



EUROPEAN CENTRAL BANK

EUROSYSTEM

EURO AREA BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATISTICS

FEBRUARY 2007

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ANNUAL
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REPORT



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FEBRUARY 2007



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EXECUTIVE SUMMARY

This annual quality report on balance of payments and international investment position statistics is required by Article 6 of the Guideline of the European Central Bank of 16 July 2004 on the statistical reporting requirements of the European Central Bank in the field of balance of payments and international investment position statistics, and the international reserves template (ECB/2004/15)¹ (hereinafter referred to as “Guideline ECB/2004/15”). It follows the basic principles of the Data Quality Assessment Framework (July 2003) of the International Monetary Fund (IMF) in terms of the different dimensions of data quality, and includes quantitative indicators.² Key aspects of quality are (i) integrity, (ii) methodological soundness, (iii) periodicity and timeliness, (iv) accuracy, (v) revision practices and policy, (vi) stability, (vii) consistency and (viii) accessibility.

The methodologies followed by Member States are covered in the country chapters of the ECB’s yearly publication “European Union balance of payments and international investment position statistical methods” (last update: November 2005). The ECB’s website also contains a methodological note on the euro area balance of payments (b.o.p.) and international investment position (i.i.p.), which focuses on common methodological issues and on the aggregation procedures.

In 2006, various national compilers implemented methodological changes, which also triggered revisions to euro area data. The new data increased the methodological soundness and consistency of contributions to the euro area aggregate, but affected the stability of the statistics, especially those on services and investment income credits.

In the first monthly assessment of the b.o.p. current account, full information on services is not usually available in the reporting Member States and estimates must be used to meet the release deadlines. For the time being, the results

of the stability indicators show that these first estimates often underestimate credits and debits. Nonetheless, these patterns barely affect the current account balance.

The data on portfolio investment liabilities and related income still constitute a weak point in the euro area b.o.p. and i.i.p. Incomplete information on the final holder of securities (i.e. the actual creditor) currently prevents the compilation of the breakdown by sector that is required under the fifth edition of the IMF’s Balance of Payments Manual (BPM5) and also affects the accuracy of the data.³ The ECB and the EU national central banks (NCBs) are involved in an action plan to enhance the collection of data on portfolio investment, complemented by the Centralised Securities Database (CSDB). The implementation of this solution by euro area countries is envisaged by 2008. For the moment, the b.o.p. and i.i.p. statistics compiled in Belgium, Germany (for the b.o.p.), Greece, Spain, France, Italy, the Netherlands, Austria and Portugal are already collected on a security-by-security basis. This will be the case in the remaining euro area countries (Germany (for the i.i.p.), Ireland, Luxembourg and Finland) in 2007 or 2008.

In general, the euro area b.o.p. and i.i.p. appear to provide credible information, and the quantitative indicators have shown a general improvement since 1999. The results for 1999 and 2000 reflect the fact that national b.o.p./i.i.p. compilers were still in the process of adapting their data collection systems to cover the needs of euro area statistics, so that revisions were extensive. Lately, more moderate revisions also stem from the fine-tuning carried out in moving closer to international standards.

1 Official Journal of the European Union (OJ), L 354, 30.11.2004, p. 34.

2 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 under www.cmfb.org.

3 Large worldwide discrepancies in portfolio investment flows and stocks induced the IMF to organise the annual “Coordinated Portfolio Investment Survey” (CPIS).

The downward trend of the 12-month cumulated euro area errors and omissions observed since September 2003, which was due to persistent negative errors and omissions, reversed in mid-2005.

Net i.i.p. data for 2004 were rather stable; revisions to net i.i.p. data amounted to -€9.1 billion, corresponding to 0.1% of GDP. By contrast, the revisions to 2005 net i.i.p. data published in November 2006 amounted to €237 billion, corresponding to 3% of GDP. These revisions were mainly accounted for by portfolio investment (€160 billion).

There are significant differences between b.o.p. and external trade statistics, due to the deviating underlying methodologies. For the period 2003-2005, the differences between the respective month-on-month growth rates have improved slightly on the import side, and deteriorated on the export side, although a systematic divergence in the growth rates of both series has not been observed. The consistency between b.o.p. statistics and money and banking data has improved considerably in recent years. While data on deposits and loans have largely converged, work is still going on with regard to holdings of securities.

INTRODUCTION

The calculation of quantitative indicators was performed on monthly b.o.p. observations from January 2003 to December 2005 (36 observations). Those results are compared with results for the four previous three-year periods (1999-2001, 2000-2002 and 2001-2003).⁴ By contrast, the euro area i.i.p. with a breakdown into assets and liabilities was published for the first time in November 2002 (positions as at end-2001). Therefore, the analysis of revisions focuses on the data for positions from end-2001 to end-2004.

The rest of this report is organised as follows. Section 1 concentrates on the prerequisites of quality and on concrete steps to assess integrity. Section 2 focuses on the methodological soundness, while Section 3 deals with timeliness. In Section 4, the data accuracy is assessed on the basis of results available at the ECB. The current revision practices and steps towards a revision policy are explained in Section 5. This is complemented by quantitative indicators to measure the size and direction of revisions in Section 6. Section 7 deals with consistency, both within the b.o.p. (“internal consistency”) and with other related statistics (“external consistency”). Finally, Section 8 provides information on where to find euro area b.o.p. and i.i.p. statistics.

