

**“OUTLINE OF A QUALITY REPORT FOR
GERMAN BALANCE OF PAYMENTS STATISTICS”**

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1. Introduction

This first outline of a quality report for German balance of payments statistics has been developed as part of ongoing work on data quality in the Balance of Payments (BoP) Statistics Division of the Deutsche Bundesbank (BBK) and aims at informing users about important quality aspects of German balance of payments statistics. The report outlines the current state of affairs in ensuring and maintaining high quality data, also encompassing organisational and institutional aspects of quality and plans for improvement. It draws on international discussions and experience on quality in statistics and in particular the data quality assessment framework of the International Monetary Fund (IMF DQAF), which is a comprehensive framework for assessing institutional and process-oriented quality aspects as well as the quality of the statistical product. Concerning the qualitative assessments, this outline makes references to the outcome of the IMF ROSC Mission in Germany of July 2005, which investigated, among other macroeconomic statistics, also the quality of German balance of payments.¹ In addition, the report also considers the work of the joint ECB/Eurostat Task Force on (Output) Quality (TF QA) in which most of the EU Member States, including Germany, participated. Based on the IMF DQAF, the TF QA developed a set of quantitative and qualitative indicators for assessing the quality of balance of payments data, especially for the accuracy and reliability dimension. Some of these quantitative indicators have been applied in this outline to support the qualitative assessments made. At a later stage, the quality report for German balance of payments statistics may complement existing publications on methodology, quality, revision practices and other commentary on developments.

2. Quality Dimensions

The IMF DQAF (July 2003 vintage) serves as basic reference framework for the quality dimensions comprising prerequisites of quality, integrity, methodological soundness, accuracy and reliability, serviceability and accessibility. For these dimensions, relevant aspects of quality assurance currently in place in Germany are described in a qualitative way accompanied by comments on measures for improvement already implemented or envisaged for the future. Data sources and quality controls throughout the compilation process are described, organisational issues are reflected and plans for refinement are discussed. For the accuracy and reliability and the serviceability dimensions, these descriptive assessments are supported by several results of the quantitative indicators developed by the TF QA which are regularly updated for German data.

2.1 Prerequisites of Quality and Integrity

Prerequisites cover higher-ranking preconditions for quality, like the legal and institutional environment, relevance and quality management. Assurances of integrity encompass adherence to principles of objectivity, professionalism transparency and ethical standards in the collection, processing and dissemination of statistics.

¹ See "Germany: Report on Observance of Standards and Codes – Data Module, response by the Authorities, and Detailed Assessments Using the Data Quality Assessment Framework (DQAF)", IMF Country Report No. 06/18 of January 2006, International Monetary Fund, Washington D.C., for details on the qualitative assessments.

Concerning prerequisites of quality and integrity, the focus is on the Bundesbank as the agency responsible for compiling the balance of payments statistics. The table below summarizes information on these dimensions².

Prerequisites of quality	Integrity
<p>Legal and institutional environment</p> <ul style="list-style-type: none"> • Following an interagency agreement of 1954, the responsibility for compiling the balance of payments lies with the Deutsche Bundesbank; this is reinforced in the <i>Foreign Trade and Payments Act</i> and supported by the <i>Bundesbank Act</i>. Detailed reporting requirements are laid down in the <i>Foreign Trade and Payments Regulation</i>. • A number of Service Centers for External Sector Audits of the Bundesbank promote respondents' compliance with statistical requirements. • Foreign trade data are compiled by the Federal Statistical Office (FSO) on the basis of EU regulations and German legislation. • The Bundesbank provides balance of payments data to the ECB and Eurostat on the basis of Art. 5 <i>Protocol on the Statue of the ESCB and ECB</i>, <i>Council Regulation 2533/1998</i>, <i>ECB Guideline 2004/15</i> and <i>Council Regulation 184/2005</i>. <p>Confidentiality Regime</p> <ul style="list-style-type: none"> • Art. 16 <i>Federal Statistics Act</i> stipulates that individual data be kept confidential and identifies exceptions. • <i>Council Regulation 184/2005</i>, 1588/90 and 2533/98 apply accordingly. • A Data Protection Officer within the Bundesbank also supervises data security. <p>Relevance</p> <ul style="list-style-type: none"> • The relevance and practical utility of existing statistics are monitored by frequent contacts with principal data users and regular analysis of all incoming enquiries of users. • Information on relevant developments and new requirements is obtained by participating in international working groups and meetings of the European Central Bank (ECB), Eurostat, the IMF and the International Statistical Institute among others. <p>Other quality management</p> <ul style="list-style-type: none"> • The Bundesbank promotes its commitment for high quality data in publications, through the website, in public statements and in contributions to work on data quality at the European level. • The Bundesbank is represented in various international bodies, like the ECB's Statistics Committee, the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) and other EU committees where quality aspects like trade-offs are discussed. • The strategic goals and annual work programs of the Bundesbank BoP Department and national action plans in the European context implement measures for enhancing quality. • The statistical output is monitored and checked throughout the compilation process. • The Bundesbank shall also monitor and assess the quality of the statistical information transmitted to the ECB and Eurostat for the compilation of the euro area and EU balance of payments (<i>ECB Guideline 2004/15</i> and <i>Council Regulation 184/2005</i>). 	<p>Objectivity, Professionalism and Ethical Standards</p> <ul style="list-style-type: none"> • Article 12 <i>Bundesbank Act</i> stipulates the independence of the Bundesbank; outsiders cannot influence compilation and dissemination of statistical data. The ECB and ESCB Statutes further prescribe independence of the central banks. • The Bundesbank is involved in professional bodies and international committees, working groups and task forces (e.g. the IMF Committee on Balance of Payments Statistics and IMF Balance of Payments Technical Expert Group). • Choices of data sources and statistical techniques are solely guided by statistical considerations, guidelines, other countries' experiences and statistical research with respect to country specific conditions and cost/benefit analyses. • Modifications and new statistical collections have to be accomplished by law within the framework of the <i>Foreign Trade and Payments Act</i>. • Ethical standards are part of all staff contracts and personnel statutes for employees and civil servants. • In April 2005 a General Code of Conduct came into force for all Bundesbank staff forming an integral part of the professional culture. <p>Transparency</p> <ul style="list-style-type: none"> • The legal basis and relevant information for collecting and processing statistical data is cited in all reporting forms and on the Bundesbank website fostering transparency. • Products of the Bundesbank are clearly identified by the Bundesbank logo and common layouts. • Current account data are provided to the FSO one to two days in advance of the Bundesbank balance of payments press release as explained in the SDDS metadata. • Notice of major changes in methodology, source data and statistical techniques is given in advance of these changes as of March 2006. Detailed information on such changes can be obtained from the March edition of the Bundesbank <i>Monthly Report</i>, the <i>Balance of Payments Statistical Supplement to the Monthly Report</i> (N° 3) and in a special note on the Bundesbank website.

² See IMF ROSC Country Report for Germany of January 2006.

Comments

Concerning prerequisites of quality, following regular analysis of users' comments, as of 2004 the Bundesbank BOP Division publishes data on foreign direct investment flows geographically and industrially broken down on the Bundesbank website³.

With regard to securing confidentiality of individual data, it is desirable to further improve secondary confidentiality checking, e.g. through developing improved technical tools in order to allow a further streamlining of the data production.

The Bundesbank attaches continuous importance to other quality management through courses, on-the-job training and attendance in international bodies. The present outline of a quality report and the regular assessment of the quantitative TF QA indicators for national data and the contributions to the euro area aggregate have also contributed to a further improvement in this area.

With regard to integrity, most recently, in March 2006, the Bundesbank informed users on forthcoming revisions and changes in presentation and methodology in advance of these changes by posting information on the website about one week prior to the balance of payments press release and approximately two weeks in advance of the publication of the Monthly Report and Balance of Payments Statistical Supplement to the Monthly Report (N^o 3). Further measures for improving the advance notice policy will be discussed, e.g. whether to inform users in earlier press releases or other publications.

