



EUROPEAN CENTRAL BANK

EUROSYSTEM

## EURO AREA MONETARY AND FINANCIAL STATISTICS 2008 QUALITY REPORT

### SUMMARY

This data quality report is a contribution to the ECB Statistics Quality Framework<sup>1</sup>. Euro area monetary and financial statistics have been published in a timely manner and with high quality for a decade. In 2008, all monthly press releases on monetary developments and related data on monetary financial institutions (MFI) balance sheet statistics were *issued without delay*, i.e. on the 19th working day following the reference month. All underlying detailed tables were regularly published in the ECB's Statistical Data Warehouse (SDW) and on the ECB's website. Moreover, all other press releases, i.e. on MFI interest rate statistics (monthly), on securities issues statistics (monthly), on investment funds statistics (quarterly) and on the list of MFIs (annual), have also been published on time and in line with the advance release calendar. Press coverage of these releases has been generally adequate.

A quantitative analysis of the stability of MFI balance sheet statistics shows that *revisions to the broad monetary aggregate M3 have overall been very small*: about 60% of the revisions of the (quite sensitive) month-on-month growth rates of M3 are below 0.05 percentage point (p.p.), and in comparison to the average monthly growth rate of M3 (0.76%), the average revisions and the bias (less than 0.01%) have remained at very low levels. Among the components, the initial estimates of debt securities issued are by far the weakest, with their monthly growth rates often being revised by more than a percentage point. While in the period up to the summer of 2007 the effects of revisions to specific components tended to largely offset each other, since then somewhat higher revisions have occurred more often and have also moved in the same direction. As a consequence, the size of the M3 revisions has also increased somewhat. However, over the period 2005-08,

first estimates on average remained quite stable (the mean absolute error equalled 0.06 p.p.). Compared with other economic statistics, these numbers are negligible and underline the accuracy of the first assessment of monthly MFI balance sheet statistics. It should also be recalled that revisions are generally necessary to improve the quality of the statistics.

The *inclusion of Cyprus and Malta* in all euro area statistics was completed successfully and on time.

From end-2007, the ECB has published estimated holdings of *M3 by sector*, which enhance the analysis in particular by distinguishing between other financial intermediaries, non-financial corporations and households.

With regard to *securities issues statistics*, during 2008 the statistical production system was expanded to integrate also data from the Capital Market Survey and the Convergence Report (national financial) indicators.

The monthly outstanding amounts (published since September 2006) of *short-term European paper (STEP)* have been complemented by a *weekly release of daily yield statistics* as of April 2007, which enabled STEP to become eligible as collateral for monetary policy operations.

The implementation of the new *Regulation concerning statistics on assets and liabilities of investment funds* (ECB/2007/8) has progressed and new data will be provided by national central banks (NCBs) to the ECB from February 2009. By late 2009, the new dataset will have replaced the previous dissemination, based on available, often non-harmonised, national data.

<sup>1</sup> See <http://www.ecb.europa.eu/stats/html/sqf.en.html>

Based on the new *Regulation concerning statistics on financial vehicle corporations* (ECB/2008/30), new statistics on FVCs will become available as of early 2010 with the reference period December 2009. Together with new data from the recast and updated Regulation ECB/2008/32 concerning the consolidated balance sheet of the monetary financial institutions sector (replacing Regulation ECB/2001/13), it will help to close a major gap in current statistics and provide harmonised information on the *securitisation* market and risk transfer.

## I EURO AREA MONETARY AND FINANCIAL STATISTICS

### I.1 MONETARY FINANCIAL INSTITUTIONS BALANCE SHEET STATISTICS

In 2008, MFI balance sheet statistics continued to be produced through close cooperation between the ECB and NCBs. The requirements concerning transmission deadlines as laid down in the recast Guideline ECB/2007/9<sup>2</sup> were met by almost all NCBs<sup>3</sup>, all monthly press releases on monetary developments and related data on MFI balance sheet statistics were issued without delay, i.e. on the 19th working day following the reference month, and all underlying detailed tables were made available in the ECB's Statistical Data Warehouse and on the ECB's website. The reporting and dissemination of data for the most recent month is flagged as provisional and may be revised in the following month. These "regular" revisions have in general an impact of less than +/- 0.1 p.p. on the annual growth rate of M3 (further quantitative information on the revisions relating to MFI balance sheet statistics can be found in Section 2). The ECB is committed to publishing high quality data and has the obligation to monitor compliance with the legal acts that it issues. For this purpose, in each production round a range of quality checks and time-series analyses are performed on both the national and the euro area data.

MFI balance sheet statistics are in principle collected by means of a census, i.e. generally the full population of MFIs is expected to report on a monthly and quarterly basis. However, NCBs may grant derogations to MFIs, provided that the MFIs which fully contribute to the monthly consolidated balance sheet account for at least 95% of the total MFI balance sheet in terms of stocks, in each participating Member State. NCBs which grant derogations to small MFIs have to gross up the data to a full coverage for the purpose of monthly and quarterly balance sheet item (BSI) statistics.

