

# Euro banknote preparations: from cash changeover to post-launch activities

*The cash changeover on 1 January 2002 was a tremendous event in the history of Europe and will herald a new era, both for the users of euro banknotes and coins and for those responsible for providing the people of Europe with their currency.*

*Work on the cash changeover on 1 January 2002 has now past its peak, so preparations are under way for the post-launch period. There are new challenges: common banknotes are now circulating throughout the euro area, new banknotes will need to be produced, anti-counterfeit operations will need to be consolidated and business processes to be changed. The ECB continues to be a central controlling and monitoring body which focuses on the sound management of both the production and circulation of banknotes.*

## I The pre-launch production phase

### Production programme

A decentralised approach was taken to the production of the initial supply of euro banknotes. Each national central bank (NCB) was responsible for procuring banknotes to meet its national requirements. The final quantity needed for the launch amounted to around 15 billion banknotes, with a denomination breakdown as shown below. This amounts to a total face value of around €635 billion. Of the 15 billion, less than 10 billion will replace national banknotes and the remainder will serve as logistical stocks. The main objective – to ensure the required quantity of banknotes was produced to the specified quality standards in time for the launch on 1 January 2002 – was achieved.

**Table**  
**Denomination breakdown**

*(as a percentage of the total)*

€5	€10	€20	€50	€100	€200	€500
21.5	21.7	22.7	21.9	8.2	1.5	2.5

Starting in July 1999, production at the printing works was regularly stepped up, attaining a peak output of over 1 billion banknotes per month in the summer and autumn of 2001. Output was then scaled down during the remainder of 2001.

A total of 15 printing works have produced the euro banknotes with, roughly speaking, one in each participating Member State (except for

Luxembourg). France has two plants and Germany three. One printing plant in the United Kingdom was also involved. Nine paper mills have manufactured the banknote paper. Including the printing works and paper mills, around 40 suppliers and sub-suppliers of raw materials have played a part in the euro banknote production. The NCBs have tracked the orders that they placed with their designated printing works, while the ECB has been co-ordinating, supporting and supervising operations at the production sites involved. The sites are shown on the map overleaf.

The ECB has closely monitored progress throughout the production phase at all the printing works, in terms of both quality and quantity. In co-operation with the NCBs, the ECB has evaluated the reference standards achieved by each plant and then authorised the start of each of the main steps in the production process. Production standards and processes have been progressively upgraded: the technical specifications have been fine-tuned during start-up and the acceptance mechanisms for the banknote production lots have been steadily refined.

The ECB has also designed and supported the implementation of a common Quality Management System, in accordance with the provisions of the ISO 9000 quality standards, and regularly audited this system.

Security audits of all sensitive materials continue to be performed at all of the manufacturing sites in order to ensure high

security standards for the production, transportation and storage of sensitive raw materials, semi-finished and finished banknotes.

The manufacturers of cash-handling machines also have a special interest in the quality standards of euro banknotes. Together with the ECB, they have participated in an extensive testing programme to help them adjust their sensors and equipment to the new banknotes. They have tested euro banknotes from all production sites, and the tests were successfully concluded during the final stages of the production programme.