In order to enhance transparency for users, it is foreseen to inform about the prior embargo access of the FSO also on the Bundesbank website, in addition to already publishing this information through the German SDDS metadata and the present quality report outline.

2.2 Methodological Soundness

This dimension aims at assessing whether methodological concepts, definitions, scope, classification and basis for recording applied for the compilation of bop statistics follow internationally accepted standards, guidelines, or good practices.

The methodology used for the compilation of the German balance of payments largely complies with the IMF Balance of Payments Manual, fifth edition (BPM5). In addition, EU and euro area regulations, guidelines and recommendations are applied. Deviations from accepted standards are minor and kept under review on a continuous basis.

In principle, all economic transactions with non-residents are captured. However, in some cases deviations do exist in practice; in these cases estimates or information from secondary sources are used. In general, recording of transactions in the German balance of payments follows the change of ownership principle and valuation is based on market prices at the time the transaction takes place. Otherwise, these principles are approximated. Recording is done on an accruals basis. Some deviations, however, are due to the nature of the reporting system (e.g. loan repayments and EU transfers are recorded when paid).⁴

³ See 2.5 *Accessibility* for hyperlink.

⁴ See IMF ROSC Report for Germany of January 2006 for further details.

Table 1 in the annex lists the current deviations from international standards for the main items of the German balance of payments, together with information on the data sources and some explanatory comments.

Comments

Important methodological changes were made over the last years in order to better align German balance of payments data to international standards. Table 2 in the annex yields an overview on these changes made in chronological order for the period 1995 to 2006. For each implementation date also the period covered by the respective change is specified allowing for an assessment of methodological consistency over time which might be helpful for users when using longer time series for analysis and forecasting purposes.

In the context of the regular annual revision of balance of payments data for the four preceding years, several adaptations to international standards were made in March 2006. These apply to the presentation of monthly data in Bundesbank publications and also comprise some methodological changes. In particular, exports and imports of goods are now being published on a fob-fob basis also monthly, and the breakdown for goods (fob-fob) into general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers and non-monetary gold was introduced in the national publications (with sometimes several months delay for goods for processing and non-monetary gold due to the lagged availability of information). The recording of repairs on goods was changed from a gross basis (i.e. including the value of the goods for repair) to a pure recording of the value of the repair service. As a consequence, the value of the goods for repair had to be deducted from goods, leading to corresponding revisions for the goods item and supplementary trade items also for preceding years. Such methodological revisions, though improving the methodological soundness and accuracy of the data, lead to highly systematic revisions and thus to a deterioration of the stability of the data.⁵ Furthermore, travel expenditure is now being published with a breakdown into business and personal travel. Reserve assets were assigned to the financial account and as another methodological change, transactions in real estate and contributions to cover losses were allocated to direct investment equity in national publications. Some adaptations were made concerning the presentation of other investment in the financial account comprising loans, trade credits, currency and deposits and other assets/liabilities, particularly concerning a separate presentation of loans and currency and deposits for all resident sectors.

In September 2005, the German international investment position was published for the first time for end-quarters, in addition to annual data, replacing semi-annual data as of end-June. In March 2005, the recording of interest income on an accrual basis was introduced.⁶

Within the BoP reporting framework, solely portfolio transactions have been collected on a security-by-security basis since 2002. During 2005, the Bundesbank's formerly yearly securities deposits statistics (which is independent from BoP reporting) has been re-shaped to quarterly frequency, and the data reporting has been re-organised on a security-by-security basis, thus allowing a sec-by-sec data collection also for securities stock data. In connection with the Centralized Securities Database (CSDB) which has been developed by the ECB, this may improve the classification and market valuation of the securities and facilitate the calculation of income on portfolio investment and the reconciliation of securities transactions with corresponding stock data.

⁵ See also comments on revisions studies under accuracy.

⁶ See Bundesbank Monthly Report of March 2005, the Bundesbank website for information on annual revisions of March 2005 and the IMF ROSC Report for Germany of January 2006 for further details.

Within direct investment, book values of direct investment enterprises are currently applied to equity capital. For listed companies, equity capital will be valued at market prices as from reporting year 2004 onwards, following an ESCB agreement. The reporting forms of the Bundesbank have been adapted accordingly to distinguish listed and unlisted companies. Furthermore, the survey on balance sheet data has been expanded to provide information according to the current operating performance concept (COPC). Data on ordinary profits are available as of reporting year 2004 onwards. The first COPC data of this expanded survey are available as of March 2006.

The planned IMF coordinated direct investment survey is also expected to contribute to a further quality improvement.

2.3 Accuracy and Reliability

The accuracy and reliability dimension relates to the requirement that statistical outputs sufficiently portray the reality of the economy (closeness of final estimate to the true population value). Data sources, data processing and validation procedures are covered and statistical techniques and revisions are studied.

Assessment and validation of source data, intermediate results and statistical outputs

Germany's balance of payments statistics collection system is described as an open international transactions reporting system (ITRS) with exemption threshold of EUR 12.500 for most transactions⁷. In general, all residents carrying out transactions with non-residents are required to directly report on a monthly basis, but also other data sources are used for the compilation of balance of payments statistics. Table 1 in the annex yields a general overview on the data sources.

Box 1 in the annex describes the checking procedures for assessing the balance of payments data at various stages of the compilation process and informs on how intermediate and final data are validated.

Revision studies (size, direction, reliability of trends)

As some information can only be obtained with significant delay, e.g. due to late reporting, revisions cannot be fully avoided. Revisions in general, though leading to a decrease in the stability of the data, also increase accuracy and internal and external consistency. In case of methodological revisions, they also enhance methodological soundness. For the reasons mentioned, it is not desirable to fully eliminate revisions. However, in an optimal case revisions should neither be large nor reveal any systematic pattern. In case revisions exhibit any systematic pattern, preliminary estimates could be used in earlier vintages of the data which can be replaced when more information becomes available at a later date. In case of large or persistent revisions, the reasons for these revisions should be investigated and eliminated where possible.

Against this background, the Bundesbank revision policy for balance of payments data has been developed in a way to weigh between the stability of the data and too frequent revisions⁸.

⁷ For an overview on the reporting requirements and exemptions see IMF ROSC Report for Germany, especially table 7 thereof (page 125 f.).

⁸ See 2.4 Serviceability, Revision Policy and Practice.

The Bundesbank Balance of Payments Statistics Division regularly carries out analyses of revisions on a monthly basis. The latest values are checked against earlier assessments and figures are compared with data for the preceding month and with data for the same month of the previous year. Unusual and large revisions (outliers) are investigated as well as unexpected patterns in the data. Revisions (measured as difference between the latest figures and the first preliminary monthly data) are also analysed once to twice a year when quantitative indicators developed by the TF QA are calculated for German data. The results from these analyses are used to further enhance compilation or refine estimation procedures.

The results for these indicators for the main balance of payments aggregates (for national data) for the four year period from 2002 to 2005 calculated as of April 2006 are presented in table 3⁹, whereas table 4 summarizes the outcome for the indicators at different calculation dates for the goods and services item.