I PREREQUISITES OF QUALITY AND ASSESSMENT OF INTEGRITY

The euro area b.o.p. and i.i.p. are based on the aggregation of statistics provided by individual euro area countries concerning transactions and positions between their residents and non-euro area residents. The legal framework for collecting b.o.p./i.i.p. data stems from the Treaty, in particular Article 5 of the Statute of the European System of Central Banks and of the European Central Bank (ESCB Statute) which relates to the collection of statistical information.⁵ In application of this provision, Article 2 of the Council

Regulation (EC) No 2533/98 on the collection of statistical information by the European Central Bank⁶ defines the reference reporting population as including “legal and natural persons residing in a Member State, to the extent that they hold cross-border positions or carry out cross-border transactions [...]”. The legal obligation set out in the Treaty and this Regulation is the basis for Guideline ECB/2004/15, which is legally binding for NCBs of euro area countries.⁷ This Guideline is currently in the process of being amended to reflect both data requirements resulting from the enlargement of the euro area and some new data requirements to enhance the b.o.p. and i.i.p. statistics. The Memorandum of Understanding of March 2003 between the Directorate General Statistics and Eurostat explains how responsibility is shared between the Commission and the ECB in the field of b.o.p./i.i.p. statistics.⁸

The IMF has established the Special Data Dissemination Standard (SDDS) to guide member countries in the provision of their economic and financial data to the public. Sixty-four of its member countries have subscribed to the standard, including all euro area countries. The euro area is also regarded as a subscriber. References to the SDDS benchmark are made in this report where appropriate.

Several measures have been implemented since 1999 to protect the integrity of euro area

4 The results are based on data published in November 2006. The length of three years was chosen in order to produce statistically meaningful results which reflect an average for the whole period. The most recent observations were excluded to avoid underestimating the revision indicators.

5 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.”

6 OJ L 318, 27.11.1998, p. 8.

7 A Recommendation (ECB/2004/16) was also issued to request national authorities other than NCBs that compile the b.o.p./i.i.p. statistics, i.e. the Irish Central Statistics Office and the Ufficio Italiano dei Cambi, to cooperate with the respective NCBs so as to meet the ECB requirements.

8 The Memorandum of Understanding, dated 10 March 2003, is available on the ECB’s website (www.ecb.int).

statistics and to increase the efficiency and effectiveness of statistical procedures. First, the ECB has procedures in place to protect confidential data received from Member States as required in Council Regulation (EC) No 2533/98. Second, the Statistics Committee (STC) of the ESCB⁹ and the Committee for Monetary, Financial and Balance of Payments Statistics (CMFB) have assisted the ECB's Directorate General Statistics (DG-Statistics) and the European Commission (Eurostat) in developing a data quality framework; the current report is an important outcome of this work.

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 Eurosystem¹⁰ and the ESCB. In the Eurosystem's mission statement, accountability, transparency and good governance are important values that underpin the integrity of the statistical function as defined by the Treaty (Article 5 of the ESCB Statute).

2 METHODOLOGICAL SOUNDNESS

The methodologies observed by Member States when compiling the b.o.p. and i.i.p. are covered in the country chapters of the ECB's yearly publication entitled "European Union balance of payments/international investment position statistical methods" (the "B.o.p. Book", a new update of which is scheduled for April 2007). 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. The agreed methodology goes somewhat beyond that set out in the BPM5¹¹ in order to meet specific user requirements, e.g. the monthly frequency, and the requirement for consistency with monetary and financial statistics. The methods for compilation of the international reserves (flows and outstanding amounts) of the

ECB/Eurosystem are described in a separate report.¹²

In addition, the ECB's website contains an up-to-date note on methodological issues of the euro area b.o.p. and i.i.p.,¹³ as well as on the aggregation procedures.

Back data for the euro area quarterly i.i.p. from the first quarter of 1999 to the third quarter of 2003 were published in November 2006. These data have been estimated on the basis of the annual i.i.p., quarterly b.o.p. flows and estimated valuation effects.

Intra-euro area portfolio investment assets, broken down by euro area issuer sector, were reported by Member States for the first time in June 2006. These details will allow the publication of a sectoral breakdown of the euro area portfolio liabilities, most likely in 2007. This is necessary for full compliance with the standard components of portfolio investment defined in the BPM5. These new statistics will start in January 2006 for the monthly b.o.p., in the first quarter of 2006 for the quarterly b.o.p. and in the fourth quarter of 2005 for the quarterly i.i.p.

Since October 2006, series with more detailed end-year equity positions in foreign direct investment have been reported by euro area Member States, with their distinguishing listed (market price) and unlisted companies (based on own funds at book value). This first submission refers to end-2005 data and to back data for end-2004.

In 2006, the historical series of euro area reinvested earnings on direct investment and

9 The European System of Central Banks comprises the ECB and the NCBs of all 27 EU Member States.

10 The Eurosystem is the central banking system of the euro area. It comprises the ECB and the NCBs of the thirteen EU Member States that have adopted the euro.

