Practical issues arising from the € euro

May 2002

Bank of England

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FOREWORD

1 The changeover to the euro from the first 12 participant currencies was completed earlier this year, with the introduction of euro notes and coin, after a three-year period in which the euro was only a 'virtual' currency. The final changeover required extensive prior preparation and was executed almost immaculately across the euro area. The result was better than anyone in the euro area dared hope, and reflected admirably on all those involved, from the authorities to the general public.

2 As a potential subsequent entrant, the UK can learn much from the first-wave experience. That is why in previous editions of *Practical Issues*, before the event, we set out the way in which the final changeover was being prepared, the issues that were arising, and how they were being addressed, in different ways in different countries. This new edition, the seventeenth, completes this particular exercise by describing, after the event, how the changeover worked out in practice, in some detail.

3 So, in *Part I*, the evidence is set out, first from a euro-area wide perspective and then for each euro-area country. *Part II* goes beyond this to analyse the lessons to be learnt from the participating central and commercial banks themselves, both about what went perfectly as well as the areas which proved somewhat more problematic. It draws on the invaluable discussions we have had both with euro-area authorities and commercial banks, for which we are enormously grateful: we have taken full advantage of this unique opportunity, before the memories of those directly involved inevitably fade. And *Part III* considers what we in the UK might learn from the whole experience for a prospective changeover here, if the Government, Parliament and the people decide on euro entry.

4 Given the extensive coverage of the changeover in this edition, we have had no room to include some of the other ground which we have typically covered previously, like the latest position on the evolving euro financial markets and the supporting infrastructure; but another *Practical Issues* is planned towards the end of this year.

5 **A personal postscript from John Townend** Given my imminent retirement from the Bank, this is the final edition of *Practical Issues* for which I shall be responsible. I would like to thank all those who have contributed to its success over the past six years, particularly all those outside the Bank, whether in London or across the euro area and whether in central banks, ministries or the private sector, who have made possible such an authoritative document. It has been, in my view, a model of co-operation between the Bank of England and the European financial community.

6 From now on, comments on *Practical Issues* should be addressed to my successor, Bill Allen, Director for Europe, Bank of England, Threadneedle Street, London EC2R 8AH (fax no: 020-7601 4404; e-mail: bill.allen@bankofengland.co.uk). *Practical Issues* is available in hard copy from the Bank's Public Enquiries Group (tel no: 020-7601 4012; fax no: 020-7601 5460); and on the Bank's website (www.bankofengland.co.uk), including, in some previous editions, limited additional material.

In this edition of Practical Issues, references to calendar months September, October, November or December are to 2001, and January or February to 2002, unless otherwise stated.

SUMMARY

1 The completion of the euro changeover provides an opportunity that will not recur to learn from the experience of the first wave, and to draw lessons in case the UK joins EMU as a later entrant. This edition of *Practical Issues* focuses exclusively on the completion of the changeover: how it worked in practice; what lessons can be drawn from central and commercial banks in the euro area; and to what extent they would apply in the UK, bearing in mind that the UK position would differ from first-wave countries in a number of respects.

2 The completion of the euro changeover was a technical success greater than anyone could have anticipated, sufficiently so that it even stopped being a media event after the first few days in January. Success could, however, by no means be taken for granted. The changeover was a huge and complex exercise. In order to learn the lessons, we have investigated the changeover in detail. We are very grateful to the ECB, our counterpart national central banks and also many commercial banks in the euro area for the unfailing help they have given us in undertaking this exercise. We could not have done so without them.

The euro changeover

Organisation

3 While the whole changeover was overseen at European level by ECOFIN, and the ECB played a major role in organising the cash changeover, it was organised in detail and implemented at national level, through national changeover committees, and led by national governments. National central banks played a key role in organising the cash changeover, and also in monitoring or assisting preparations in the financial sector. Meticulous preparations were required from an early stage. All the key parties – governments, central banks, commercial banks, cash-in-transit (CIT) companies, retailers and the cash-operated industry – had to play the roles expected of them, with effective co-ordination between them and adequate channels for resolving urgent problems when they arose.