As of April 2006, the indicator on the mean absolute revision as percentage of the first assessments (MAPE)¹⁰ takes on the largest values for income, with almost 16% for income credits and about 27% for income debits. Also the indicator on directional reliability (Q)¹¹ shows a larger distance to the optimum value of 100% for the income item (68.1% for credits and 66% for debits) than compared to the results for other current account items. With 75.0% upward revisions for credits and 79.2% for debits, the results for the indicator percentage of upward revisions for the income item reveal that revisions are systematic to some degree. In connection with figure 1 in the annex on the first and latest figures for income debits, these results can, at least in part, be attributed to the introduction of the accruals principle for interest income in March 2005 which was also carried out for data back to 1971 (see table 2). The changeover from recording interest when paid to an accruals basis resulted in a more evenly distribution of the interest payments and thus to a smoothing of the time series. This led to large negative revisions for the periods for which payments were recorded resulting in a number of smaller positive revisions for each negative revision distributing interest accrued but not paid over earlier periods. Revisions for reinvested earnings might also have played a role in the development of income figures, especially for the last two years when new data from the direct investment survey for 2004 and revisions for 2003 became available. These new figures and revisions were included in the March 2006 annual revisions and replaced preliminary estimates for 2004 and led to a correction of preliminary estimates for 2005. Since data on reinvested earnings for the last one to two years will have to be estimated by forecasting profits of enterprises (and deducting dividends paid) also in the future, systematic revisions cannot be fully avoided for income data. The same argumentation with sign reversed applies for the respective counterpart entries in the financial account under direct investment abroad (negative revisions prevail with 29.2% of upward revisions) and in Germany (79.2%

⁹ April is chosen as annual calculation date as this is shortly after the regular annual revisions for German balance of payments data for the preceding four years (or more) which are made in connection with the Bundesbank Annual Report in March. The quantitative indicators are calculated for periods of four years, respectively, using an excel-application "QA-tool" developed by the ECB. For formulae and interpretation of the indicators see EBC/Eurostat TF QA (2003) and Guschwa, S. (2004).

¹⁰ Whereas the MAPE is used for the gross flows of the current account, the MARE is used for the net flows of the financial account as mean absolute error/revision relative to the variability of the series.

¹¹ Indicator Q measures the percentage of cases where the initial series correctly predicts the month-on-month changes of the latest figures.

upward revisions combined with a statistically significant bias component of the mean square relative revision¹² of 26.9%).

The indicator percentage of upward revisions calculated as of April 2006 shows the most salient result for goods exports with 6.3% upward revisions and with 16.7% also for goods imports. This means that by far most revisions for the goods item were negative. In contrast, the results for this indicator calculated at former dates led to better results for goods imports with values even close to the optimum of 50% for goods exports (see table 4). These quite extraordinary results for the goods item as of April 2006 can therefore be explained by the annual revisions conducted in March 2006. In the course of these revisions, among others, the methodology for goods for repair was changed to a pure recording of the repair value (see table 2). This better alignment with international standards therefore led to negative and thus systematic revisions for the goods item as the value of goods for repair had to be deducted retroactively backwards (until 1993).

The percentage of upward revisions is also quite sizeable for the services item, with 89.6% upward revisions for services credits and 75.0% for services debits. This rather systematic underestimation of preliminary services data – about 96% for credits and 100 % for debits in April 2003 – had been detected earlier. Up to 2002, the services data already included an estimate for late reporting based on late reports for the preceding month. Large-scale reports, however, had been excluded from these preliminary estimates as they were considered as outliers and supposed to lead to an overestimation of late reporting. Investigations in 2002 and 2003 then revealed that services were still underestimated. As a consequence, as from March 2003, preliminary estimates had been adapted as to include also large-scale late reporting of the previous month. As can be taken from table 4, these measures led to visible improvements as the mean absolute percentage revision (MAPE) could be substantially reduced (from 12% in April 2003 to 3.7% in April 2006 for services debits and from 13.1% to 7.3% for services credits) and also the percentage of upward revisions could be lowered over time. In addition, also the indicator on the directional reliability could be improved from 78.7% in April 2003 to 87.2% in April 2006 for services debits and from 89.4% to 91.5% for services credits. Nonetheless, more detailed investigations might be needed for eventually further refining preliminary estimates.

The large maximum value for the MARE for the net capital account item can be attributed to a single large-scale late report for January 2005 in connection with debt forgiveness.

Regarding portfolio investment, the results for the indicators have to be interpreted according to the information given under *2.4 Serviceability, internal consistency*.

Comments

The results from the revision studies will continue to be used for refinement of data sources, compilation procedures, statistical techniques and estimates.

In order to further improve the accuracy of the data obtained from the household survey on travel expenditure regular meetings with a private institute conducting the survey on behalf of the Bundesbank are held to discuss overall developments, problems like capturing mobile phone households and ISDN extensions, and measures for improvement. With

¹² The mean square relative error/revision (MSRE) can be decomposed into a bias, regression and unsystematic component. In an optimal case the bias and regression component are zero and the unsystematic component is equal to one (100%) meaning that revisions exhibit no systematic pattern.

introduction of the survey on travel debits in 2003, more detailed information on different kinds of travel, ie personal and business travel can be obtained.

Further measures affecting and improving the accuracy of the data are described under *2.4 Serviceability*.

For the German open ITRS system with integrated survey subsystem for travel debits, the general advantages and disadvantages of these systems apply accordingly. One advantage, however, may lie in the possibility to combine different systems, ie in the characteristic of “openness”. Another advantage may be that rather detailed data can be obtained from these systems with sufficient quality, e.g. as regards geographical breakdowns. However, these systems depend on the reliability of the information provided by the respondents.

Recent developments concerning the single euro payments area (SEPA) in connection with the provisions of Regulation (EC) 2560/2001 on cross-border payments in euro will have an impact on the collection of statistics in such a way, that collection systems based on direct reporting by the respondents to the NCB/NSI will become most common. In countries like Germany, where banks, at least to some extent, are still involved in the collection process, such a change naturally creates problems and errors and will therefore also hamper data quality.

2.4 Serviceability

Serviceability includes the need that statistics are disseminated timely and with appropriate periodicity, are consistent over time, internally or with other statistics and follow a regular revision policy.

Timeliness and periodicity

German balance of payments data are published on a monthly basis, first in a press release after five to six weeks after the reference month. Almost at the same time, the contributions to the euro area aggregates are transmitted to the ECB. After seven to eight weeks after the reference month more detailed balance of payments data are published in the Bundesbank Monthly Report and the Statistical Supplement N^o 3 to the Monthly Report¹³. Quarterly and annual data are published with the same time lag of seven to eight weeks after the reference period.

Internal consistency

Internal consistency refers to consistency within the dataset and whether statistics are reconcilable over a reasonable period of time. Consistency across different frequency data for the balance of payments is ensured by the fact that quarterly and annual data are obtained by adding up monthly data. Consistency within the dataset is ensured by carrying out revisions backwards as far as possible, in most cases back to 1971 as the earliest date for which detailed monthly data are available. Some revisions are made even for earlier periods, in part back to 1949 for quarterly aggregates. In some instances, however, breaks in the time series cannot be avoided due to lack of information (e.g. the introduction of the directional principle for direct investment in 1996 could not be carried backwards). The methodology for these backward revisions and breaks in time series are explained in the

¹³ See 2.5 *Accessibility*.

Monthly Report, the Statistical Supplement N° 3 and on the Bundesbank's website. See also table 2 and box 1 in the annex on internal consistency.

Internal consistency also relates to the errors and omissions item. In general, due to the BoP double entry system, theoretically all transactions in the balance of payments should add up to zero. However, since data stem from different sources, are subject to measurement errors or reporting gaps etc., in practice the balance of payments components do not add up to zero. Since errors of different sign cancel out, the size of the net residual amount cannot be taken as an indication of accuracy, whereas a large and persistent errors and omissions item should cause concern.¹⁴

The Bundesbank Balance of Payments Statistics Division monitors the errors and omissions item in the German balance of payments regularly on a monthly basis. Since 1998, the figures for the errors and omissions item in the German balance of payments were relatively small and did not exhibit any peculiar pattern. In 1999, however, the errors and omissions item showed a leap likely caused by statistical measurement problems related to the introduction of the euro¹⁵. During the recent years, from mid-2001 to end-2004, the net errors and omissions item showed a rather systematic pattern in form of a positive bias. This bias had been reduced according to intensified investigations into the underlying causes. Although also current account transactions (in particular travel and income) might be subject to some uncertainty, the compilation of the financial account, in particular portfolio investment, is assumed to be the major source of the size and pattern of the errors and omissions item. The volume and complexity of financial transactions, especially in portfolio investment, has increased rapidly over the last fifteen years. In particular German fixed income securities are assumed to be affected by reporting gaps and appropriate measures have been implemented to correct existing under-reporting. Contacts and audits of reporting agents were intensified and checking procedures for transactions in securities were refined. Plausibility checks include cross-checks with information from banks' balance sheet statistics and the Bundesbank securities deposit statistics. Additional checking procedures were implemented after the introduction of the sec-by-sec collection of securities transactions in 2002 within the BoP reporting framework. Wherever possible, estimates based on secondary information are made in order to cover for the loss of information, e.g. for securities held in custody abroad. The measures mentioned have already contributed to further improvements. However, estimates will still be needed in order to close the existing gaps as long as the information is not covered directly by reports. In particular, difficulties in capturing transactions in portfolio investment are supposed to prevail also in the future, especially transactions of business companies and private households via foreign banks.