### Central Reserve Stock of banknotes

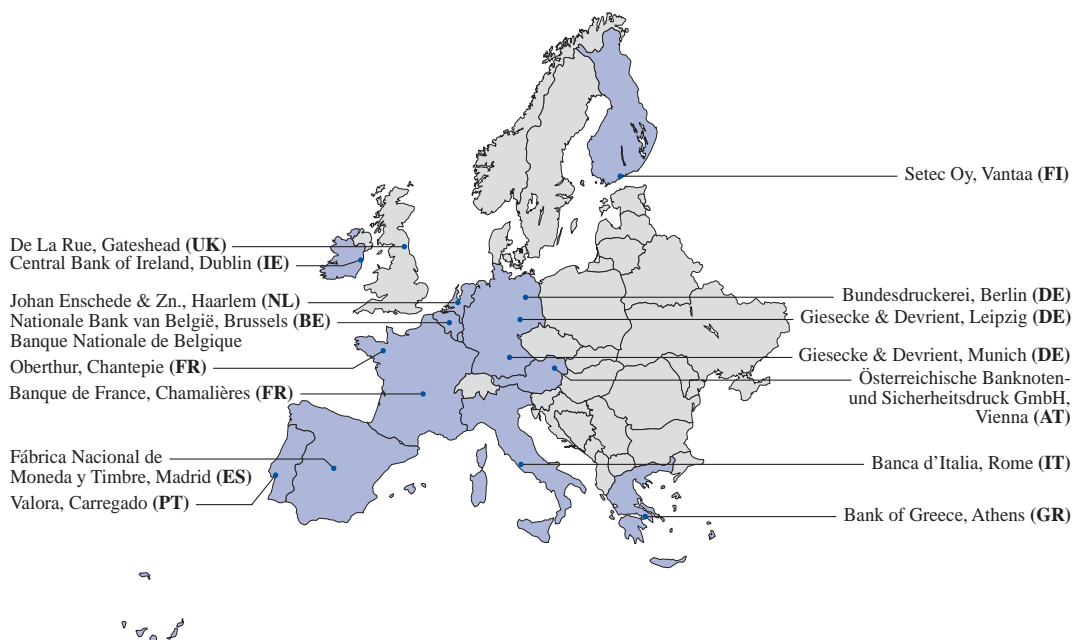
In early 2001 the ECB decided to establish a Central Reserve Stock (CRS) of euro

banknotes as part of a risk reduction strategy. Two major risks were identified: i) that, on account of unforeseen circumstances, the system might not be able to deliver the required volumes, to specification, on time, and ii) that the actual demand for some denominations could be higher than expected. The CRS has been produced in addition to the total launch volume and comprises about 10% of that quantity.

The same production standards have been applied to the CRS as to the rest of the euro banknote production. Banknotes from this stock have already been used to meet additional commercial bank requirements during frontloading, and will help the launch phase to proceed smoothly if demand is higher than expected during the first few months of 2002.

## Chart

### Location of printing works producing the euro banknotes



## 2 The post-launch production phase

### Production volumes for 2002

Having circulated for a while, the euro banknotes will be returned at intervals by credit institutions to the national central banks. The NCBs will sort them and check their authenticity and quality, in order to decide whether they can be recirculated, thus ensuring a clean banknote circulation. In the post-launch phase, it is estimated that about 4.8 billion new banknotes will be required in 2002 to replace banknotes that will be withdrawn from circulation. Thus, banknote production requirements are much lower in 2002 than in 2001. This replacement volume is an operational requirement, but there will also be a need for strategic stocks to cover risks such as an unexpected demand for a particular denomination or an interruption of banknote supply for any reason. The banknotes for the strategic stocks will also be produced during 2002, although the quantity cannot be ascertained until after an initial period of circulation, when the actual demand for banknotes will be known.

### Decentralised pooling

The production arrangements for 2002 were planned well in advance to ensure continuity of supply, which is vital in the post-launch period. These arrangements needed, and still need, to take into account both changes in demand and optimum use of the banknote printing facilities. The Governing Council of the ECB has therefore decided that, for 2002, production will take place on a decentralised pooling basis: each denomination will be supplied by a small number of printing works (maximum of four) and each NCB will be responsible for procuring no more than two denominations.

Clearly, a decentralised pooling system offers advantages:

- it enables the Eurosystem to benefit from economies of scale in banknote

production. This is particularly important for the higher denominations, which are required in lower volumes and are inherently more expensive to produce;

- it helps to ensure a supply of consistent-quality banknotes by reducing the number of production sites for each denomination.

The role of the ECB in this respect is to ensure the functioning of the system and to make sure that supply and demand are matched throughout the year. Furthermore, it is expected that, in the light of circulation experience, the NCBs will probably revise their requirements. This is likely to occur in those countries where the values of the euro banknote denominations deviate from those of the former national banknotes; it is difficult to predict how cash usage habits will develop there.