Completion of the non-cash changeover

4 The completion of the euro changeover involved the mass conversion of bank accounts by the end of last year, followed by the introduction of euro – and withdrawal of outstanding legacy – cash from the beginning of this year. Individual banks were responsible for their own preparations for the

changeover of all their customer accounts and contracts, with co-ordination by the authorities in some countries. To undertake the entire non-cash changeover during the final weekend was too risky for the largest banks. So they staggered the conversion of their customer accounts in the run-up to the end of last year. The conversion of personal accounts was less complex, both for banks themselves and their account holders, than the conversion of business accounts. Many large businesses needed to be treated individually. With hindsight, it was not necessary – though it may still have been cost-effective – to complete the mass payment infrastructure by the beginning of 1999, as there was little use of the euro outside financial markets until last year.

The cash changeover

5 The authorities' objective was that cash transactions should be conducted only in euro as quickly as possible in the New Year, so as to help minimise costs (for banks and retailers) and minimise confusion amongst the public. There were four key steps in achieving this: prior distribution of sufficient euro cash, through frontloading; early adaptation of ATMs; use of low-denomination notes; and a swift response from the public.

6 First, frontloading of banks and sub-frontloading of many retailers contributed to a quick cash changeover, with coin being frontloaded first because of its bulk, and notes later because of their much greater value and associated security needs. This was a massive exercise, both in planning and execution. Extra security arrangements, including more policing, discouraged thefts of cash in transit or storage, and helped to create a climate of confidence in the changeover.

7 Sub-frontloading of retailers was complex to organise. Large retailers needed supplies of euro cash in advance, because they could not obtain adequate supplies to cover their needs at the last minute, and they positively wanted to be in a position to provide only euro in change from the start of the changeover. Many other retailers, however, were reluctant to take euro cash in advance, because of the extra costs of storage, security and insurance; the need to enter contractual arrangements with their banks and provide collateral; and the penalty regimes introduced to prevent premature circulation. In some countries, financial incentives were provided in an attempt to overcome these disincentives to sub-frontloading. But in any event, small shopkeepers were often able to collect sufficient supplies from their banks at the very end of last year and in the first few days of the New Year. Where they were not in a position to provide euro in change, small shops (and cafés, bars and so on) initially gave change in legacy currency. However, this did not have a significant impact on the length of the changeover.

8 Second, the rapid pace of ATM conversion, to enable the vast majority to dispense euro notes in the first days of the changeover, was also key, even though the proportion of euro cash dispensed through ATMs was much lower early in the New Year than normal. The proportion was lower than normal because the public also obtained large amounts of euro cash over bank and shop counters, in exchange for legacy cash.

9 Third, the supply specifically of large quantities of low-denomination notes, in legacy currency late last year, and in euro at the beginning of this year, contributed to a quick cash changeover by reducing the amount of change needed by retailers. Low-denomination notes were provided through a number of different channels: ATMs, over bank counters, from retailers who had been sub-frontloaded, and through cash welfare payments.

10 Fourth, swift public acceptance of the euro was critical to the success of the cash changeover. Despite antipathy in some countries before the event, once it became clear that the cash changeover was inevitable, the public reacted with enthusiasm to using the new currency and disposing of its legacy currency as soon as possible. This became clear from the moment that starter kits of euro coin went on sale in mid-December, when they sold out very quickly. Even so, many banks were caught by surprise when the public began in very large numbers to exchange legacy cash over bank counters early in the New Year. Although the information campaign emphasised that the public could exchange legacy cash throughout the cash exchange period, and indeed beyond, in the event banks and retailers had to respond as best they could to a very quick cash changeover.

11 Planning the logistics of the withdrawal of legacy cash was as important as the distribution of euro cash, and a number of countries did not give this sufficient attention. Schemes last spring and autumn to withdraw hoarded legacy cash, especially coin, helped to reduce the task in the New Year. But bottlenecks at banks, intermediate storage depots and CIT companies, emerged in the early months of this year, particularly where euro coin was flowing back and legacy coin was being collected at the same time. There was clear benefit in those countries where all the key parties had access to the same data system, which readily allowed a clear and complete audit trail.