Table 5 in the annex yields the results for the quantitative indicators¹⁶ applied to the errors and omissions item measured relatively to the average of the gross flows in goods, services, direct and portfolio investment. The percentage of positive errors and omissions remains at around 50% for most reference periods at the different calculation dates. This is supported by the development of the errors and omissions times series from January 2002 to December 2005 (as of April 2006) quite randomly alternating around zero (see figure 2 in the annex). In April 2005, the last 12 observations, with almost 67% of positive errors

¹⁴ See §17 IMF Balance of Payments Manual (1993), page 6-7.

¹⁵ Especially reporting errors concerning the currency denomination were supposed to have caused the disruption and also incorrect timing might have played a role.

¹⁶ The indicators used are the percentage of positive errors and omissions, the average absolute size of errors and omissions, the root mean square error (RMSE) and the mean square error (MSE) which can be decomposed into a bias and variance component (optimal values: zero for bias and 100% for variance component).

and omissions point to the problem of formerly more persistent positive errors and omissions. Also the decomposition of the mean square error (MSE(EO)) shows quite sizeable values for the bias in April 2004 and 2005 for the periods of the last 12 observations and previous observations (observations 363 to 374). Although the bias for the whole dataset (being statistically different from zero at conventional levels, respectively) and the last 36 observations has slightly increased from April 2004 to April 2006, the bias for the shorter time periods of the last 12 and previous 12 observations has improved.

External consistency

Consistency of the German balance of payments statistics with data obtained from other data sources or other statistical frameworks is secured through regular reconciliation procedures (see section 2.3 *Accuracy and Reliability* for more details). Concerning foreign trade data, a reconciliation table in the Statistical Supplement N° 3 illustrates on a monthly basis, the modifications made to foreign trade data (goods crossing the border) from an imports cif / exports fob basis to the balance of payments goods item (change of ownership) with imports and exports valued on a fob basis, respectively (Statistical Supplement N° 3, Table 1.3a, http://www.bundesbank.de/volkswirtschaft/vo_beihefte_zahlungsbilanzstatistik.en.php?print=no&). In addition to the cif-fob conversion, the adjustments to foreign trade data (“supplementary trade items”) mainly comprise warehouse transactions and deductions for returned goods and the value of the goods for repair.

Work on reconciliation issues is also performed in the context of ECB and Eurostat working groups and task forces. Currently, the joint ECB/Eurostat Task Forces on Quarterly European Accounts by Institutional Sector and Rest of the World Account deal with consistency of balance of payments figures and national accounts, also for German data.

Revision policy and practice

The revision policy for German BoP and iip data follows a regular transparent schedule and can be obtained from the Bundesbank websites http://www.bundesbank.de/download/statistik/sdds/stat_zahlungsbilanz/sdds_revisionpolicy.pdf and http://www.bundesbank.de/download/statistik/sdds/stat_zahlungsbilanz/sdds_table_publicationdates.pdf.

Monthly balance of payments data are revised with publication of the figures for the following month. In March, data for the preceding year and the previous three years are revised incorporating new information from data sources (e.g. foreign trade data) and late reports from respondents into the BoP; also provisional estimates are revised or replaced. Methodological changes, changes in data sources or statistical techniques (e.g. introduction of the accruals principle in 2004) are also implemented in March and carried out backwards as far as possible. Further revisions may occur in July within the special publication *Balance of Payments by Region* and also in September when international investment position data for the previous year become available together with revised iip data for the preceding three years. Apart from this schedule, irregular revisions may occur when necessary; in case of such exceptional revisions corresponding figures are marked within the Bundesbank’s publications. The defined revision policy has been developed in a way that seeks to weigh between timeliness of new information and stability of the time series, e.g. through immediately incorporating irregular revisions only in case analysis of the data would be hampered otherwise.

Information on the revision schedule can also be found in the Statistical Supplement N° 3, the ECB BOP book, IMF metadata and in the IMF ROSC report for Germany. Size and reasons for revisions and information on methodology are given also on the Bundesbank website in form of a table showing data before and after revision together with the revisions themselves and a commentary document on the reasons for the revisions (see table 2 in the annex for the relevant hyperlinks).

In general, adjustments of the data and methodological revisions are described in the Monthly Report together with the regular analysis of developments in balance of payments statistics. In principle, the first monthly data have to be regarded as preliminary, marked with “p” in the Monthly Report. Within Bundesbank publications, revised data are marked with an “r” which is assigned to the reporting period for which data have been revised.

Comments

Further improvements concerning internal consistency and accuracy of the data are expected from the introduction of the custodian statistics on a quarterly basis in 2006 since this could further reduce the size of the errors and omissions item. Recently, the importance of securities held in custody abroad by business companies and insurance enterprises has been investigated by a survey conducted by the Balance of Payments Statistics Division. The outcome is intended to be used for verification and refinement of existing estimates.

2.5 Accessibility

Accessibility relates to the need that data and metadata are easily available and assistance to users is adequate.

Monthly German balance of payments data are available from 1971; quarterly data on main aggregates are available from 1949. Data and metadata can be obtained from the Bundesbank website or upon request in various formats (hard-copy, CD-ROM or other). Data can also be downloaded directly from the time series database on the website: http://www.bundesbank.de/statistik/statistik_zeitreihen.en.php.

Monthly balance of payments data are first published in a press release including short commentary and analysis: http://www.bundesbank.de/statistik/statistik_sdds_zahlungsbilanz.en.php#pm and http://www.bundesbank.de/presse/presse_pressenotizen_2006.en.php?print=no&.

The approximate (“no later than”) release dates for balance of payments data for the following year are disseminated in advance (at end September of the preceding year) in the context of the IMF SDDS: http://www.bundesbank.de/statistik/statistik_sdds_zahlungsbilanz.en.php#kalender and <http://dsbb.imf.org/Applications/web/sddsctycatarclist/?strcode=DEU>. The actual date is announced on the Bundesbank website by 11 a.m. CET on the last business day prior to the week of release.

The Bundesbank Monthly Report and the Statistical Supplement N° 3 contain more detailed tables and in-depth analysis of the data. Each quarter, more detailed commentaries on economic developments in Germany are published in the Monthly Report; especially the March issue contains particular information on developments during the preceding year, revisions and methodological changes. The Monthly Report and the Statistical Supplement N° 3 can be obtained from the Bundesbank website:

http://www.bundesbank.de/volkswirtschaft/vo_monatsbericht_2005.en.php and http://www.bundesbank.de/volkswirtschaft/vo_beihefte.en.php for the English legend to the Statistical Supplement N° 3 and http://www.bundesbank.de/volkswirtschaft/vo_beihefte_zahlungsbilanzstatistik.php and http://www.bundesbank.de/statistik/statistik_aktuell_aussen_wirtschaft.en.php for the data published in the Statistical Supplement N° 3.