### Production process evolution

In line with best-practice industrial production, a management system has been established that covers technical design, quality control, as well as product testing and validation processes of the euro banknotes. This will ensure improvement of their overall quality and homogeneity. The launch production experience will be used as a benchmark and the technical specifications of all seven denominations will be continuously reviewed, with the results being fed back to the production sites.

The quality management systems set up at the printing works and the raw material suppliers will continue to ensure the high visual and technical consistency of the euro banknotes. An extensive auditing programme has been developed for 2002 to permit the timely and efficient introduction of any necessary improvements in the production process. It will also ensure that the continuing development of all of the printing works and suppliers takes place in a co-ordinated manner.

### 3 Anti-counterfeiting arrangements

#### Decentralised approach

The decision taken by the Governing Council of the ECB in October 1998 on the handling of counterfeit euro banknotes and coins is in the spirit of “think global, act local” and has resulted in a decentralised but co-ordinated network of counterfeit monitoring centres covering all the Member States of the European Union.

“Think global” means that all the information on counterfeiting in the different Member States should be placed in a single database and that the information should follow common standards to ensure homogeneity. For that reason, all the information on euro counterfeiting will be collected by a single monitoring network and stored in one central database. This database will contain information on both banknotes and coins and will be accessible to authorised users on a need-to-know basis.

“Act local” has the advantages of proximity to the event, which guarantees that the information gathered is timely and not distorted by long communication channels. In this network, information is gathered in a decentralised way in each of the 15 Member States of the European Union. Similarly, law enforcement operations are executed by the national police, but co-ordinated at European level by Europol when they affect more than one country. Similar arrangements have been set up for counterfeit coins.

The central database containing information on euro counterfeiting is now in operation. The National Analysis Centres located in each of the Member States of the European Union enter the data on any euro counterfeit banknotes detected in their countries. They

will also classify the known euro counterfeit types according to their characteristics.

The Counterfeit Analysis Centre (CAC), located at the ECB, will receive the counterfeits that are new and thus unclassified. These new types will be categorised and analysed at the ECB before a detailed technical description of the new counterfeit class is drawn up. The resulting technical data will be entered into the database together with the classification, which will be attributed to the counterfeit for identification purposes. Further counterfeits of the same type can be identified by comparing them with the detailed description contained in the database.

#### Agreements with Europol and other institutions

The ECB and Europol have signed a co-operation agreement which entails an exchange of the information required by each in order to perform its respective anti-counterfeiting duties. This exchange of information is complemented by mutual assistance and the provision of technical expertise or evidence in judicial proceedings with regard to counterfeiting.

Steps to combat euro banknote counterfeiting include the setting-up of the necessary arrangements within the EU Member States. However, since the euro will become a global currency and will circulate as non-legal, but readily accepted, tender in many other countries, measures have also been taken outside the European Union. Interpol will, for example, forward to the ECB for analysis euro counterfeits it has received from all over the world. Clearly, all arrangements of this type will be consolidated during the post-launch period.

## 4 Infrastructure changes

For nearly ten years, the preparations for the euro banknotes have moved forward, from the conception of the banknotes through to the launch, on the basis of a series of projects. This project stream has now achieved its ultimate goal and in the subsequent period of change the operating methodology has begun to switch to a “business as usual” mode.

A vital part of “business as usual” is continuous improvement. To achieve this, it is important to obtain feedback from banknote users, i.e. from the general public, professional banknote handlers and from the cash centres of banks and the NCBs. A customer feedback system has been developed to collect, analyse and then

redistribute information obtained from banknote users. The information will feed into production improvements and into the design of future euro banknotes. This system will ensure that any opportunities for improvement will be seized at the earliest moment.

In the post-launch period there will be other information streams in addition to user feedback, such as ongoing production, circulation, technological progress and counterfeiting information. The “business as usual” environment will be promoted and enhanced in order to capitalise on the benefits deriving from the information available.