11 The IMF Balance of Payments Manual (fifth edition) was released in 1993.

12 "Statistical treatment of the Eurosystem's international reserves", ECB, October 2000.

13 https://stats.ecb.int/stats/download/eas_ch07/eas_ch07/eas_note_ch7.pdf.

related income were revised to include new estimates from Spain. At the moment, reinvested earnings for the euro area are not published separately, but are included in the total income on direct investment. As several countries have undertaken considerable efforts to improve the quality of their data on reinvested earnings, it is planned to publish such data for the euro area in 2007.

In addition, the Banco de España and the Banque de France have started to record debt instruments on an accruals basis. The former has already revised back data, while back data revisions for the latter are expected in 2007.

In September 2006, the Service central de la statistique et études économiques (STATEC, Luxembourg) started to apply the country-of-consignment principle in goods recording, as it was applied in Foreign Trade Statistics, and has consistently revised data from January 2002 onwards.¹⁴ As a consequence, both credits and debits have been revised upwards, with goods in transit being regarded as an additional component of trade in goods. In addition, the Deutsche Bundesbank has revised downward both goods credits and goods debits on account of a change in the treatment of repairs of goods. The change-of-ownership criterion will be applied, and the value of the repairs on goods will be recorded on a net basis instead of showing exports and imports of goods in a gross basis. Finally, Statistics Finland has enhanced its data collection system with respect to exports of business services.

In comparison with the international standards set out in the BPM5, the euro area b.o.p. and i.i.p. still lack the sectoral breakdown on the liabilities side of portfolio investment, owing to difficulties in obtaining information on the final holder of securities (i.e. the actual creditor).

The ECB and the NCBs are involved in an action plan to enhance the collection of data on portfolio investment (flows, stocks and income), complemented by a Centralised

Securities Database (CSDB). In future, the national compilers of b.o.p. and i.i.p. statistics will use the same characteristics, extracted from the CSDB, to classify the securities in terms of the sector and the residence of the issuer, the instrument, the maturity, etc. In addition, the database will assist the compilers when reconciling transactions and positions, or when calculating the income on portfolio investment. The CSDB will allow great flexibility in the compilation of statistics and will significantly reduce the burden on respondents. For the moment, the b.o.p. and i.i.p. statistics compiled in Belgium, Germany (for the b.o.p.), Greece, Spain, France, Italy, the Netherlands, Austria and Portugal are already collected security by security. The remaining euro area countries (Germany (for the i.i.p.), Ireland, Luxembourg and Finland) plan to move to security-by-security data collection in the course of 2007 and 2008.

3 PERIODICITY AND TIMELINESS

The euro area b.o.p. statistics are published monthly. Additional breakdowns by sector, instrument and counterpart are available on a quarterly basis.

The euro area i.i.p. statistics are published quarterly. Additional geographical breakdowns have an annual frequency.

Together with the monthly release of 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 latest developments in the current account by removing the seasonal pattern, as well as differences in working days and holiday effects. The methodology applied for the seasonal adjustment of the euro area b.o.p. can be found on the ECB's website.¹⁵

¹⁴ So far, STATEC had not applied the country-of-consignment principle in b.o.p. statistics in order to ensure consistency with the national accounts.

¹⁵ www.ecb.int/stats/pdf/sa_procedures.pdf; last update in November 2006.

In 2006, the ECB fully complied with its advance release calendar: monthly data were published seven weeks after the end of the respective months, thereby also enabling an assessment of the quarterly and annual flows within two months (e.g. the first assessment for the full year 2005 was published on 22 February 2006).¹⁶ As foreseen in the release calendar, the publication dates of the quarterly b.o.p. and the quarterly i.i.p. were brought forward ten days by mid-2006. As from the data for the first quarter of 2006, 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, instead of with the previous four-month lag.¹⁷ The annual i.i.p. with further details was released eleven months after the end of the reference year.

4 ACCURACY

When compiling the euro area aggregate at all frequencies, the ECB performs several checks 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 or inconsistencies with other data sources are analysed. If a potential problem is detected, the country involved has to check and to change or confirm the figures; in the latter case, a further explanation with regard to the underlying economic development is often delivered.

5 REVISION PRACTICES AND POLICY

The euro area b.o.p. and i.i.p. are revised according to a predetermined schedule. Quarterly data are revised with the publication of the following quarter's statistics and twice a year thereafter, 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 corresponding quarter. The

annual i.i.p. is revised with the publication of data for the two subsequent years. In addition, extraordinary revisions are justified in the case of major changes to the methods or data collection systems in the Member States, or when the composition of the euro area changes.

Revisions are necessary to improve the data coverage 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. Frequently, however, large or systematic revisions may signal weaknesses in the data collection or compilation systems that need to be remedied.

Since 2003, b.o.p. aggregates for the euro area and the EU (the former are compiled by DG-Statistics, the latter by Eurostat) have been revised simultaneously, according to a schedule that also enabled the publication of a reconciled euro area i.i.p. This increases the comparability of the statistics, while also easing the reporting burden of Member States.