Further BoP details are disseminated annually in the publication *Balance of Payments by Region* (published in July) and on biennial basis the *Technological Services within the Balance of Payments*. On direct investment, further series with geographical and industrial breakdown are available: http://www.bundesbank.de/statistik/statistik_aktuell_aussenwirtschaft.en.php and http://www.bundesbank.de/download/statistik/stat_direktinvestitionen_102005.pdf.

Information on methodology and the compilation system can be found in:

- The Bundesbank Monthly Reports,
- The Explanatory Notes to the BoP Statistical Supplement N° 3 to the Monthly Report,
- Complementary notes on the Bundesbank website
- the ECB BOP Book,
- the IMF SDDS metadata,
- the IMF BOPSY,
- IMF ROSC Report for Germany (esp. table 5 thereof),
- http://www.bundesbank.de/statistik/statistik_sdds_zahlungsbilanz.en.php?print=no&.

Information for respondents on the reporting requirements is given on the Bundesbank webpage: <http://www.bundesbank.de/meldewesen/mw.en.php?print=no&> and for external sector statistics http://www.bundesbank.de/meldewesen/mw_aussenwirtschaft.en.php together with the free hotline number: 0800 1234 111.

All relevant statistical publications are listed on the Bundesbank BoP homepage http://www.bundesbank.de/statistik/statistik_veroeffentlichungen_sonder.en.php and all Bundesbank publications are listed in the Monthly Report.

Assistance to users of balance of payments data is provided by a special unit within the Balance of Payments Statistics Division. Queries and particular data requests can be addressed to:

*Deutsche Bundesbank
Balance of Payments Statistics Division
Hegelstraße 65
55122 Mainz*

Email: info-zbstatistik@bundesbank.de

Further contacts are given in the Statistical Supplement N° 3, on the Bundesbank website, the ECB BOP Book and IMF metadata, etc..

Comments

The time series database on the Bundesbank website is regularly checked and expanded. It has last been improved through the introduction of a new version in June 2005 taking into account users' feedback. A further brush-up of the database and its adequate navigation tools will be implemented in due course.

The Bundesbank aims at publishing the most relevant information also in English language.

The update of the Bundesbank special statistical publication “German Balance of Payments and International Investment Position Statistics” on concepts, data sources and methodology is currently under review and documentation on the relationship between the Bundesbank’s capital links statistics and foreign direct investment data is being updated throughout 2006.

3. Concluding Remarks

The Deutsche Bundesbank and/or Balance of Payments Statistics Division promotes its commitment for high quality data through taking part in international discussions and addressing quality issues during daily work. The present outline of a quality report aims to inform on important aspects relevant for the quality of German balance of payments statistics by summarizing the current state of work. Important measures have been implemented over the last years which led to further improvements not only concerning the quality of the data, but also regarding organisational and institutional aspects. The main challenges for the quality of German balance of payments statistics are perceived to remain in the area of the financial account, especially portfolio investment. Therefore, developments in these areas have to be cautiously monitored.

The report also sketches fields for further quality improvement. Priorities will have to be assigned as the implementation of some measures may take some time. Communication with users should be intensified and metadata and documentation on compilation practices and statistical techniques should be further enhanced, e.g. in the field of direct investment.

However, the existing trade-offs between different quality dimensions render an overall and steady quality improvement difficult as was illustrated by the example of the methodological change concerning repairs on goods. Though improving the adherence to international standards (methodological soundness dimension) and accuracy in the longer term, such changes also lead to a decrease in the stability of the data and consistency over time. Especially in the light of the upcoming revisions of international guidelines, in particular the BPM5 update scheduled for 2008, and also from the general European trend towards more survey based compilation systems, a lot of changes can be expected.

References

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Eurostat, Balance of Payments Committee (January 2006) "Quality reporting by Member States", <http://forum.europa.eu.int/Members/irc/dsis/bopcom/home>.

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IMF (1993), "Balance of Payments Manual", fifth edition, second printing 1997, International Monetary Fund, Washington D.C.

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IMF (January 2006), "Germany: Report on Observance of Standards and Codes – Data Module, Response by the Authorities, and Detailed Assessments Using the Data Quality Assessment Framework (DQAF)", IMF Country Report No. 06/18, IMF, Washington D.C., <http://www.imf.org>.

Annex

Figure 1:

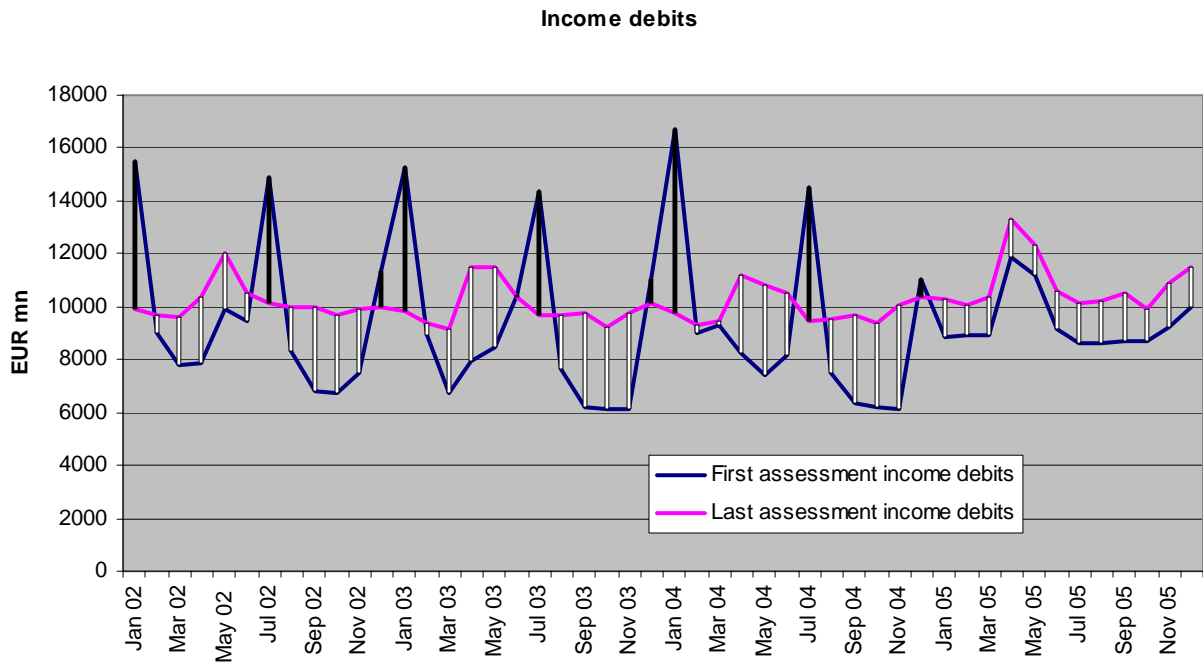


Figure 2:

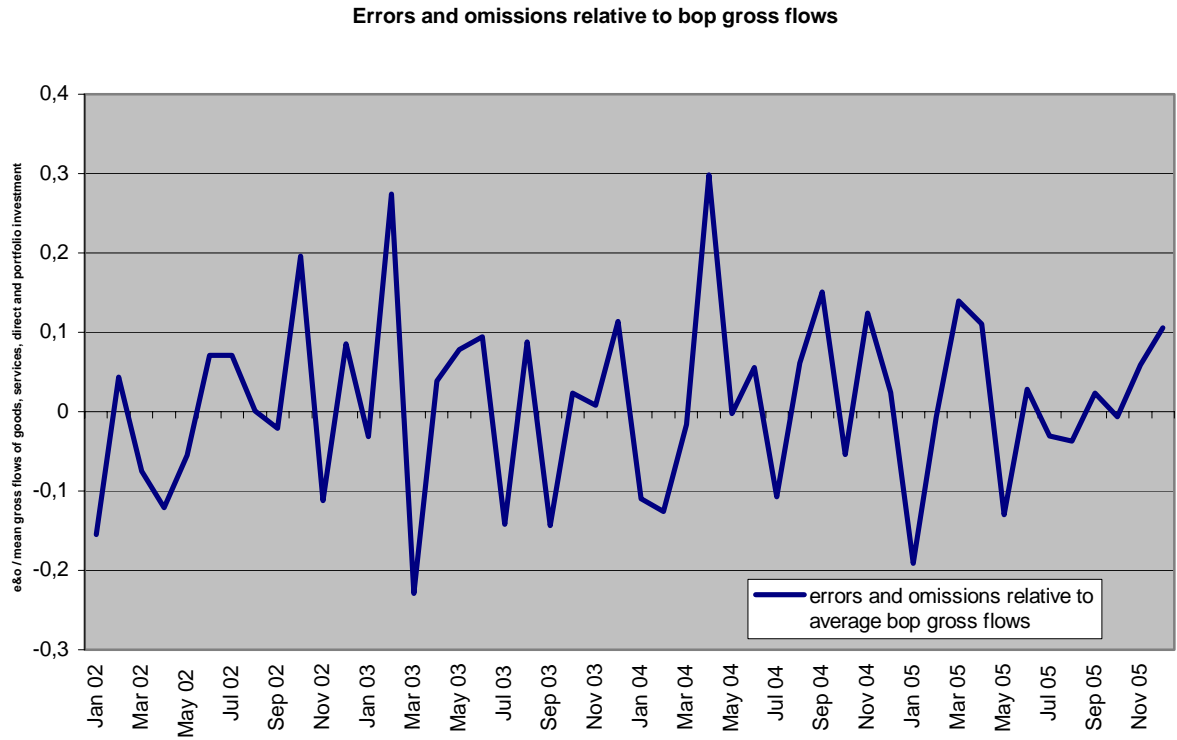


Table 3: Revision studies for German balance of payments items (as of April 2006)

BOP Item	Period	No. of Obs	MAPE / MARE			RMSRE / MSRE			% Upward revisions	Q (%)		
			3rd quartile	90th percentile	Max	Mean comp. (%)	Regress comp. (%)	Unsys. comp. (%)				
Current account credits	Jan02 - Dec05	48	0.017	0.025	0.030	0.042				72.9%	91.5%	
Current account debits	Jan02 - Dec05	48	0.034	0.049	0.063	0.094				79.2%	83.0%	
Goods credits (exports)	Jan02 - Dec05	48	0.010	0.014	0.018	0.023				6.3%	95.7%	
Goods debits (imports)	Jan02 - Dec05	48	0.009	0.013	0.017	0.028				16.7%	97.9%	
Services credits	Jan02 - Dec05	48	0.073	0.098	0.128	0.170				89.6%	91.5%	
Services debits	Jan02 - Dec05	48	0.037	0.049	0.078	0.150				75.0%	87.2%	
Income credits	Jan02 - Dec05	48	0.157	0.214	0.302	0.523				75.0%	68.1%	
Income debits	Jan02 - Dec05	48	0.269	0.361	0.515	0.642				79.2%	66.0%	
Current transfers credits	Jan02 - Dec05	48	0.085	0.115	0.173	0.408				39.6%	85.1%	
Current transfers debits	Jan02 - Dec05	48	0.034	0.042	0.092	0.188				75.0%	87.2%	
Capital account - net	Jan02 - Dec05	48	0.296	0.062	0.170	10.955	1.022	2.3%	16.5%	81.2%	47.9%	95.7%
Direct investment - net	Jan02 - Dec05	48	0.382	0.460	0.930	2.401	0.460	8.8%	0.3%	91.0%	60.4%	89.4%
Direct investment abroad	Jan02 - Dec05	48	0.380	0.470	0.862	1.253	0.334	4.6%	0.2%	95.2%	29.2%	80.9%
Direct investment in Germany	Jan02 - Dec05	48	0.465	0.550	0.961	2.322	0.471	26.9%	1.2%	71.9%	79.2%	89.4%
Portfolio investment - net	Jan02 - Dec05	48	0.410	0.476	0.928	1.459	0.402	17.4%	1.6%	81.0%	64.6%	83.0%
Portfolio investment assets	Jan02 - Dec05	48	0.232	0.312	0.426	1.350	0.261	2.2%	0.1%	97.7%	41.7%	91.5%
Portfolio investment liabilities	Jan02 - Dec05	48	0.367	0.515	0.864	1.830	0.371	27.6%	2.4%	69.9%	70.8%	91.5%
Other investment - net	Jan02 - Dec05	48	0.176	0.271	0.313	0.545	0.165	0.0%	1.4%	98.6%	45.8%	95.7%
Other investment assets	Jan02 - Dec05	48	0.078	0.111	0.172	0.195	0.074	22.0%	0.2%	77.8%	35.4%	97.9%
Other investment liabilities	Jan02 - Dec05	48	0.054	0.072	0.110	0.195	0.051	37.3%	2.9%	59.8%	72.9%	97.9%
Fin. account -net (excl. reserves)	Jan02 - Dec05	48	0.680	0.941	1.411	2.043	0.660	21.8%	0.4%	77.9%	70.8%	87.2%

Table 5: Internal consistency, studies on errors and omissions

Errors and omission relative to the average of the gross flows in goods, services, direct and portfolio investment									
Date	Period	Observations reference	% of positive EO	Average abs(EO)			RMSE(EO) / MSE(EO)		
				1st quartile	3rd quartile		Bias (%)	Variance (%)	
Apr 06	Jan74 - Dec05	All obs. (384)	0.5391	0.147	0.054	0.210	0.196	1.07%	98.93%
		Last 36 obs.	0.5556	0.091	0.030	0.127	0.116	1.64%	98.36%
		Last 12 obs.	0.5000	0.072	0.027	0.115	0.093	0.33%	99.67%
		Obs. 361 to 372	0.5000	0.094	0.047	0.125	0.122	4.25%	95.75%
Apr 05	Jan73 - Feb05	All obs. (386)	0.5415	0.154	0.056	0.218	0.203	1.04%	98.96%
		Last 36 obs.	0.5556	0.092	0.034	0.125	0.116	0.06%	99.94%
		Last 12 obs.	0.6667	0.095	0.036	0.128	0.120	3.58%	96.42%
		Obs. 363 to 374	0.5000	0.095	0.028	0.125	0.118	10.62%	89.38%
Apr 04	Jan72 - Feb04	All obs. (386)	0.5259	0.163	0.054	0.227	0.225	0.80%	99.20%
		Last 36 obs.	0.4722	0.101	0.046	0.160	0.125	1.27%	98.73%
		Last 12 obs.	0.4167	0.075	0.030	0.116	0.095	6.06%	93.94%
		Obs. 363 to 374	0.5833	0.106	0.056	0.144	0.130	17.80%	82.20%
Apr 03	Jan71-Feb03	All obs. (386)	0.5363	0.2	0.1	0.2	0.3	1%	99%
		Last 36 obs.	0.5278	0.1	0.0	0.2	0.1	1%	99%
		Last 12 obs.	0.5833	0.1	0.1	0.1	0.1	20%	80%
		Obs. 363 to 374	0.4167	0.1	0.1	0.2	0.1	0%	100%

Table 1: German balance of payments: data sources and deviations from international standards

