Chapter VII

Production and issue of banknotes

1 The introduction of euro banknotes and coins and developments in terms of circulation

Euro banknotes are issued by the ECB and the euro area NCBs. As of 1 January 2002, euro banknotes and coins were put into circulation in the 12 participating Member States as the new currency for more than 300 million European citizens, thereby replacing the legacy banknotes and coins. Thanks to the extensive preparatory work of all the professional parties involved and their major efforts in particular during the cash changeover period in January and February 2002, the introduction of the common banknotes and coins went very smoothly. The success of this unique operation was also supported by the favourable reception by the general public, who readily accepted the euro banknotes and coins at the start of 2002.

1.1 Frontloading and sub-frontloading of euro banknotes and coins in 2001

Two important factors behind the smooth changeover were the frontloading of high volumes of euro banknotes and coins to credit institutions and the sub-frontloading by credit institutions of a "critical mass" of banknotes and coins to retailers during the last four months of 2001. From a logistical point of view, these operations can be regarded as key in meeting one of the main objectives of the changeover scenario, i.e. that the bulk of cash transactions could be made in euro by mid-January 2002. All in all, the euro area NCBs provided 6.4 billion euro banknotes with a face value of some €133 billion to credit institutions located both inside and outside the euro area. Accordingly, the leading players in the cash changeover were very well prepared for the physical introduction of the euro banknotes and coins as of 1 January 2002. As low-denomination banknotes were especially needed for payment purposes, the frontloading covered, in volume terms, around 80% of the changeover needs for such banknotes. In parallel with this, around 38 billion euro coins were pre-distributed to credit institutions, retailers and, to a limited extent, also to euro area citizens in the form of starter kits prior to the launch, which covered 97% of the total coin needs for the changeover in volume terms.

1.2 Introduction of euro banknotes and coins during the 2002 cash changeover period

In addition to the aforementioned frontloading volumes, the Eurosystem issued another 1.7 billion euro banknotes with a face value of €67 billion during the first half of January 2002. On 15 January 2002 the number of euro banknotes in circulation (including the banknotes held in the vaults of MFIs) reached a peak of 8.1 billion. Subsequently, despite the continuous increase in value, the number of euro banknotes in circulation fell by 7.5% to 7.5 billion as at 1 March 2002, when the euro banknotes became the sole legal tender in the euro area. This might be explained by the fact that, in the first two weeks of January, there was a very high precautionary demand for low-denomination banknotes (in particular €5 and €10 banknotes) by credit institutions and the retail sector, in order to make it easier to give change. This possible explanation is confirmed by the fact that the number of €5 banknotes in circulation decreased by 34% and that of €10 banknotes fell by 17% between mid-January and end-February, whereas demand for all other banknote denominations was still growing during this period.

In terms of value, euro banknotes in circulation continued to rise sharply during the two-month changeover period, climbing by 86% from €133 billion at the beginning of January to €247 billion at the end of February. At this point in time, the euro banknotes in circulation already accounted for 86.5% of the total value of euro and national banknotes in circulation.

Given the high volume of euro coins frontloaded to banks and other professional target groups with a face value of €12.4 billion, the number of euro coins in circulation increased by only 2.6% during the first two weeks of the changeover period. As with the euro banknotes, the number of euro coins in circulation reached its peak on 15 January 2002, with 38.6 billion coins worth €12.6 billion (excluding stocks held by the NCBs). As of mid-January 2002, the number of euro coins in circulation started to decrease slightly and, at the end of the dual circulation period, there were 35.8 billion euro coins in circulation. The value of euro coins in circulation dropped by 8.2% between mid-January and end-February to €11.5 billion.

1.3 Developments in the amount of euro banknotes and coins in circulation during the rest of 2002

The slight decrease in the number of euro banknotes in circulation lasted until April 2002, when a low of 7.2 billion was reached. The number of euro banknotes in circulation had risen moderately by 13.8% to 8.2 billion by the end of 2002. The value of euro banknotes in circulation continued to increase, rising by 45.3% between March and December 2002 to €359 billion. This development can mainly be attributed to the strong demand for the high-value banknotes, in particular the €500 and the €200. Adding the remaining legacy banknotes not yet redeemed at the end of 2002, total banknotes in circulation amounted to 98% of the total value of national banknotes in circulation at end-2000.

Similar to the trend observed for euro banknotes, the number of euro coins in circulation decreased slightly until April 2002, when it reached a low of 34.7 billion with a face value of €11 billion. Thereafter, the number of euro coins in circulation increased moderately to 40.0 billion worth €12.4 billion as at the end of December.