In 2006, further steps towards a coordinated revision policy across integrated statistics, in particular between quarterly euro area/EU accounts and b.o.p./i.i.p. statistics, were investigated by an ad hoc "Groupe de Réflexion", mandated by the STC. EU Member States noted the interdependency between their national b.o.p. and i.i.p. revisions and those of external trade statistics (an important source) and the national accounts (an important user). A coordination of the revision practices at the euro area/EU level may facilitate a process of gradual convergence of existing national practices towards a common European revision policy.

6 STABILITY

The first releases of the monthly b.o.p. for the euro area occur seven weeks after the reference

¹⁶ The benchmark of the SDDS is three months.

¹⁷ The benchmark of the SDDS is nine months.

period and are based on the contributions sent by the national compilers one week earlier. This report contains a number of indicators that serve to measure how close these first assessments were to the final estimates. Similarly, the i.i.p. revisions are analysed considering the different vintages resulting from the annual revisions.

When reviewing the stability indicators, it should be kept 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. can be negatively affected by increasing globalisation and by the requirement to limit, and sometimes even reduce, the statistical reporting burden of economic agents.

Owing to recent methodological work on direct investment and portfolio investment (for both b.o.p. and i.i.p. statistics) that were carried out by the STC, assisted by the Working Group on External Statistics,¹⁸ new collection methods have been implemented by several Member States and will be implemented by the others in 2007 and 2008. The new methods are designed to increase the methodological soundness and consistency of national contributions to the euro area aggregate in the medium term, but may also be a new source of revisions and asymmetries. Furthermore, the International Accounting Standards will not be implemented at the same pace and to the same extent across Member States and among companies, in particular for their individual (non-consolidated) accounts. This may also lead both to some difficulties in statistical data collection and to later revisions.

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

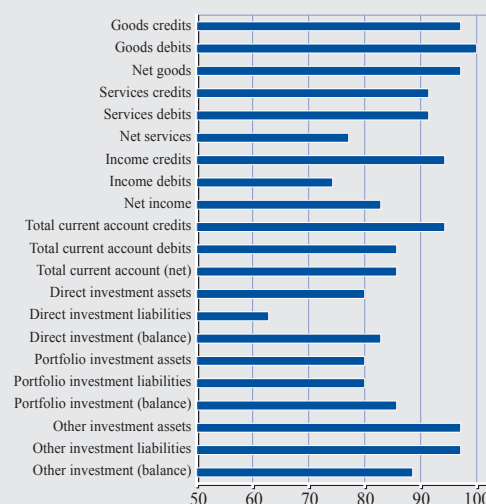
6.1 THE DIRECTIONAL RELIABILITY SHOWS SOME WEAKNESS IN INWARD DIRECT INVESTMENT AND A SIGNIFICANT IMPROVEMENT IN PORTFOLIO INVESTMENT LIABILITIES

The directional reliability summarises how often the first assessments were able to correctly predict a decrease or an increase of the final value in comparison with the previous observation. The sign of the change should be easily predicted in series with a strong seasonality, such as the goods and services items. The indicator shows unsatisfactory results for the direct investment item in the euro area (63%), although there was a slight improvement from the previous period (see tables in Annex 2). Part of direct investment is composed of reinvested earnings, which are based entirely on estimates in the first assessment of the data. During this first monthly assessment, no results of companies are known,

18 See reports of the Task Force on Foreign Direct Investment, ECB, March 2004, the Task Force on Portfolio Investment Collection Systems, ECB, June 2002, and the Task Force on Portfolio Investment Income, ECB, August 2003.

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; 2003-2005)



Source: ECB.

which can also be observed in the below-average and decreasing directional reliability for income debits (74%). The reliability of portfolio investment liabilities has improved significantly over time, showing recently that 80% of the first assessments predicted the direction of the monthly change correctly.

The stability of the direction of the month-on-month changes constitutes a simple reliability measure, 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.

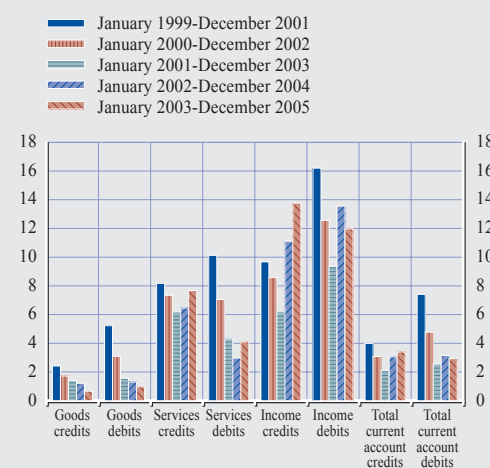
6.2 THE MEAN ABSOLUTE PERCENTAGE ERROR SHOWS A REDUCTION OF STABILITY FOR INCOME CREDITS AND CONTINUED IMPROVEMENTS FOR TRADE IN GOODS

The mean absolute percentage error (MAPE) was 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 contains the results for 1999-2001, 2000-2002, 2001-2003, 2002-2004 and 2003-2005.

The relative magnitude of revisions continues to be larger for income and services than for goods. In addition, revisions have recently increased in income credits and in services, while they continued to decrease in goods. The lower stability of income credits and services reflects the methodological changes implemented in some countries in 2005 and 2006 (see Section 2). In the case of services, the initial assessments moreover continued to be systematically lower than the final assessments for both credits and debits (see Charts 4 and 5 in Annex 2). As a result of these developments, average relative revisions of the current account increased by 0.3 percentage point for credits and decreased by 0.2 percentage point for debits. The large revisions in 1999 and 2000 were related to the initial compilation of euro area statistics (in 1999, EU Member States compiled data according to euro area requirements for the first time).