BoP item	Data source	Deviations from int. standards	Comments
Current Account			
Goods	Special trade of the FSO. adjustments derived from ITRS. FTS and secondary data sources	Monthly breakdown for goods; up to 1993: repairs on a gross basis. i.e. including value of the goods	Estimates for non-/ late reporting by FSO; no adjustments for smuggling; adjustments for coverage and valuation by BBK; cif-fob adjustment by BBK on basis of trade statistics. special ITRS reports and other sources. 1992 relations applied broken down by country and by mode of supply
Services	ITRS. administrative data (e.g. Department of Foreign Affairs). supplementary estimates	Fees and commissions for sale /purchase of securities partly recorded in the financial account; cross-border construction largely classified as service for unincorporated enterprises (also when > 1 year) according to an EU agreement; smaller transactions in acquisition/ disposal of non-produced non-financial assets cannot be separated from licence fees; computer hardware-related services under engineering and other technical services (instead of computer and information services)	Estimates for non-reporting (transactions below threshold. late reporting); supplementary estimates especially for freight
Travel	Household survey for travel debits (private institute on behalf of BBK), preliminary ARIMA estimates; ITRS for travel credits; tourism and accommodation statistics (FSO). partner country data	For travel credits no distinction between business and personal travel	
Income	ITRS. administrative data. estimates. secondary data sources. partner country data	Other investment income does not include income on trade credits and interest share of financial leasing	Estimates for under-recording of income credits. relevant share of indirectly owned direct investment enterprises not included; no estimates for under reporting of income on trade credits; dividends are recorded when paid; aggregate approach for accrued interest estimates. currently no offset recorded in the underlying instrument; reinvested earnings cf. direct investment
Current Transfers	ITRS. administrative information (Ministry of Finance etc.). estimates. secondary data sources (data on cash transfers via banks and post offices are accessed for workers remittances)		Estimates for transactions below threshold
Capital Account	ITRS. administrative information (Ministry of Finance etc.). estimates	smaller transactions in acquisition/disposal of non-produced non-financial assets under patents and licence fees in other services	Under-coverage of migrants' transfers (combined with inheritances, legacies and donations) and patents and copyrights (smaller transactions in acqu./disposal of non-prod. non-fin. assets recorded under other services)
Financial Account			
Direct Investment	ITRS. annual survey of direct investment enterprises for derivation of short-term loans and cross-checking purposes		Loans but no transactions in securities between affiliates included (in PI); in some cases short-term loans follow the assets/liabilities principle if no allocation possible; reinvested earnings are calculated as residual of current operating profits and dividends (until balance sheet data are available after t+15 months current operating profits are estimated for the current year and allocated pro rata temporis)

Portfolio Investment	ITRS. data collected on security-by-security basis. estimates for non-/late reporting. annual custodian statistics and data from IMF coordinated portfolio investment survey for cross-checking and estimations. assets: external stocks of MFIs used for sector breakdown	Fees and commissions for sale /purchase of securities partly recorded in the financial account when reported as a lump sum	Perceived reporting gaps for transactions of private households carried out/held with banks abroad (estimated on basis of information from custodian statistics and other data); direct investment transactions in securities issued by foreign affiliates included; no offsetting entries for accrued but not paid interest
Financial Derivatives	ITRS	Financial derivatives recorded on a net basis according to euro area treatment. no stock data available	
Other Investment	ITRS for long-term loans and deposits of non-MFIs. stock data (external assets and liabilities of German banks and non-banks) for trade credits and short-term loans and deposits and long-term loans of MFIs. data from the Bank of International Settlement for assets of German non-banks held with foreign banks	German Schuldscheine classified as loans in line with money and banking statistics and bank's accounting practice	No offsetting entries for accrued but not paid interest; transactions via private accounts held abroad difficult to capture; estimates for deposits of non-MFIs with foreign MFIs (BIS data)
Reserve Assets	Accounts of the Deutsche Bundesbank		

Table 2: Chronology of changes in the German balance of payments from 1995 to 2006

Implementation date	Changes to the balance of payments	Period covered
March 2006	<p>Further adaptation of monthly bop presentation to international standards according to BPM5:</p> <ul style="list-style-type: none"> publication of goods imports on fob-basis also monthly monthly breakdown of goods into general merchandise, goods for processing, repairs on goods (change in methodology: net value of repair recorded, leading to a correction of the goods item through deduction of the value of the goods for repair), goods procured in ports by carriers, nonmonetary gold recording reserve assets in the financial account distinction between business and personal travel expenditure assignment of real estate transactions to direct investment equity capital assignment of contributions to cover losses to direct investment equity (eliminated from reinvested earnings) summarising loans, trade credits, currency and deposits and other assets/liabilities in a functional category "other investment" within the financial account separate publication of loans and currency and deposits under other investment <p>Further details: - http://www.bundesbank.de/download/statistik/sdds/stat_zahlungsbilanz/sdds_zb_revisionen_2005_e.pdf</p>	<p>January 1971 to date</p> <p>January 1971 to date, non-monetary gold: since January 1994, repairs on goods: January 1993 to date (breaks in time series)</p> <p>January 1971 to date</p> <p>January 2001 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p>
Sept. 2005	Publication of quarterly international investment position data for Q1 2005	Replacing semi-annual data at end June
March 2005	<p>Methodological changes cover:</p> <ul style="list-style-type: none"> changeover to the accruals principle for interest payments stop recording of changes of domestic currency in circulation abroad <p>Further information on these changes: - http://www.bundesbank.de/download/statistik/sdds/stat_zahlungsbilanz/sdds_zb_revisionen_2004_e.pdf</p>	<p>January 1971 to date</p> <p>January 1971 to 1996</p>
March 2004	<ul style="list-style-type: none"> merchanted recorded on a net basis under (services) credits (previously recording of credits and debits of the merchanted proceeds) 	January 1971 to date
March 2003	<ul style="list-style-type: none"> Introduction of a new data source for travel expenditure: household survey on German residents travelling abroad <p>Further information: - http://www.bundesbank.de/download/meldewesen/aussenwirtschaft/grundlagen/200303_mba_zabi_e.pdf</p>	January 2001 to date, partly from January 1971 to date
March 1999	<p>Methodological changes further aligning German bop to international standards of BPM5 and start of the EMU:</p> <ul style="list-style-type: none"> relocation of certain amounts of development aid payments from current to capital account change to 10% rule for direct investment (25% until end of 1989, 20% between 1990 and end 1998) redefinition of direct investment: short-term direct investment loans included accruals recording of reinvested earnings introduction of the directional principle for direct investment other capital recording of financial derivatives on a net basis as separate functional category in the financial account (elimination from portfolio investment and from interest on credits under investment income) change in ESCB/Bundesbank's reserve assets definition: gold holdings, IMF position and liquid claims denominated in foreign currency on non-euro area residents, all other external claims on EMU Member States and euro-denominated claims on third countries are eliminated from reserve assets and assigned to Bundesbank's other external assets under the 	<p>January 1971 to date</p> <p>January 1999 to date (breaks in series in 1990 and 1999)</p> <p>January 1996 to date (break in time series in other investment and direct investment)</p> <p>January 1971 to date</p> <p>January 1996 to date (break in series)</p> <p>January 1971 to date</p> <p>January 1999 to date</p>

	relevant financial account instrument	
	<p>Further details: - http://www.bundesbank.de/download/meldewesen/aussenwirtschaft/grundlagen/199903mba_zabi_e.pdf</p>	
March 1995	<p>Methodological and presentational changes aligning German bop to revised international standards (new BPM5 version of 1995):</p> <ul style="list-style-type: none"> new definition of the current account: new functional category for capital transfers "capital account" (elimination from the current account) only value added of insurance transactions recorded under insurance services, assignment of net premiums or actual risk premiums recorded to current transfers, assignment of life insurance net premiums and outpayments to the financial account realignment of recording of processing from net under services to gross recording under goods (including the value of the goods for processing which had previously been deducted under supplementary trade items), also certain repairs, fuel and other supplies for ships and aircraft are recorded under goods reclassification of merchanted from goods to services, added value between buying and selling price under services separate functional category "income" for investment income and compensation of employees (previously under services) breakdown of the financial account primarily according to the functional instrument (formerly first classical distinction between long- and short-term) separate recording of reinvested earnings (under direct investment and related income) assignment of real estate to direct investment and separate presentation extended definition of portfolio investment, certificates in money market funds as part of the investment funds, money market instruments (formerly under short-term loans), inclusion of financial derivatives (differences between purchase and sales treated as holding gains instead of income under current account) <p>Further details: - http://www.bundesbank.de/download/meldewesen/aussenwirtschaft/grundlagen/199503_mba_zabi_e.pdf</p>	<p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p> <p>January 1971 to date</p>

Box 1: Assessment and validation of source data. intermediate results and statistical outputs

Assessment and validation of source data

For large enterprises, the Bundesbank's Balance of Payments Statistics Division performs the checking procedures of incoming reports whereas for small and medium-sized enterprises the checks are undertaken by the Service Center for External Statistics.