This possibility to "cut off the tail" is used by seven euro area NCBs, where either certain item breakdowns are not collected from "tail institutions" or their data are collected at a lower frequency or timeliness than for the "full reporters". As a consequence, a small fraction of the euro area statistics is estimated.

Work is ongoing regarding euro area enlargements. Close cooperation with Cyprus and Malta, which joined the euro area on 1 January 2008, as well as enhanced statistical tools and efficient and reliable programme routines, developed at the time of previous euro area enlargements (to Greece on 1 January 2001 and Slovenia on 1 January 2007), have enabled the smooth integration of the new contributions from Cyprus and Malta; the process is expected to also be successfully completed for Slovakia, which joined on 1 January 2009.

The compliance of MFIs with the MFI Balance Sheet Regulation (ECB 2001/13, now recast and updated as ECB/2008/32) is being monitored systematically by NCBs and the ECB at a monthly frequency. In 2008, some MFIs received warning letters, indicating that further reporting delays could lead to

<sup>2</sup> OJ L 341, 27.12.2007, p.1.

<sup>3</sup> Due to a strike at the Bank of Greece in March 2008, monetary statistics data referring to February 2008 were received by the ECB with a delay. In order to prevent a possible disruption in published euro area statistics, the related monthly contribution was estimated by the ECB. These estimates were replaced with actual data in the following monthly production round.

sanctions. However, no sanctions had to be initiated in 2008.

MFI balance sheet statistics also serve as a building-block for the quarterly integrated (non-financial and financial) euro area accounts. Work is ongoing to investigate discrepancies in the statistical data included, for example between the net external assets of MFIs in monetary and external statistics, and to reconcile data for specific instruments.<sup>4</sup>

Since November 2007, the ECB has published estimated holdings of M3 by sector, which enhance the analysis in particular by distinguishing between the holdings of other financial intermediaries, non-financial corporations and households; data are based on the MFI balance sheet statistics supplemented by other statistical sources, in particular the euro area financial accounts.

The update/recasting of Regulation ECB/2001/13 (now ECB/2008/32) concerning the consolidated balance sheet of the monetary financial institutions sector, approved by the Governing Council in December 2008,<sup>5</sup> aims to meet new statistical requirements that stem from financial innovation and that will contribute to improving the monetary and economic analysis. Additional features have been introduced to further enhance the harmonisation of MFI balance sheet statistics (e.g. collateralised loans and transferable deposits). Moreover, Regulation ECB/2008/32 will enable the collection of a new set of statistics on MFIs engaged in loan securitisation, covering also other loan transfers, in order to assess credit developments in the euro area and to monitor the securitisation process. It also contains requirements arising from the financial crisis to better monitor credit risk transfer and is fully consistent with the proposed new Regulation concerning statistics on financial vehicle corporations (ECB/2008/30). Furthermore, Regulation ECB/2008/32 reflects a recasting which was necessary after six amendments of ECB/2001/13 to improve the text in terms of legal certainty and reader-friendliness.

Regulation ECB/2008/32 also contains extended provisions for cutting off the tail, with the objective of minimising the statistical reporting obligations of many reporting institutions. The detailed analysis carried out confirmed that the application of these provisions, which also differentiate in terms of the size of the contribution of individual countries to the euro area balance sheet, would not lead to a deterioration of the euro area results.

First reporting under the new statistical requirements is scheduled to begin in mid-2010 for the reference period June 2010 (except for MFI securitisation and FVC statistics, where the first reporting concerns the data for December 2009 as these data have a high priority in the current context). This schedule provides reporting agents and NCBs with an appropriate lead time for implementation work.

## 1.2 LIST OF MFIs

To ensure that the list of MFIs is homogenous and accurate, a regular monitoring is undertaken either through dedicated correspondence with NCBs or via automated facilities. Monitoring measures have included an automated checking of foreign branches and a consistency checking between the list of MFIs and the list of eligible counterparties for monetary policy operations.

The possibility of collecting further variables in the list of MFIs, e.g. an explicit flagging of foreign branches, identification of subsidiaries, collection of quantitative information on the size classes of institutions, etc., would need to be further assessed through a cost-benefit analysis.

<sup>4</sup> E.g. valuation rules and accrual accounting conceptually differ between the MFI balance sheet data and the System of National Accounts framework and thus require adjustment and reconciliation work to be undertaken.

<sup>5</sup> Regulation (EC) No 25/2009 of 19 December 2008 concerning the consolidated balance sheet of the monetary financial institutions sector (recast) (ECB/2008/32), OJ 20.01.2009, L15/14-L15/62.