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

(MAPE)



Source: ECB.

6.3 A BIAS IN NET SERVICES IS REVEALED BY THE ROOT MEAN SQUARE RELATIVE ERROR

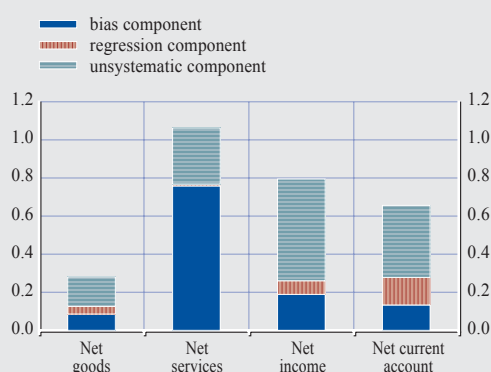
For the net items of the current account and for the financial account, another type of indicator was used: the root mean square relative error (RMSRE). The RMSRE measures the distance between the first assessment and the final assessment in relation to the volatility of each time series, as it is more difficult to correctly estimate more volatile series. The volatility of each series was estimated by its standard deviation, assuming that the series fluctuate around the average in a stable way.¹⁹

The results for all periods are shown in the tables in Annex 2. Chart 3 contains the results for 2003-2005, and their further decomposition into a bias, a regression and an unsystematic component. The decomposition results depict a bias that is statistically different from zero for all the net items reflected. At the same time, the revisions in the net current account have

¹⁹ The assumption of stationarity for the net/balancing items was 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 extreme observations in the period concerned.

Chart 3 Decomposition of the revisions of the euro area current account as a percentage of volatility for 2003-2005

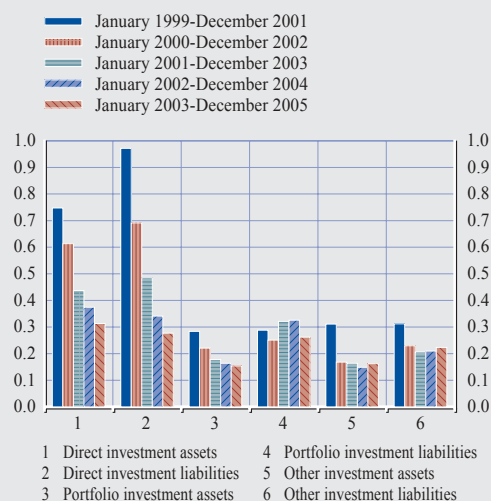
(RMSRE)



Source: ECB.

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

(MACE)



Source: ECB.

decreased recently, mainly due to relatively lower revisions of the net goods item.

Net services were subject to both the highest revisions and the most significant bias (71% of the RMSRE value). This may be related to the efforts in some reporting countries to reconcile their b.o.p. and national account statistics, which has affected the credit side more markedly, while an (average) adjustment factor is not (yet) applied to the initial b.o.p. estimates.

6.4 THE MEAN ABSOLUTE COMPARATIVE ERROR SHOWS A CONTINUED IMPROVEMENT FOR DIRECT INVESTMENT

The indicator used to assess the revisions to 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 item in the i.i.p.

Chart 4 presents the results for assets and liabilities of direct, portfolio and other investment. The results depict a positive

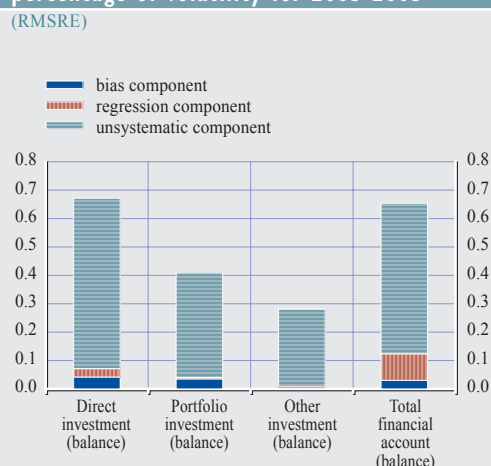
evolution for direct investment assets and liabilities, although the average revisions for these items are still the highest. A slightly negative evolution is seen for the other investment items in the most recent periods.

6.5 LOWER BIAS OF THE FIRST ESTIMATES FOR PORTFOLIO INVESTMENT

The RMSREs for the net items of the current account (Chart 3) are higher than those for the balancing items of the financial account (Chart 5). This is not due to larger revisions, but to the lower volatility of the net items in the current account.