- Incoming hard copy reports and electronic reports of major respondents are checked for timeliness and comprehensiveness. Data input from hard copy reports is performed twofold to avoid errors.
- On the basis of historical data on past reporting trends, checks for non-response and unusual reporting patterns are made.

On the basis of the three databases used in the compilation process of balance of payments data, several sets of validation and plausibility checks are undertaken. For individual respondents, the reports are first stored in the primary database (DIKAP) and different kinds of checking procedures are performed:

- Formal controls on relevance and completeness of the reported information are made regarding economic code, country, amount and also ISIN¹⁷ code in the case of reported transactions in securities.
- Validation checks are made to verify whether the information is valid under the given nomenclature and if the combination of information is valid. Error lists are displayed in case of mistakes or non-conformities.
- Consistency and plausibility checks of the reports are performed (e.g. in the case of securities it is investigated whether the securities reported are registered in the external database of the national numbering agency (WM data)). Sizeable transactions are individually checked for plausibility. In case the reports are incomplete or implausible, respondents are contacted to resolve the problem.
- After completion of data input, additional checking procedures are implemented. In areas where large-scale transactions prevail, like for securities, single reports and time-series for individual respondents and economic codes are checked for outliers and unusual monthly reporting patterns. Data profiles are generated for enterprises and banks and checked for plausibility. Sizeable transactions (for example on international mergers) are verified by the media or through confirmation by the respondents.
- The development of cumulated securities transactions is used for verification of the monthly reports on these transactions on a security-by-security (ISIN) basis. The reporting pattern of major respondents is monitored for securities groups based on historical data trends and individual know-how of specific business structures. In this way it is possible to detect any deficiencies or obscurities and identify missing or double reporting.
- The results from the household survey on travel debits and the preliminary estimates used before the results from the survey become available are cross-checked and analysed with reported information on travel-related transactions like credit and debit card transactions and reports on the purchase and sale of foreign banknotes in order to investigate the coverage and quality of the primary data sources.

Assessment and validation of intermediate results and statistical outputs

More aggregated data are investigated by evaluating the time series contained in the second and third database also against secondary data sources.

Internal consistency

- Twice a month information about the likely magnitude on the errors and omissions item is assessed by the Balance of Payments Statistics Department staff prior to the release of the data. Underlying causes for the development are investigated. On annual basis, errors and omissions are assessed with the calculation of the quantitative quality indicators.
- Developments over time are assessed on a monthly basis (comparison with previous month and the same month of the preceding years and developments over larger time periods).
- Prior to publication, checks on internal consistency are performed (validation checks) on a monthly basis.
- Also on a monthly basis, the three databases are checked for consistency and completeness.
- Income flows are compared with corresponding stock data.
- In advance of publishing quarterly and annual iip data, bop flows are reconciled with the iip stock data possibly leading to revisions to these datasets. Nontransaction-based changes are split into changes due to market prices and exchanges rate effects and other changes unrelated to transactions.
- Consistency checks of iip stock data on reserve assets with the template on international reserves and foreign currency liquidity are carried out prior to publication of iip data.
- Revision studies (see 2.3 *accuracy and reliability, revision studies*).

External consistency

Plausibility checks with secondary data sources are made to evaluate possible reporting errors or gaps. These checks can often only be performed with a certain time lag due to the delayed availability of the other sources eventually leading to corresponding revisions.

- Travel data are checked against monthly accommodation statistics of the FSO. Partner country data are used to supplement and verify travel data.
- BoP data are reconciled with national accounts on a quarterly basis.
- Portfolio investment data are reconciled on a security-by-security basis with figures on securities' issues and redemptions and on market values.
- Annual figures from the Bundesbank custodian statistics are used to verify portfolio investment data.
- Banks' financial account transactions are checked monthly and annually against figures from money and banking statistics, especially for direct investment equity capital.
- Stock and flow data on direct investment are matched for individual respondents.
- Consistency checks of direct investment stock and flow data are made on an annual basis (stock in t compared with stock in t-1 plus bop flows in t).
- BIS counterpart data on German assets held with foreign banks are used to supplement reported data and fill in reporting gaps.
- Data from the Coordinated Portfolio Investment Survey (CPIS) are used to correct the geographical allocation of German portfolio investment liabilities in the iip.

Other checks

In order to detect possible reporting gaps or deficiencies in the reporting system plausibility checks are made including:

- Regular monthly monitoring of international and/or financial press, industry journals and research papers. Particularly large-scale transactions in direct or portfolio investment (like major mergers and acquisitions) are monitored.
- Differences between bop and national accounts data are regularly assessed in the framework of several joint ECB/Eurostat Task Forces.
- Cumulated flow data are investigated to detect unusual patterns.
- Regular meetings are held with a private institute conducting the survey on travel debits on topics like overall developments in travel, questionnaire design, coverage, weighing etc.

¹⁷ International Securities Identifying Number.

Table 4: Revision studies for goods and services from April 2003 to April 2006

Revision studies on German goods credits (exports)								
Date	Reference period	No. of Obs	MAPE			% Upward revisions	Q (%)	
			3rd quartile	90th percentile	Max			
Apr 06	Jan02 - Dec05	48	0.010	0.014	0.018	0.023	6.3%	95.7%
Apr 05	Jan01 - Dec04	48	0.006	0.008	0.011	0.023	54.2%	93.6%
Apr 04	Jan00 - Dec03	48	0.006	0.008	0.013	0.025	47.9%	89.4%
Apr 03	Jan99 - Dec02	48	0.007	0.008	0.014	0.030	66.7%	91.5%

Revision studies on German services credits								
Date	Reference period	No. of Obs	MAPE			% Upward revisions	Q (%)	
			3rd quartile	90th percentile	Max			
Apr 06	Jan02 - Dec05	48	0.073	0.098	0.128	0.170	89.6%	91.5%
Apr 05	Jan01 - Dec04	48	0.103	0.127	0.180	0.397	85.4%	89.4%
Apr 04	Jan00 - Dec03	48	0.104	0.134	0.212	0.390	89.6%	91.5%
Apr 03	Jan99 - Dec02	48	0.131	0.158	0.242	0.460	95.8%	89.4%

Revision studies on German goods debits (imports)								
Date	Reference period	No. of Obs	MAPE			% Upward revisions	Q (%)	
			3rd quartile	90th percentile	Max			
Apr 06	Jan02 - Dec05	48	0.009	0.013	0.017	0.028	16.7%	97.9%
Apr 05	Jan01 - Dec04	48	0.010	0.014	0.022	0.027	31.3%	93.6%
Apr 04	Jan00 - Dec03	48	0.010	0.016	0.020	0.026	25.0%	93.6%
Apr 03	Jan99 - Dec02	48	0.016	0.020	0.026	0.071	50.0%	93.6%

Revision studies on German services debits								
Date	Reference period	No. of Obs	MAPE			% Upward revisions	Q (%)	
			3rd quartile	90th percentile	Max			
Apr 06	Jan02 - Dec05	48	0.037	0.049	0.078	0.150	75.0%	87.2%
Apr 05	Jan01 - Dec04	48	0.057	0.082	0.131	0.216	79.2%	85.1%
Apr 04	Jan00 - Dec03	48	0.077	0.111	0.166	0.216	91.7%	80.9%
Apr 03	Jan99 - Dec02	48	0.120	0.150	0.182	0.242	100.0%	78.7%