### 1.3 MFI INTEREST RATE STATISTICS

As in previous years, MFI interest rate (MIR) statistics were produced in a timely and successful manner, through close cooperation between the ECB and NCBs. All euro area countries meet ECB requirements concerning MIR statistics, as laid down in Regulation ECB/2001/18. Monthly MIR data are received from the euro area NCBs by the 19th working day following the reference month. Aggregate euro area MIR statistics (including derived indicators) are published on the 26th working day. Euro area aggregates for the latest month are flagged as provisional. Revisions received from the countries usually occur in the following month and refine data for the previous month(s); their impact on the euro area aggregates is in general negligible. Data-checking procedures are similar to those for the MFI balance sheet statistics.

The update of Regulation ECB/2001/18 concerning statistics on interest rates applied by MFIs to deposits and loans vis-à-vis households and non-financial corporations aims to meet new statistical requirements that stem from financial innovation and that will contribute to improving the monetary and economic analysis. Similarly to the additional MFI balance sheet data (under ECB/2008/32), the first reporting under the new statistical requirements is scheduled to begin in mid-2010 for the reference period June 2010.

The update of the MIR Regulation was carried out in parallel to that of Regulation ECB/2001/13 and both were approved by the ESCB Statistics Committee in September 2009. The updated Regulation will be submitted to the Governing Council for approval in the first quarter of 2009.

### 1.4 SECURITIES ISSUES AND STEP STATISTICS

With regard to securities issues (SEC) statistics, during 2008 the statistical production system was expanded to integrate data from the Capital Market Survey, which provides information on national capital markets and their structure in the non-euro area Member States

(<http://www.ecb.europa.eu/stats/money/long/html/index.en.html#info>), and for the Convergence Report indicators. This facilitates, among other things, their presentation within the Statistical Data Warehouse (SDW). The progress of the Centralised Securities Database (CSDB) offers useful opportunities to review and supplement the data coverage of SEC statistics in some Member States regarding the reporting by other financial intermediaries and non-financial corporations.

Aggregated daily yields and spreads for euro-denominated STEP market securities have been released since April 2007 and technical preparations for releasing outstanding amounts data by programme level are being completed.

### 1.5 OTHER FINANCIAL INSTITUTIONS (OFI) STATISTICS

#### 1.5.1 INVESTMENT FUNDS STATISTICS AND LIST

Broken down by type of fund, data have been published at a quarterly frequency since January 2003 on the basis of non-harmonised data available at the national level. The pre-announced publication calendar for euro area statistics was adhered to in 2008. For the first time, estimates of *transactions* in investment fund shares (supplementing *outstanding amounts*) have been released.

Regulation ECB/2007/8 establishes the framework for the new statistics on assets and liabilities of investment funds. The quarterly data collection will start in February 2009 with reference to December 2008 and will – in the near future – make use of the CSDB to produce the required statistical breakdowns and, where relevant, also valuations. This will allow the investment funds to report security-by-security data (as available in their internal systems), thus reducing their reporting burden.

Regular reporting by national investment fund reporting populations for the purpose of compiling the euro area list of investment funds will start as from mid-2009. Several ad hoc transmissions have already taken place.

### 1.5.2 FINANCIAL VEHICLE CORPORATIONS STATISTICS AND LIST

The new Regulation concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2008/30)<sup>6</sup> and the related partial update of Guideline ECB/2007/9 (Guideline ECB/2008/31) were adopted by the Governing Council on 19 December 2008. They set the framework for the reporting of new statistics regarding the holdings of securitised assets and the issuance by FVCs of securities backed by these assets. These new statistics, complemented by an enhanced reporting by MFIs involved in securitisation transactions, will fill a major gap in the ESCB statistics and will contribute to better transparency in a market segment that has become very complex and is widely considered as opaque.

The list of FVCs will also support an analysis of developments in this sector.

### 1.6 INSURANCE CORPORATIONS AND PENSION FUNDS STATISTICS

Work is under way to enhance the available statistical information on insurance corporations and pension funds (ICPFs), a sector whose importance is rising owing to ageing populations and reforms made to national pension schemes in Europe. The Implementation Task Force on ICPFs (ITIP), set up by the Working Group on Monetary and Financial Statistics (WG MFS) and composed of experts from 18 NCBs, Eurostat and the ECB, submitted its final report in October 2008. Agreement has been reached on a common detailed reporting scheme and targeted timeliness of t+85 calendar days for the quarterly reporting by NCBs in 2009, and working towards t+80 calendar days in 2010. Further efforts are needed in particular to develop appropriate estimates of transactions data.

The above work is being carried out following a short-term approach, focused on the voluntary provision by NCBs of available data, without establishing new data collection and with only

a small effort to make the national compilation methods more consistent.