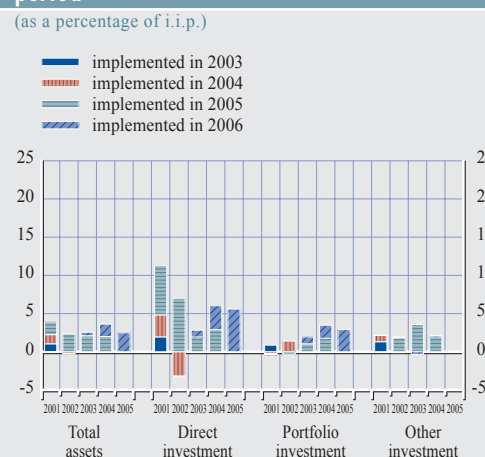
As in previous periods, net direct investment shows the highest revisions in relation to its volatility. Furthermore, the indicator is larger than that for the previous period. On the other hand, the results for portfolio investment have improved and the revisions no longer reveal a significant bias.

Chart 5 Decomposition of the revisions of the euro area financial account as a percentage of volatility for 2003-2005



Source: ECB.

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



Source: ECB.

Note: First assessments of 2004 and 2005 are based on quarterly i.i.p.

6.6 STABILITY OF THE INTERNATIONAL INVESTMENT POSITION

The revisions to the main items of the euro area i.i.p. assets and liabilities are shown in Charts 6 and 7 respectively. The revisions of the total asset positions as at end-2004 amounted to €315 billion, which represents 3.6% of the total assets. On the liabilities side, the corresponding revisions came to €324 billion (3.4% of the total liabilities). The first assessment of end-2004 data was released with a lag of only four months, while previous end-year positions were released eleven months after the reference period. The most significant revisions for end-2004 i.i.p. liabilities data were implemented in 2005, with the publication of the first assessment of the annual i.i.p., while the revisions for assets are more evenly distributed between the 2005 and 2006 revision rounds. For end-2005 data, the revisions implemented in 2006 with the publication of the annual i.i.p. are mainly concentrated in direct investment and portfolio investment assets.

In fact, the great majority of all revisions have been upwards. Chart 8 shows that the overall revisions to total assets and liabilities almost offset each other for 2003 and 2004 data, while the revisions of the 2001 and 2002 i.i.p. were much larger on the liabilities side. The revisions of the 2005 i.i.p., which only includes the revision published in November 2006, were much larger on the assets side.

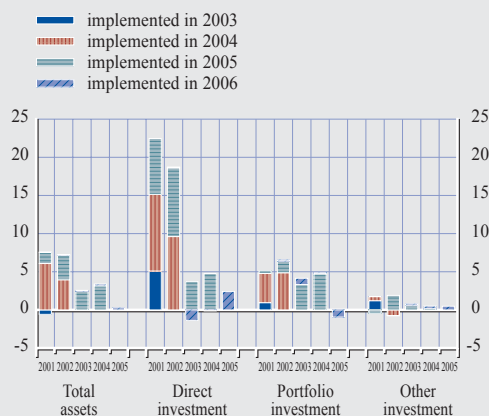
The revisions introduced in November 2006 had a minor effect on positions for previous years. As in 2006, no significant changes were introduced in any euro area country (new compilation systems, methodological changes, etc.).

7 CONSISTENCY

Consistency indicators deal with two aspects: internal inconsistency, as revealed by the item on errors and omissions, and external inconsistency, as revealed by discrepancies vis-à-vis other statistics, such as foreign trade statistics and external flows derived from the balance sheets of MFIs. Furthermore,

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

(as a percentage of the i.i.p.)

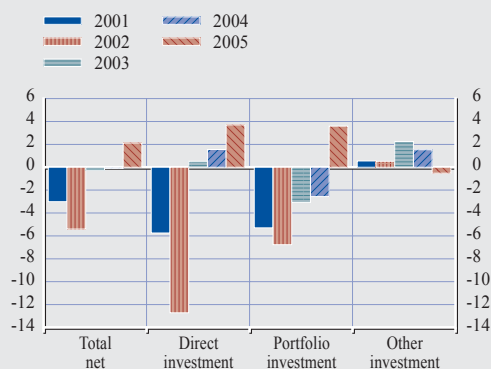


Source: ECB.

Note: First assessments of 2004 and 2005 are based on the quarterly i.i.p.

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

(as a percentage of the average of i.i.p. assets and liabilities)



Source: ECB.

Note: First assessments of 2004 and 2005 are based on the quarterly i.i.p.

consistency also covers other aspects, such as 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 transaction by both parties involved. The box below discusses the reconciliation between financial transactions

Box

RECONCILIATION OF EURO AREA B.O.P. AND I.I.P. STATISTICS

When compiling the b.o.p. and i.i.p. statistics, the quarterly changes in i.i.p. positions are regularly reconciled with the financial transactions in the b.o.p. and information on the other changes that affect the i.i.p. (i.e. changes in financial asset prices and exchange rates, as well as other adjustments not related to transactions, such as write-downs, write-offs or reclassifications). This guarantees the consistency of both these statistics, which is especially relevant if the basic data underlying them are collected separately, and improves the insight into the main drivers behind economic cross-border developments.

The ECB receives the information on cross-border transactions and end-period positions vis-à-vis non-euro area residents from NCBs and national statistical institutes (NSIs). Subsequently, the i.i.p. changes that do not result from b.o.p. transactions are analysed further by separately estimating asset prices and exchange rate adjustments and treating the other adjustments as a residual.

