-54.3	32.8	-35.8	-9.5	15.2	-7.1	14.1	-3.0	8.8
Export to United States	193.8	198.2	190.0	192.3	153.4	153.9	-4.4	2.2	-2.3	1.2	-0.5	0.3
Import from United States	136.3	131.2	142.8	137.9	120.6	118.1	5.1	3.8	4.9	3.5	2.5	2.1
Services, balance	-13.8	9.0	-16.1	14.3	-22.1	15.8	-4.8	42.3	-1.8	12.0	-6.4	33.7
Export to United States	78.4	66.2	79.4	67.1	71.1	61.2	12.2	16.9	12.2	16.7	9.8	14.9
Import from United States	92.2	75.2	95.4	81.4	93.2	77.0	17.1	20.4	14.0	15.9	16.2	19.1
Income, balance	-9.9	39.4	-34.8	45.0	-20.0	43.3	29.5	119.7	10.2	25.6	23.2	73.5
Receipts from United States	119.5	115.7	107.3	99.7	80.9	82.2	3.8	3.2	7.6	7.3	-1.3	1.6
Expenditure in the United States	129.4	155.1	142.1	144.7	100.9	125.5	-25.7	18.1	-2.7	1.9	-24.5	21.7
Current transfers, balance	0.2	-5.6	-2.0	-4.1	-1.8	-3.7	-5.4	185.2	-6.1	200.0	-5.4	200.0
Capital account, balance	-0.4	0.0	0.2	0.6	-0.8	0.0	-0.4	200.0	0.9	200.0	-0.8	200.0

Sources: ECB and US Bureau of Economic Analysis.
Note: The relative differences are calculated as the absolute value of the difference divided by the average of the absolute values of both estimates.

Table 11 Current and capital account transactions between the euro area and Japan from 2007 to 2009

(EUR billions)

Item in euro area b.o.p.	2007		2008		2009		2007		2008		2009	
	as recorded by						differences					
	Euro area	Japan	Euro area	Japan	Euro area	Japan	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Current account, balance	-41.7	42.4	-43.1	44.0	-36.3	30.3	0.7	1.6	1.0	2.2	-6.0	18.0
Goods, balance	-22.7	19.5	-22.2	18.0	-13.2	7.2	-3.2	14.9	-4.1	20.5	-6.0	58.5
Services, balance	3.0	0.2	2.7	3.3	2.8	1.4	3.2	200.0	6.0	200.0	4.3	200.0
Income, balance	-22.0	22.9	-23.4	22.8	-25.7	21.7	0.9	4.2	-0.6	2.5	-4.0	16.8
Current transfers, balance	-0.1	-0.2	-0.3	-0.1	-0.2	-0.1	-0.3	200.0	-0.3	200.0	-0.3	200.0
Capital account, balance	-0.1	-0.4	-0.1	-0.1	-0.1	-0.2	-0.5	200.0	-0.2	200.0	-0.3	200.0

Sources: ECB and Japan's Ministry of Finance.
Note: The relative differences are calculated as the absolute value of the difference divided by the average of the absolute values of both estimates