12 The cash changeover should not have been a race between Member States, but peer pressure sometimes conveyed this impression. The question is whether there was advantage in trying to ensure that the changeover was completed very quickly, with the added complexities and possibly extra costs entailed. Some first-wave countries achieved a very quick changeover by providing financial incentives (eg for sub-frontloading) from public funds,

while other countries achieved an acceptably smooth changeover without such financial incentives. The value put on a very quick changeover varied between one country and another, depending in part on the expectations of the authorities and the public, reflecting their national culture. In all countries, a cash exchange period of one month would in practice have sufficed, on the basis that central and commercial banks subsequently continued voluntarily to exchange legacy cash.

13 The public perception was that the completion of the changeover was accompanied by an increase in prices. There is convincing anecdotal evidence of increases in many individual prices, particularly of small items, and in small shops, hotels, restaurants and cafés. But the overall impact of the changeover on prices appears to have been very small, to judge from the official indices.

14 The information campaign played an important role in explaining the changeover to businesses and the public. But it could not succeed in getting many people to think in euro terms. This process is going to take some time.

Lessons for the UK

15 If the UK were to join EMU as a later entrant, there would be many similarities between the UK changeover to the euro and the changeover in the first wave. But there would also be significant differences: the period of notice before entry would be likely to be shorter; the transition period would be shorter between entry and the date on which euro notes and coin would officially be issued in the UK (E-day); preparations for the mass changeover of bank accounts in the UK, under a phased approach, would be completed later in the transition; and euro notes would be available in the UK – even though they may well not be much used – before E-day. As a later entrant, the UK would also be able to benefit from first-wave experience, and the conversion of sterling financial markets to euro should be more straightforward, because the euro has been used extensively in the wholesale financial markets in London since its launch in 1999.

Organisation

16 Like the first wave, any UK changeover would need to be meticulously planned, implemented and tested against a precise timetable agreed well in advance. Responsibilities would need to be clearly allocated in detail between the different parties involved. There would have to be strong Government leadership. The Bank would play its part. But it would be consistent with a typical UK approach to leave as much as possible to be determined by the private sector.

Completion of the non-cash changeover

17 First-wave experience suggests that the transition period should be as short as practicable. In line with the ECB's suggestion that later entrants should aim to complete the changeover in less than three years, the outline *National Changeover Plan* (NCP) indicates that a UK changeover would be shorter than the first wave. It is not obvious that it could be further shortened without running risks with the changeover.

18 Unlike the first wave, there would be a phased approach to the changeover in the UK: sterling financial markets would operate in euro from UK entry, but preparations for the mass changeover of bank accounts and other financial services would not be complete until a period (as yet undefined) after entry. Once these preparations were complete, a fully decentralised approach, leaving each bank to decide on the timing of its own changeover before the end of the transition period, would be consistent with normal UK practice. Prescription would not be necessary, if – as expected – banks recognised that a staged account changeover before the end of the transition would be in their best interests. But BBA/APACS best practice guidelines would nevertheless be important in assisting the banks to complete an orderly changeover.

The cash changeover

19 Some of the advantages of fixing E-day in the first wave on 1 January were underestimated: it was a memorable date; the public was in a festive mood; and retail activity was lower than normal. Equally, however, some of the features which were said to make 1 January attractive were also probably exaggerated: it is not so obvious that it was helpful for companies with an end-December year-end to have this coincide with the date from which they were compelled to use the euro for all non-cash purposes and when the cash changeover began. In any event, with such a successful first-wave cash changeover, it is clear that 1 January would not be ruled out for any UK changeover, even though it might be more expensive than a date during the trough of cash circulation (mid-February). So the UK authorities would have more room for manoeuvre.