### 1.7 PAYMENTS AND SECURITIES SETTLEMENT SYSTEMS STATISTICS

Comprehensive statistical information on payments (and securities clearing, trading and settlement) statistics, in time-series format, from the reference year 2000 up to 2007, is now also available in the SDW. This method of dissemination, which was initiated last year, has replaced the annual paper-based ECB publication “Payment and securities settlement systems in the European Union and in the acceding countries”. Data referring to 2007 were published in November 2008. The whole set of statistics has been reviewed in a joint data project between the ESCB Payment and Securities Settlement Committee and the Statistics Committee. This has led to enhanced and more comparable datasets.

### 1.8 FINANCIAL MARKETS AND INSTRUMENTS STATISTICS

The automated Market Data Provision (MDP) system is fully up and running, and enables the compilation of relevant market indicators for internal use. The MDP, coupled with the SDW, will ensure a smooth and stable production facility for financial markets statistics and indicators derived from data obtained from commercial sources.

Since July 2007 daily euro area government bond yield curves are produced and published on the ECB’s website. They are also disseminated to the ESCB. Due to the extraordinary financial market conditions during 2008, there were many specific data requests, mainly to monitor yield spreads between countries and also between credit ratings.

<sup>6</sup> Regulation (EC) No 24/2009 of 19 December 2008 concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2008/30), OJ 20.01.2009, L15/1-L15/13.

## 1.9 STATISTICAL INDICATORS USED FOR THE ANALYSIS OF FINANCIAL INTEGRATION AND FINANCIAL STABILITY

The range of financial integration indicators included in the annual ECB report on “Financial integration in Europe” has been extended step by step over the last few years. Most are updated twice a year.

The Eurosystem statistics function provides indicators on the consolidated balance sheet of credit institutions and structural financial indicators, both derived from existing data collections, to support the production of semi-annual reports relating to financial stability.

### 1.10 EURO MONEY MARKET SURVEY

Since the introduction of the euro, there has been an increasing demand for timely and accurate statistical data on euro money market activity. To satisfy this need, the Eurosystem has been collecting euro money market activity data every second quarter since 1999. The data include daily average turnover for a variety of market segments (unsecured market, repo market, derivatives market, short-term securities market) and maturity ranges (from overnight to over ten years).

The ECB’s Directorate General Statistics took over the Euro Money Market Survey production in 2007. As a result, the publication of the survey results has become more timely; data for the second quarter of 2008 were published in a press release in September 2008, i.e. less than three months after the reference period.

## 2 REVISION ANALYSIS OF THE EURO AREA MFI BALANCE SHEET STATISTICS

### 2.1 BACKGROUND

The revision analysis in this section evaluates the reliability of the first releases. This is an important quality feature, in addition to the compliance with harmonised definitions, the

timely incorporation of methodological changes and the consistency with other statistics (e.g. external statistics). However, low revisions of first estimates are not necessarily proof of accurate measurement and revisions in principle improve the statistics.

The revision policy for MFI balance sheet statistics entails few restrictions as in principle it allows data to be revised at any release. The only restriction is that revisions to the monthly data shall be submitted at the time of submitting the quarterly statistics, in order to ensure consistency between the monthly and the quarterly statistics. A distinction is made between “ordinary” and “exceptional” revisions. Data are generally considered “provisional” upon the first release; therefore, revisions can be expected in the next update at t+1. The data collected at a quarterly frequency provide more detailed breakdowns and can thus in principle lead to the detection of errors in the monthly data and to corresponding revisions. Exceptional revisions due to, e.g. reclassifications and improved reporting procedures can be made at any release.

In the following analysis, the vintages in the ECB’s Statistical Data Warehouse (July 2005 to November 2008) covering data for the reference periods June 2005 to October 2008 have been used to analyse monthly data on monetary aggregates and components as regularly published in the press release.<sup>7</sup> This revision analysis updates the one presented in the 2007 Data Quality Report (circulated only internally) and extends the data range used by 13 months.

### 2.2 METHOD OF ANALYSIS

In order to assess the revisions of the monthly monetary aggregates and components, differences between the revised, non-seasonally

<sup>7</sup> Before June 2005, only the most recent vintage of data was saved in the SDW.



adjusted<sup>8</sup>, period-on-period growth rates at a pre-determined lag and the first release are calculated. The period-on-period growth rate is calculated as the ratio between the monthly flow and the respective stock at the end of the preceding period. Expressed as a formula:

$$g = \frac{F_t^{\text{vintage}}}{S_{t-1}^{\text{vintage}}}$$

Furthermore, in order to assess the contributions of different instruments to the revision of M3, the growth rates of M3 components are also rescaled by multiplying them by the ratio between  $S_{t-1}^{\text{vintage}}$  and the stock of total M3 in the same period. It should be noted that the M3 stock series used to adjust the growth rates ( $S_{t-1}^{\text{M3}}$ ) is the one corresponding to the vintage of October 2008. Expressed as a formula:

$$\text{adj}g = \frac{F_t^{\text{vintage}}}{S_{t-1}^{\text{vintage}}} \cdot \frac{S_{t-1}^{\text{vintage}}}{S_{t-1}^{\text{M3}}} = \frac{F_t^{\text{vintage}}}{S_{t-1}^{\text{M3}}}$$