Methodological framework

According to international statistical standards (in particular the BPM5), financial transactions and end-period positions are valued at current market prices. In practice, the valuation methods

Table 1 Stylised valuation scheme of the main i.i.p. items in the euro area

I.i.p. item	Predominant valuation method
Foreign direct investment	Market value for listed companies, and OFBV for unlisted companies
Portfolio investment	Market value
Financial derivatives	Market value
Other investment	Historical cost or nominal value
Reserve assets	Market value

for the i.i.p. may differ depending on whether or not the instrument is quoted. In general, there are three main valuation methods applied to end-period positions in the euro area i.i.p.:

- market valuation using data directly from financial markets (e.g. quoted shares);
- own funds at book value (OFBV) using information from the liability side of the balance sheets of direct investment companies as a proxy for market prices (e.g. unquoted shares); and
- historical cost or nominal value using information from balance sheets (e.g. deposits).

Table 1 provides the valuation methods of the key items of the i.i.p. that are most commonly applied by the euro area Member States. This information is also used for the estimation of the asset price and exchange rate changes.

Estimation of changes in i.i.p. asset prices and foreign exchange rates

Each b.o.p./i.i.p. item comprises many individual instruments, which are partly denominated in euro (e.g. equity capital of euro area companies), and partly in foreign currencies. In addition, each instrument has its own price dynamics. Therefore, the ECB has designed composite indices which combine the available information by counterpart country, currency composition and reporting Member State (see Table 2). Obviously, the precision of this computation greatly depends on the available level of detail on transactions and end-positions.

Table 2 Summary of the composition of price and exchange rate indices

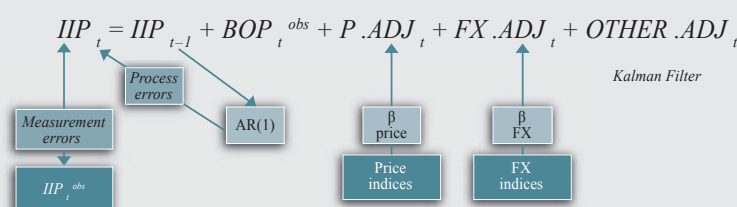
	Exchange rate indices			Price indices	
	Reporting country composition	Main counterpart composition	Currency composition	Reporting country composition	Main counterpart composition
Direct investment					
Abroad		✓			✓
In the euro area	✓			✓	
Portfolio investment					
Assets		✓	✓		✓
Liabilities	✓		✓	✓	
Financial derivatives					
Other investment					
Assets			✓		
Liabilities			✓		
Reserve assets		✓	✓		✓

Note: ✓ = Data are available.

Reconciliation model

The reconciliation model used at the ECB closely follows the structure of a similar IMF model. However, it refines the calculation of price (P.ADJ) and exchange rate (FX.ADJ) revaluations by introducing slope parameters (β) that relate the end-period positions to the value of the indices. The estimation of these parameters serves to remedy an imperfect match between the composite indices and the currency and price compositions of the end-period positions. If the match between indices and end-period positions is perfect, the IMF model and the slope model produce the same results as β is then equal to 1.

Figure Reconciliation model and its estimation process



The parameter β estimated for each b.o.p./i.i.p. time series is obtained by maximum likelihood estimation applied to the Kalman-filter algorithm. This algorithm fits an autoregressive model (AR(1)) for the i.i.p. that is compared with the observed/compiled i.i.p. (IIP_t^{obs}), as shown in the figure above. Other adjustments (OTHER.ADJ) are obtained as a residual from the model.

Application of the reconciliation model

The reconciliation model has been used to estimate back data for the euro area quarterly i.i.p. from the first quarter of 1999 to the third quarter of 2003. These results were released for first time in November 2006. In addition, the model is used to validate new observations and revisions of the b.o.p. and i.i.p. In this context, the input from Member States regarding methodological changes, significant revisions and “other adjustments” is indispensable.

The results of the above computations by DG-Statistics can be found in Box 9 of the May 2005 issue and in Box 5 of the January 2007 issue of the ECB’s Monthly Bulletin.

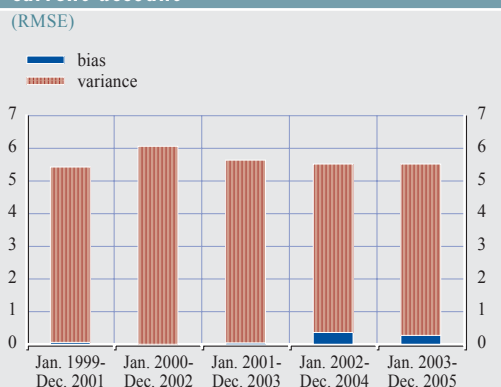
included in b.o.p. and stocks reflected in the i.i.p.

In 2006, an overall consistency of the same transactions and positions reported to different euro area statistics compilers had still not been achieved. This situation should improve in the future, because, following (i) a decision of the ECB Governing Council in April 2005 and (ii)

the entry into force in 2006 of the Regulation (EC) 184/2005 of the European Parliament and of the Council of 12 January 2005 on Community statistics concerning balance of payments, international trade in services and foreign direct investment,²⁰ a bilateral exchange of detailed information across the ESCB and

²⁰ OJ L 35, 8.2.2005, p. 23.