20 E-day would be of much the same importance to a UK changeover as in the first wave: it would be the date on which euro notes and coin would officially be issued in the UK. The Bank, the Mint and their counterparties would need to consider carefully, in the light of first-wave experience, how far the UK's normal arrangements for the distribution and withdrawal of sterling cash could meet the extraordinary demands of a euro changeover – a vastly greater operation.

21 Like the first wave, UK banks would need to be supplied with massive euro stocks, starting 3-4 months in advance, with coin first and notes later. It would be important to consider how far to promote sub-frontloading in the UK. Large retailers would need to be sub-frontloaded, but not necessarily all small retailers. The first-wave penalty regime against any premature release of euro, before 1 January (the date established by the Maastricht Treaty), would obviously not apply in the UK. Starter kits of UK euro coin would be helpful to familiarise those who have not used them. The sale of starter kits of low-denomination euro notes would also be possible, though whether they were advisable would depend on an assessment of the other distribution channels.

22 In promoting a smooth changeover, banks and retailers could draw on best practice from the first wave by: considering making POS terminals euro-compatible if other system changes are introduced in the near future; encouraging the public to returned hoarded sterling cash, particularly coin, before E-day; ensuring that a sufficiently high proportion of low-denomination notes were available in sterling before, and in euro from, E-day; ensuring that ATMs were ready to dispense euro notes on, or immediately after, E-day; providing change as widely as possible in euro from E-day; encouraging the use of electronic payments rather than cash; extending bank opening hours for a short period after E-day; and increasing the number of trained staff allocated to the cash changeover, including at counters and in helping to manage queues.

23 The withdrawal of sterling cash would need to be as carefully planned as the introduction of euro cash. A reliable, quick and secure CIT service would be required on a large enough scale. Sufficient secure storage would be needed. And efficient processes would have to be established to check the return of potentially massive quantities of sterling notes and coin in a concentrated period, in order that value could be given to the banks as quickly as possible.

24 To help ensure a smooth cash changeover in the UK, a clear and comprehensive information campaign by Government, the Bank and the commercial banks would be needed to explain the changeover to the business community and the public. Dual pricing in the shops would help the public to adjust to the new scale of values, and so would need to be strongly encouraged. But how far dual pricing might need to be applied elsewhere is more of an open question.

25 Ultimately, a smooth cash changeover in the UK would depend on swift acceptance of the euro by the public. Whatever the likelihood, there can be no guarantee that the public in the UK would behave in the same way as the first wave. Nevertheless, it is hard to identify circumstances that would warrant a

cash exchange period longer than the first wave required, so long as the banks continued – as expected – to exchange legacy cash for a period subsequently. And the Bank would plan to continue its existing practice of exchanging sterling notes, in this case into euro, indefinitely.

PART I: COMPLETION OF THE EURO CHANGEOVER IN PRACTICE

1 Part I considers the euro area as a whole before describing briefly each euro-area country's experience with the completion of the changeover to the euro.

THE EURO AREA

Organisation

2 The completion of the euro changeover was organised in detail and implemented at national level. But it was overseen at European level. The original timetable for the changeover was agreed by the European Council at Madrid in 1995, and the legal framework was subsequently set out in two euro Regulations. ECOFIN (EU Finance Ministers), and within this the Eurogroup (the 12 euro-area Ministers), supported by the Economic and Financial Committee (finance ministry and central bank officials) and the European Commission, oversaw the changeover as a whole, issued guidelines, and monitored progress. The Governing Council of the European Central Bank (ECB) played the major role in organising the cash changeover, and set up a committee at working level (CashCo) to plan, execute and monitor it.

The non-cash changeover

3 Following the changeover in wholesale financial markets, which have operated in euro since its launch at the beginning of 1999, a three-year transition period (until end-2001) was provided in which to complete the non-cash changeover. A decentralised approach was taken, with the framework for the non-cash changeover determined at national level, as the best way of taking into account local circumstances. And within the national framework, responsibility for the non-cash changeover was taken by the individual banks and other institutions concerned. National payment systems were largely adapted to cope with euro from the outset. But, with the euro little used outside the financial markets, the changeover of personal and corporate bank accounts and retail payments was concentrated late last year. The Commission published a Recommendation in the autumn of 2000 in an attempt to speed up the non-cash changeover, but this had a limited impact, as it was by that stage too late to influence most national plans. In the event, the non-cash changeover in all countries took place essentially as planned; fears that preparations would not be completed in time and so would threaten the end-transition deadline proved groundless.