As an indicator of the magnitude of revisions, the average of the absolute revisions is calculated at each lag (with N reflecting the number of revisions considered):

$$\text{Absolute mean} = \frac{1}{N} \sum_{x=1}^n |\text{Revision}|_x$$

Furthermore, in order to detect whether revisions to first releases suffer from a possible bias, the average of the differences between the observation value at a certain time lag and the first release is calculated as:

$$\text{Simple mean} = \frac{1}{N} \sum_{x=1}^n \text{Revision}_x$$

In the text revisions are expressed in percentage points, while in the charts they are expressed in hundredths of percentage points, i.e. a revision of 10 equals a revision of the monthly growth rate of 0.1 percentage point (p.p.). These units have been chosen since the vast majority of all revisions of M3 growth are smaller than 0.1 percentage point. The revision analysis is therefore carried out at a higher level of precision than for other variables published by the ECB. Furthermore, the revision analysis focuses on month-on-month changes instead of

annual changes, in order to better identify the timing of a given revision.<sup>9</sup>

Revisions occurring at four different time lags are shown (one, three, six and twelve months after the first release); the relatively small number of vintages reduces the data available for the longest time lag by around 25% compared with what is available for the shortest time lag.

### 2.3 REVISIONS OF EURO AREA MONETARY AGGREGATES

Revisions to the broad monetary aggregate M3 for the euro area are very small. Chart 1 shows the *revisions to the month-on-month growth rates of M3* at different lags.

One month after the first release, 25 out of the 40 reported revisions (63%) are within the range of +0.05 to -0.05 percentage point, compared with 8 revisions in the ranges (-0.10 to -0.05) and (0.05 to 0.10) percentage point, and 7 revisions exceeding +/- 0.10 percentage point. After three months, 21 out of 38 revisions (55%) are within the narrow range of -0.05 to +0.05 percentage point, with 10 revisions between (-0.10 to -0.05) and (0.05 to 0.10) percentage point, and the remaining 7 amounting to more than 0.10 percentage point in absolute terms. At lag t+6, there are 21 revisions in the narrowest band (60%), compared with 19 revisions (66%) at lag t+12. The larger proportion of small revisions for the longer time lags reflects the fact that larger revisions have occurred more in the recent past. While there are some differences among the various lags, around 60% of all revisions are below 0.05 percentage point. After an initial revision has taken place, which usually happens

8 While seasonal adjustment factors applied by the ECB are revised when the need arises (usually at annual intervals) and thus can also retroactively alter monetary data, mixing the effect of updating seasonal adjustment factors with the effects of genuine revisions to the raw data would be misleading. This analysis therefore concentrates on the revisions to non-seasonally adjusted data.

9 A revision occurring in a given month may affect two monthly changes and 13 annual changes. Of course, the latter are affected to a lesser extent.

within the first three months after the initial release, there are usually no significant further revisions in the subsequent periods.

To date, the M3 period-on-period growth rates for the months March 2008 and May 2008 have been revised the most: the former was revised by -0.31 p.p. at lag t+3, while the latter was revised by -0.22 p.p. at lag t+1.

The absolute mean of revisions to the M3 growth rate is around 0.06 p.p. for lags t+1 to t+6 (compared with a level between 0.04 and 0.05 p.p. for these lags in last year's analysis) and declines to 0.04 p.p. for lag t+12 (unchanged). The bias of the early estimates for the M3 period-on-period growth rates varies from -0.007 to -0.009 p.p. for lags t+1, t+6 and t+12, to a value of -0.018 p.p. for t+3. These value biases are somewhat higher than those found in the 2007 analysis. Nevertheless, in comparison to the average monthly growth rate of M3 (0.76%<sup>10</sup>), the average revisions and the bias (less than 0.01%) have remained at very low levels.

Chart 2 presents the same information for *revisions of M2*. Revisions seem more concentrated within the range of -0.05 to +0.05 percentage point: 34 out of 40 (85%) of the revisions for lag t+1 are within this bracket, at t+3 there are 28 out of 38 (74%), at lag t+6 there are 27 out of 35 (77%) and at lag t+12 there are 22 out of 29 (76%).

Examining the occurrence of exceptional revisions over different lags reveals that the few revisions of this size occurred at lag t+1 (-0.21 p.p. for the reference period July 2008 and +0.16 p.p. for the reference period June 2005).