1.4 Withdrawal of the legacy currencies

The circulation of legacy banknotes remained relatively normal until the middle of 2001, when the approaching cash changeover triggered a significant flowback of these banknotes, which accelerated sharply from the beginning of the frontloading period in September 2001. A significant proportion of these were in larger denominations. In value terms, national banknotes in circulation dropped by 29% from €380 billion to €270 billion during 2001. In volume terms, the number of legacy banknotes in circulation decreased from 11.7 billion to 9.6 billion in the same period. In the first two months of 2002, a total of 6.7 billion national banknotes, i.e. 70% of the number of legacy banknotes circulating at end-2001, were withdrawn from circulation. During this period, between 4%

Chart 33

Euro banknotes in circulation in 2002

(millions)

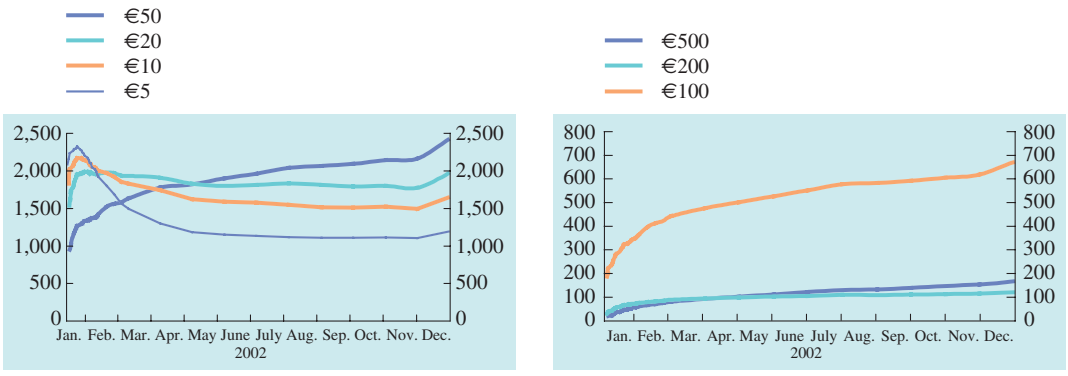
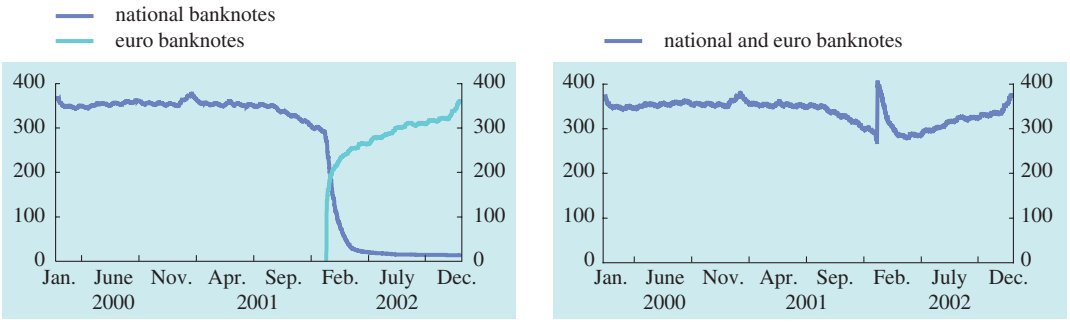


Chart 34

Banknotes in circulation between 2000 and 2002

(EUR billions)



and 6% of the remaining value of national banknotes in circulation was lodged each day at the NCBs. This resulted in sharp declines of €178 billion in January and €58 billion in February in the value of legacy banknotes in circulation. During the remainder of 2002, the pace of the flowback of legacy banknotes slowed down significantly. At the end of the year, the value of legacy banknotes not yet redeemed was €13.3 billion.

2 Production of euro banknotes and coins

2.1 Production of euro banknotes

After the successful launch of the euro banknotes, a general review of the standards, methods and procedures used for their production was conducted by the Eurosystem with the objective of improving both the quality and the efficiency of the overall production process. This review took into account the experience gained at the production sites and also incorporated feedback from the general public, banks and other euro banknote users. New techniques and processes available for production and quality control were also evaluated and implemented for the following production programmes, resulting in improved quality standards at production sites. Furthermore, a greater emphasis was put on the overall management, based on industrial standards, of health and safety and environmental issues related to the production and use of banknotes. In addition, stock was taken of the various materials used in euro banknote production.

This process of continuous improvement will continue to be applied to all future production programmes, both for the current and future banknote series. Some new and enhanced quality standards were defined for the banknote production in 2003.