The cash changeover

4 The cash changeover began on New Year's Eve at midnight, when euro notes and coin became legal tender throughout the euro area. In organising the cash changeover, the authorities' objective was to change legacy cash into euro quickly, to help minimise both costs for banks and retailers, and confusion amongst the public. This required extensive prior distribution of euro notes and coin.

Prior distribution of euro cash

5 The prior distribution of euro notes and coin was organised as follows.

- In the first (pre-distribution) stage, which was spread over a period of months and even years, the national central banks (NCBs) and mints transferred notes and coin to their own geographically dispersed storage facilities.
- The second (frontloading) stage began on or after 1 September, when cash-in-transit (CIT) companies took the cash, either to their own premises for an interim period, or direct to bank premises.
- In most countries, there was a third (sub-frontloading) stage in which the banks arranged for the onward distribution of notes and coin to retailers and the cash-operated industry, though some NCBs made arrangements themselves directly to sub-frontload large retail groups.

6 For the launch, 15 billion euro banknotes with a face value of around €635 billion were printed, and 52 billion euro coin with a face value of €16 billion minted, on schedule.

- Of the total, 6.4 billion notes with a value of €133 billion were frontloaded to banks between 1 September and 31 December. This represented 49% of the value of national banknotes outstanding at 31 December but 70% of their volume, as low-denomination euro notes dominated the frontloading. 37.5 billion coin with a value of €12.2 billion were frontloaded, around 70% of the overall volume of euro coin produced.
- On average, some 10% by value of the amount of euro notes frontloaded was sub-frontloaded to retailers (and other cash users); and some 22% of coin (6.7 billion by number). Retailers received standard starter kits with euro values ranging from just over €30 to €315. Most sub-frontloading took place in late December.
- Starter kits of euro coin for the public went on sale through a wide range of outlets (including NCBs, commercial banks, post offices and retailers) in mid-December, with euro values ranging from €3.88 to €15.25, and corresponding in most countries to a round amount in legacy currency. In the last two weeks of December, around 150 million were sold, worth €1.6 billion (an average of 14 coins for each individual across the euro area, and some 4.2 billion in total). By contrast, euro banknotes were not made available to the public in advance.

7 During frontloading, over 7,500 cash transport vehicles were used. Security was increased, and fears about significant disruption proved groundless. Most banks and retailers needed insurance cover for the extra cash they held in storage on their premises until the end of the cash exchange period. A penalty regime was introduced by the Eurosystem to deter the premature circulation of euro banknotes. Banks were required to provide collateral by 28 December at the latest against cash they received in frontloading, or earlier if sub-frontloaded. And they were debited for frontloaded cash in three equal instalments on 2, 23 and 30 January, under the ECB's debiting model.

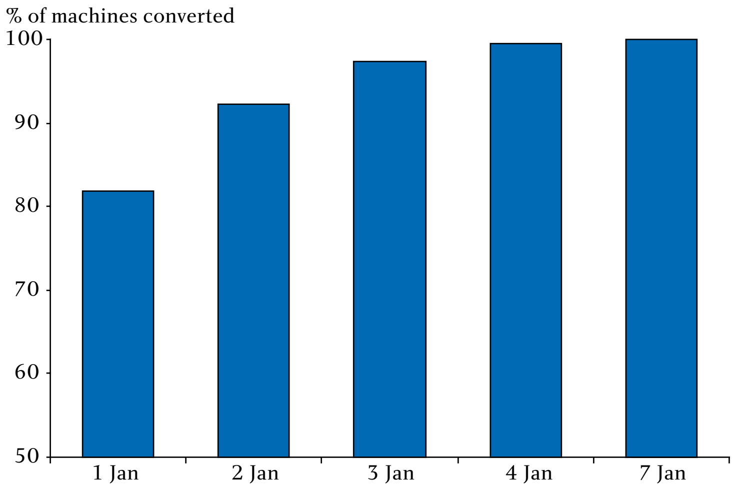
8 Euro notes and coin entered circulation in two main ways: through 218,000 bank and post office branches, via the withdrawal of euro notes at ATMs and the exchange of legacy

notes and coin over the counter; and at 2.8 million retail outlets, through the provision of euro notes and coin as change.