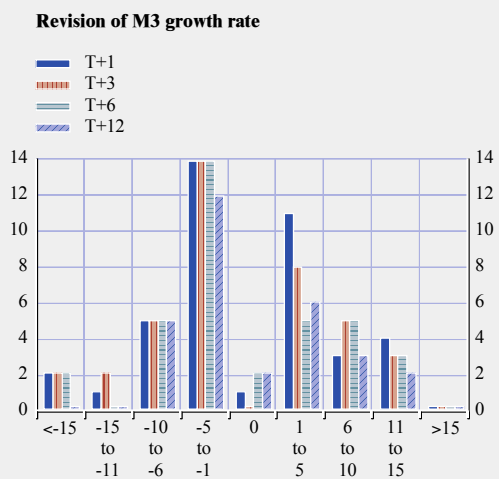
The average absolute revisions of the month-on-month growth rate of M2 varied between 0.033 p.p. (t+1) and 0.044 p.p. (t+12). This is somewhat higher than last year, when they ranged between 0.024 p.p. (t+1) and 0.044 p.p.

10 The average monthly growth rate being calculated as

$$avgg = \left( \sqrt[40]{\frac{Stock_{OCT08}}{Stock_{JUN05}}} - 1 \right) \cdot 100$$

**Chart 1 Revisions to period-on-period growth rates of euro area M3**

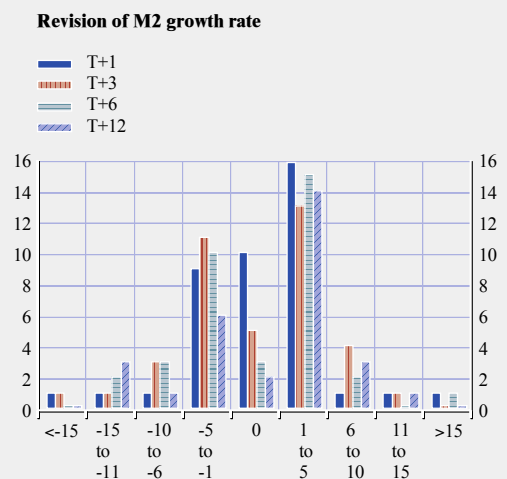
(number of occurrences (y-axis), hundredths of percentage points (x-axis))



Source: ECB.

**Chart 2 Revisions to period-on-period growth rates of euro area M2**

(number of occurrences (y-axis), hundredths of percentage points (x-axis))



Source: ECB.



(t+12). The bias of the initial M2 growth rates is even lower than in the 2007 analysis, ranging now between -0.001 and 0.002 p.p. across all lags, compared with a range of 0.007 to 0.009 p.p. before. All in all, the monthly growth rates of M2 have been only marginally revised on average. The average monthly growth rate of M2 was 0.75%.

Chart 3 presents the *revisions of M1*. 75% of all revisions at lag t+1 to the M1 period-by-period growth rate are between -0.05 and +0.05 p.p., compared with 61%, 60% and 52% at lags t+3, t+6 and t+12 respectively.

Turning to the revisions exceeding 0.15 p.p. in absolute terms, a larger number of these can be observed for M1 than for M2 or M3. Contrary to the broader aggregates, exceptional revisions for M1 can also be found for the longer lags: twice for lag t+12 (referring to June 2006 and April 2007, revised by -0.21 p.p. and 0.18 p.p. respectively) and once for lag t+6 (referring to August 2007, revised by -0.22 p.p.). At lag t+3, exceptional revisions occurred twice (referring to October 2007 (-0.16 p.p.) and November 2007 (-0.18 p.p.), while they occurred four times

for lag t+1 (June 2005 revised by 0.44 p.p., November 2005 by -0.16 p.p., January 2008 by 0.24 p.p. and July 2008 by -0.35 p.p.).

The absolute mean of the revisions to the month-on-month growth rate of M1 was also somewhat higher than in last year's quality report: between 0.053 p.p. at t+1 and 0.075 p.p. at t+12 (last year's values ranging mostly between 0.039 and 0.049 p.p.<sup>11</sup>). The bias was again smaller than last year: between 0.001 and 0.005 p.p. for all lags (0.010 to 0.018 p.p. before). These average revisions are small in comparison to the average month-on-month growth rate of M1, which was 0.43%.