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



Source: ECB.

with statistical authorities contributing to Community statistics can take place where needed. Of course, all measures have been taken to protect the confidentiality of the data in compliance with the legal requirements, as set out in Article 8 of Council Regulation (EC) No 2533/98.²¹

7.1 INTERNAL CONSISTENCY

Net errors and omissions constitute the overall balancing item of the b.o.p. and thus provide an indicator of internal inconsistency. In fact, the principle of double-entry bookkeeping implies that the sum of all transactions vis-à-vis the rest of the world should be equal to zero. The size of net errors and omissions is a lower bound to the relative inaccuracy of the b.o.p. (as some wrongly recorded, or missing, values may cancel out). In any case, 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 errors and omissions. This indicator is used to measure the size of the internal inconsistency, as well as to identify any potential bias.

In the period from January 2003 to December 2005, the errors and omissions showed a bias that was not significant according to a standard statistical test. The RMSE amounted to 5.5% of

Chart 10 12-month cumulated euro area errors and omissions



Source: ECB.

average gross flows in the current account in that period. Chart 9 shows that the internal consistency of the b.o.p. has not improved over time.

Chart 10 shows the series of the 12-month cumulated errors and omissions for the euro area. The negative trend that started in 2003 reversed in mid-2005.

7.2 EXTERNAL CONSISTENCY

The b.o.p. series have been compared with the corresponding data published by Eurostat for euro area external trade, and with the external transactions derived from the MFI balance sheet statistics. Although the methodologies of those series are not fully consistent with the b.o.p., they broadly reflect the same economic phenomenon. Therefore, the comparisons are useful to check whether the differences are stable over time.

Moreover, Table 1 contains the results for the average absolute differences between the growth rates of each series. The indicators show that the average of the absolute differences between growth rates in 2003-2005 has increased for exports, while this indicator improved slightly for imports. The ordinary averages of the differences reveal no systematic divergence in the growth rates of both series.

²¹ See footnote 6.

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

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

	Period	Exports	Imports
Average of absolute differences	1999-2001	0.8	1.0
	2000-2002	0.7	0.7
	2001-2003	0.8	0.7
	2002-2004	0.9	0.7
	2003-2005	1.1	0.6
Average of differences	1999-2001	0.2	0.1
	2000-2002	0.1	0.0
	2001-2003	0.1	0.0
	2002-2004	0.0	0.0
	2003-2005	0.1	0.0

Source: ECB.

In Table 2, the root mean square relative error (RMSRE) reflects the distance between comparable b.o.p. and money and banking statistics in net terms, in relation to the volatility of the b.o.p. series concerned. This indicator has considerably improved over time. The bias component is noticeable but not significantly different from zero.

The publication of a geographical breakdown of the counterparts has allowed a comparison of some items of the euro area b.o.p. and i.i.p. with the corresponding figures published by the main counterpart countries. The results of this comparison with data from the United Kingdom, the United States and Japan show significant discrepancies in direct investment, mainly vis-à-vis the euro area countries that host many special-purpose entities (SPEs).

In addition, the discrepancies are also relevant for portfolio and other investment income flows

with the United States and for trade in services with both the United Kingdom and the United States. The discrepancies seem not be related to substantial conceptual differences as all countries adhere to the same international standards (BPM5) when compiling b.o.p. and i.i.p. statistics. Asymmetries may arise from the use of different criteria for the identification of the origin or destination of direct investment transactions or positions. This issue is being investigated further, together with the main partner countries of the euro area. Table 3 illustrates the most updated comparison between the United States and the euro area for the main items of the current account.

8 ACCESSIBILITY

The press releases relating to euro area b.o.p. and i.i.p. data are published through wire services and on the ECB's website in accordance

Table 2 Euro area deposits/loans of MFIs - comparison with corresponding net transactions from money and banking statistics

Period	RMSRE	Bias component (%)	Regression component (%)	Unsystematic component (%)
1999-2001	15.5	3.4	0.5	96.1
2000-2002	9.0	0.9	1.2	97.9
2001-2003	9.3	0.4	0.3	99.3
2002-2004	8.7	2.2	1.5	96.3
2003-2005	7.5	2.0	0.0	98.0

Source: ECB.

Table 3 Euro area transactions with the United States in 2005

(EUR billions)

Item in the euro area b.o.p.	As recorded by the euro area	As recorded by the United States	Discrepancy	Relative discrepancy
Goods - credits	181.53	184.08	-2.55	-1.39%
Goods - debits	114.35	109.22	5.13	4.59%
Services - credits	76.10	57.33	18.77	28.14%
Services - debits	81.94	59.24	22.70	32.15%
Income - credits	81.16	90.11	-8.96	-10.46%
Income - debits	100.12	86.90	13.22	14.14%

with the advance release calendar. The most recent data and long time series are also available in the ECB Statistical Data Warehouse (SDW)²² or in CSV files. Afterwards, the data are also published in the ECB's Monthly Bulletin.

The ECB has a specific e-mail address for external users of statistics: statistics@ecb.int. Complex queries concerning external statistics are forwarded to the External Statistics Division, which is in charge of the b.o.p. and i.i.p. statistics at the ECB.

22 <http://sdw.ecb.int>.

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