In April 2001 the Governing Council decided that, in the following years, production of euro banknotes would take place in accordance with a decentralised production scenario with pooling. This means that each euro area NCB is responsible for the procurement of an allocated share of the total euro banknote supply for only a small number of denominations. This pooling arrangement helps to ensure a supply of consistent quality banknotes by reducing the number of production sites for each denomination and enables the Eurosystem to benefit from economies of scale in banknote production.

The necessary exchange of newly printed banknotes between NCBs takes place without payment. In 2002 the procedures for the acceptance, control and auditing of the production of euro banknotes were further improved.

Table 18

Allocation of euro banknote production in 2002

Denomination	Quantity (millions of banknotes)	Value (EUR millions)	NCBs commissioning production
€5	1,131	5,655	FR, NL, AT, PT
€10	1,045	10,450	DE, GR, IE
€20	1,555	31,100	ES, FR, IT, FI
€50	742	37,100	BE, ES, NL
€100	307	30,700	IT, LU
Total	4,780	115,005	

The total production requirements for 2002 amounted to 4.8 billion banknotes. These banknotes are intended to cover any increase in circulation and replace banknotes no longer fit for circulation and to ensure that NCBs have sufficient logistical stocks to accommodate all requests for banknotes, even at seasonal peaks in demand.

The logistical stocks of €200 and €500 banknotes resulting from the launch production were deemed to be sufficient to cover the needs for 2002. Table 18 gives an overview of the allocation of the production to the NCBs.

2.2 Stock management and establishment of the Eurosystem Strategic Stock

Further co-ordination was felt necessary not only of euro banknote production, but also in the area of euro banknote issuance. This resulted in, among other things, an agreement on a framework for the management of logistical stocks in the Eurosystem.

Furthermore, the Governing Council decided on the production of banknotes and the further arrangements for the establishment of a Eurosystem Strategic Stock (ESS). This stock is intended to be used in those circumstances when there are insufficient logistical stocks in the Eurosystem to cover an unexpected increase in demand for euro banknotes or when there is a sudden interruption in the supply of euro banknotes. The ESS is made up of 30% of the total value of euro banknotes in circulation, held in the three highest denominations, and of 20% of the number of lower-value euro banknotes in circulation, held in these denominations. Accordingly, the ESS currently comprises around 1.74 billion banknotes.

The unused part of the Central Reserve Stock, which had been established to cover the risks of a banknote shortage during the cash changeover, was transferred to the ESS. Another part of the ESS will be produced, together with the banknotes for the NCBs' logistical requirements, in 2003.

2.3 Support for the production of euro coins

The Member States are responsible for the production of euro coins. The ECB acts as an independent assessor of coin quality. It supported the implementation and maintenance of a common quality management system in mints producing euro coins. In 2002, production continued at a reduced rate. The quality of the coins was continually assessed via monthly quality reports, quality audits and the evaluation of sample coins taken from production.

3 Common Eurosystem policies on cash handling

The introduction of the euro banknotes and coins posed challenges to euro area NCBs, which have different national traditions and practices as regards cash logistics and services. The Governing Council has underlined on various occasions the importance of a level playing-field for cash services and took a number of measures to promote a fair, competitive environment in this area.

3.1 Eurosystem fee policy and common approach to opening hours and debiting/crediting rules for cash services at NCB counters

A common Eurosystem fee policy for the cash transactions of professional clients at NCB counters was implemented as from 1 March 2002. It defines different levels of services:

- free-of-charge services: these are the basic services that all NCBs provide, taking into account their unique role in providing the economy with cash; and

- fee-based services: these are additional services that NCBs may decide to offer. If offered, a fee must be paid for these optional services, taking into account the fact that they may also be offered by commercial third parties.

The Governing Council also defined a common approach to opening hours and debiting/crediting rules for cash services at NCB counters. The following measures seek to achieve the objective of promoting a level playing-field:

- The NCBs should offer the possibility to lodge and withdraw banknotes and coins for a daily minimum of six hours (the length of this period is to be defined at the national level) in at least some of their facilities.

- Debiting/crediting of cash transactions within the aforementioned time frame should be effected at the time of physical withdrawal/lodgement at NCB counters.

- The NCBs may also apply measures linked to their specific role and tasks in the respective countries (e.g. extended opening hours for cash services, or later debiting/earlier crediting, which in terms of costs for commercial third parties has the same effect as extended opening hours).

3.2 Establishment of terms of reference for the use of cash-recycling machines in the euro area

As an additional measure, a common approach for the use of cash-recycling machines in the euro area was agreed upon. These machines are stand-alone, customer-operated devices capable of receiving, processing and dispensing banknotes. This fully automated cash-recycling process no longer requires additional manual processing of banknotes and shortens the cash processing cycle, thus reducing cash-handling costs significantly.