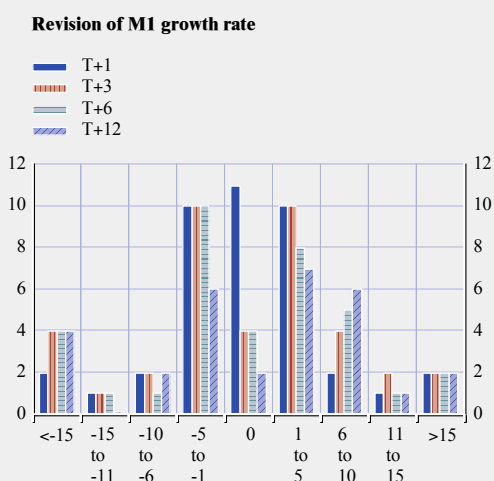
#### 2.4 REVISIONS OF COMPONENTS OF EURO AREA MONETARY AGGREGATES

Most of the revisions are not visible in the monthly growth rates for the monetary aggregates, which are published with one decimal: at lag t+1, 60% of all M3 period-on-period growth rates have remained unchanged and more than 50% are unrevised when including revisions up to lag t+3. Furthermore, if M3 period-on-period growth rates were to be revised, only in exceptional cases would the revision be more than 0.1 p.p. The same applies to M1 (75% of published M1 period-on-period growth rates were unchanged at t+1, while at lag t+3 still more than 60% were not visibly revised) and even more so to M2 (85% unrevised at lag t+1, 70% unrevised at lag t+3). Revisions to the components of the monetary aggregates are shown below, including information on their development over time. In order to keep the presentation concise, only lag t+3 has been chosen. This is also because revisions closer to the first release of the data impact the monetary analysis more than revisions occurring at lag t+6 or later.

While the revisions to month-on-month growth rates for *currency in circulation* are close to zero as expected, Chart 4 shows that revisions to

**Chart 3 Revisions to period-on-period growth rates of euro area M1**

(number of occurrences (y-axis), hundredths of percentage points (x-axis))



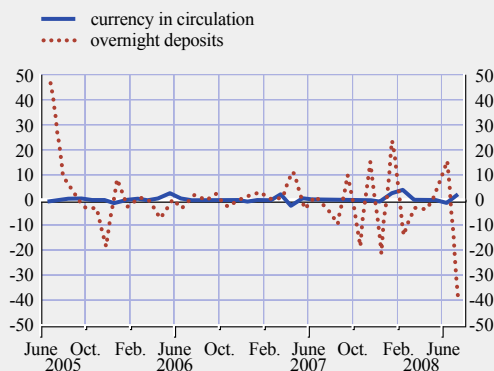
Source: ECB.

<sup>11</sup> Except for lag t+12, for which only 16 data points were available for the 2007 analysis: absolute mean = 0.075 p.p.

**Chart 4 Revisions to period-on-period growth rates of M1 components**

(hundredths of percentage points)

**Revisions to M1 components at T + 3**



Source: ECB.

*overnight deposits* were in a rather narrow range during a long period of time, with an exceptional revision of 0.48 p.p. for the reference period June 2005 caused by a change in the accounting regime of one country. A change in the pattern can be observed as from around August 2007. Afterwards, the revisions in overnight deposits move in a corridor of +/-0.25 p.p. except for the reference period July 2008 (-0.45 p.p.) due to exceptional revisions in two euro area countries.

Chart 5 shows the revisions of the month-on-month growth rates for the components of M2-M1. In the case of *deposits with an agreed maturity of up to one year*, a large revision occurred for the reference period June 2005 due to the change in accounting regime mentioned above. A further exceptional revision occurred for April 2008.

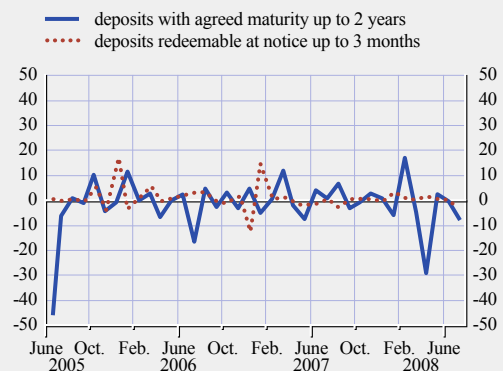
*Deposits redeemable at a period of notice of up to three months* are comparatively less revised, although three times the revisions exceeded 0.01 p.p.

Chart 6 shows that the month-on-month growth rates of the components of M3-M2 are revised much more than those of the components shown earlier<sup>12</sup>. Of the three series, *repurchase*

**Chart 5 Revisions to period-on-period growth rates of M2-M1 components**

(hundredths of percentage points)

**Revisions to M2 - M1 components at T + 3**



Source: ECB.

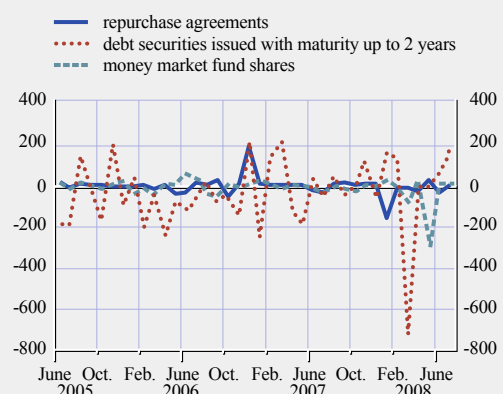
*agreements* are typically the least revised, except for two remarkably high revisions, by 1.84 p.p. and -1.56 p.p., for December 2006 and January 2008 respectively. Both of these were caused by one country. The revisions of the growth rates of *money market fund shares/units* seem to have declined somewhat after

12 It should be noted that the scale of Chart 6 is different from that of Charts 4 and 5.

**Chart 6 Revisions to period-on-period growth rates of M3-M2 components**

(hundredths of percentage points)

**Revisions to M3 - M2 components at T + 3**



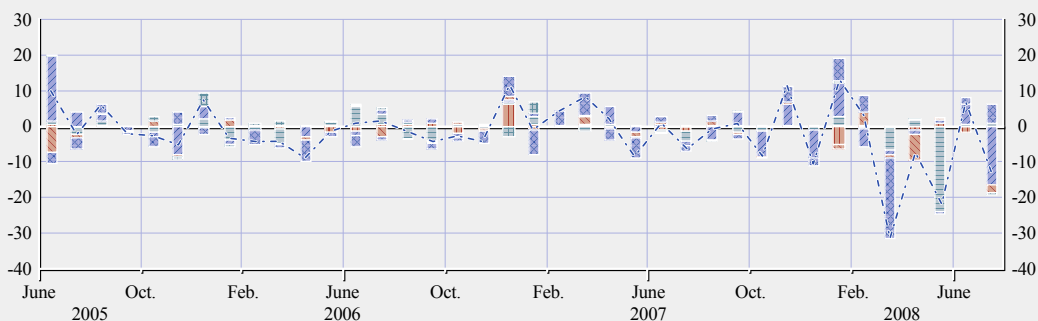
Source: ECB.

**Chart 7 Contributions of revisions in instruments to overall M3 revisions**

(lag t+3, hundredths of percentage points)

**Break down of contributions to M3 revisions**

- currency in circulation
- money market funds
- deposits with agreed maturity up to 2 years
- debt securities issued with maturity up to 2 years
- repurchase agreements
- overnight deposits
- deposits redeemable at notice up to 3 months
- M3



Source: ECB.

October 2006, though there are still large downward adjustments for the reference months March 2008 (-0.73 p.p.) and May 2008 (-2.83 p.p.). The growth rates of *debt securities issued* are often revised by more than one percentage point. In 25% of the cases, these revisions even amount to around two percentage points or more, with a very exceptional revision in the reference month March 2008 of -7.23 p.p. These revisions have to be seen in the context of rather large flow movements and relatively small outstanding amounts in the underlying series. This leads to a high volatility of the month-on-month growth rates.

## 2.5 CONTRIBUTIONS TO M3 REVISIONS

In order to assess the contributions of individual instruments to the revisions of M3, the share of each instrument in the aggregate needs to be taken into account. Chart 7 shows that the largest contributions to the overall M3 revisions stem from revisions of the growth rates of debt securities issued. Furthermore, revisions of the growth rates of overnight deposits have significantly contributed to the

overall M3 revisions, particularly in the period since August 2007. In earlier periods, revisions to money market fund shares/units were the second most important driver of M3 revisions.

## ANNEX

### Biases (simple means) and revision averages (absolute means)

(hundredths of a percentage point, i.e. a value of 1.0 indicates a revision of 0.01 percentage point)

Revisions at:	t+1	t+3	t+6	t+12
<b>Currency in circulation</b>				
Simple mean	0.092	0.313	0.245	0.066
Absolute mean	0.324	0.694	0.678	0.696
<b>Overnight deposits</b>				
Simple mean	0.591	0.087	0.403	0.351
Absolute mean	6.359	8.729	8.293	8.934
<b>M1</b>				
Simple mean	0.512	0.125	0.376	0.302
Absolute mean	5.316	7.313	6.968	7.522
<b>Deposits with agreed maturity up to 2 years</b>				
Simple mean	-1.476	-1.688	-1.927	-1.142
Absolute mean	5.764	6.306	7.064	7.973
<b>Deposits redeemable at notice up to 3 months</b>				
Simple mean	1.239	0.858	1.142	1.189
Absolute mean	2.057	2.690	2.922	3.295
<b>M2</b>				
Simple mean	0.241	-0.094	-0.013	0.217
Absolute mean	3.286	4.286	4.231	4.357
<b>Repurchase agreements</b>				
Simple mean	1.498	-2.826	2.257	9.252
Absolute mean	20.039	21.177	26.624	24.537
<b>Money market fund shares/units</b>				
Simple mean	-10.734	-10.158	-4.093	-3.822
Absolute mean	23.716	26.289	20.967	20.601
<b>Debt securities with maturity up to 2 years</b>				
Simple mean	-14.320	-35.299	-31.335	-41.130
Absolute mean	107.554	128.532	139.342	136.489
<b>M3</b>				
Simple mean	-0.812	-1.794	-0.856	-0.715
Absolute mean	5.586	6.431	5.863	4.205

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