In a round-table discussion on cash-recycling machines with the European Credit Sector Associations and the manufacturers of these machines, the organisational and technical aspects of using such machines were discussed. Subsequently, the Governing Council approved the Eurosystem's terms of reference for the use of cash-recycling machines by credit institutions and other euro area parties engaged in the sorting and distribution of banknotes. The main elements of these terms of reference are the criteria for authenticating genuine banknotes and the requirements for sorting according to the quality of the banknotes, with a view to preventing the recirculation of counterfeit or suspect banknotes or of banknotes that are no longer fit for circulation, e.g. because they are torn or dirty.

4 Protection of euro banknotes against counterfeiting

Although counterfeits have historically never made up more than a very small fraction of the number of banknotes in circulation in what is now the euro area, the Eurosystem is nevertheless committed to protecting euro banknotes against counterfeiting on the basis of the highest standards possible. The euro banknotes were designed and developed in such a way as to ensure that, in terms of protection against counterfeiting, they are amongst the most sophisticated in the world. In addition, the Eurosystem ran a comprehensive information campaign on the design and security features of the euro banknotes, addressing both the general public and professional cash handlers. The campaign was well received, judging by the results of a survey conducted in 2002 and the number of visits to the information campaign's website. The effectiveness of the preparations for the introduction of the euro cash is also borne out by the fact that the number of counterfeit euro banknotes recorded in 2002 was only about one-quarter of the number of counterfeits of the legacy currencies in 2001.

In 2002 the Eurosystem established a Counterfeit Analysis Centre which co-ordinates the incorporation of statistical and technical information on euro banknote counterfeits from the National Analysis Centres across the entire EU into a comprehensive database at the ECB. The number of counterfeits recorded in 2002 was 167,118. These were distributed as follows across the denominations:

	€5	€10	€20	€50
Quantity	1,039	3,108	14,845	136,133
Percentage	0.6	1.9	8.9	81.4
	€100	€200	€500	Total
Quantity	10,307	1,525	161	167,118
Percentage	6.2	0.9	0.1	100

As can immediately be seen, the number of counterfeit €50 banknotes was particularly high, which reflects the fact that counterfeiting this denomination offers a compromise between maximising the value gained and minimising the likelihood of close scrutiny by members of the public.

With regard to the distribution over time, it is well established that the number of counterfeits shows seasonal fluctuations, with peaks during the holiday seasons. This normal pattern was not discernible in 2002. In the first half of that year, the number of counterfeits recorded was particularly low, as the euro banknotes were still regarded as a novelty, under close scrutiny by the public, and therefore unlikely to be counterfeited. There was an increase in recorded counterfeits in the second half of 2002, although levels remained – by historical standards – relatively low.

The quality of counterfeits was also generally low. Although some ingenious techniques were employed, no counterfeits were discovered that could not be detected on the basis of "look-feel-tilt" tests recommended by the Eurosystem for the recognition of genuine euro banknotes. The Eurosystem nevertheless continues to monitor developments in the graphics industry and assesses the threats these developments might pose in terms of high-quality counterfeits. Indeed, recent developments in technology have made it necessary for the Eurosystem, like many other banknote-issuing authorities, to invest substantially in research and development (R&D). Euro banknotes already contain a variety of security features, all of which are intended either to make banknotes difficult to counterfeit or to make counterfeit banknotes easy to detect.

The Eurosystem's R&D efforts are now focused firmly upon activities that maintain the integrity of the euro banknotes in the face of the threat of counterfeiting. They are directed towards both the technical foundations of future banknote designs and the improvement of existing security features.

This work is vital to meet the demands that will be made on euro banknotes in the future. The Eurosystem carefully monitors developments in the area of euro banknote counterfeiting and will take appropriate counteraction whenever necessary.

The Eurosystem also continued its contributions to international co-operation on counterfeit deterrence in 2002. In April, the international community identified a need for additional resources to support the testing and implementation of counterfeit deterrence technology. The ECB began exploring the possibility of hosting a technical unit in Frankfurt, and the Governing Council agreed in June on the establishment of the International Counterfeit Deterrence Centre (ICDC), to be staffed by ECB personnel and officials from other issuing authorities. The ICDC is the international technical contact point for issuing authorities and others involved in the field of counterfeit deterrence. It also carries out scanning tests to verify deterrence in selected reproduction equipment and acts as a technical reference point. The final details of the establishment and funding of the ICDC were agreed in December 2002.