Cash at banks

9 The early adaptation of all 200,000 ATMs in the euro area, to dispense euro instead of legacy banknotes, was an essential condition for a quick cash changeover, as ATMs represent the route by which 70% of the volume of banknotes normally reach the public in the euro area. In the event, 90% of ATMs had begun to dispense euro notes within two days, and they had virtually all begun to dispense euro notes within four days (Chart 1). Many banks in some countries used ATMs to dispense low-denomination euro notes during the first fortnight or so, to reduce the demand for euro change in shops. The number and value of withdrawals from ATMs in the first few days were higher than for a normal January.

CHART 1: ATM CONVERSION: EURO-AREA AVERAGE



Source: European Commission

10 Nevertheless, the proportion of banknotes reaching the public through ATMs early in January was lower than normal, because most people exchanged legacy cash over the counter at bank branches and post offices. Transaction times would have been reduced if all customers had placed legacy currency on deposit and withdrawn euro from ATMs. However, many decided to exchange legacy for euro cash. Some exchanged all their legacy cash in one go. Others exchanged small amounts over bank counters, but spent their high-value legacy notes in shops.

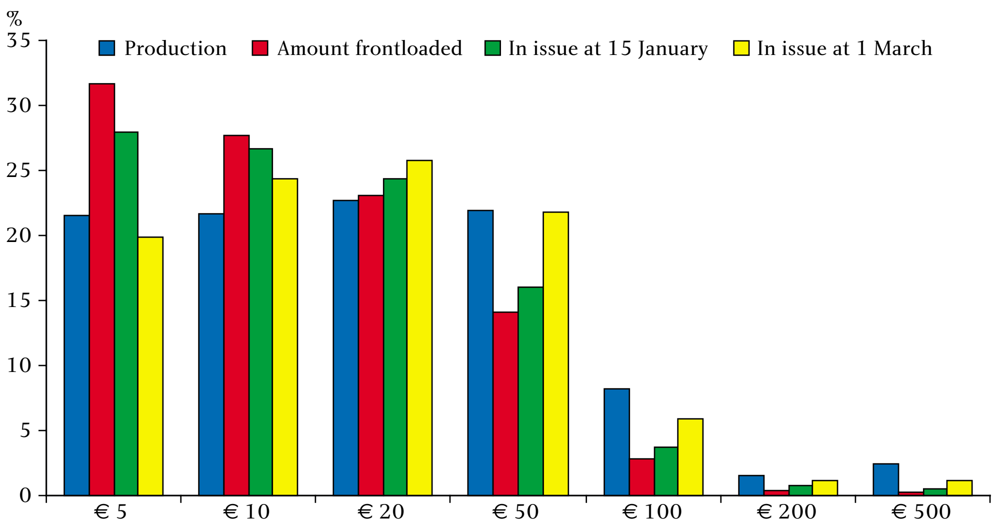
11 The unexpectedly large number of people visiting bank branches led to abnormally long queues in many banks for the first few days of January. But by the end of the first two weeks, queues were generally back to normal. Many banks extended their opening hours in early January to help cope with the extra workload. Some imposed limits on the amount of legacy cash they would exchange for euro cash, especially for non-customers. NCBs exchanged all national legacy banknotes against euro at their branches (some 500) until end-March.

Cash at retailers

12 Supermarkets and other large retail groups were generally able to provide sufficient euro cash in change from the outset, because they had been sub-frontloaded. But there was a shortage of euro change in many smaller shops in some countries, where they had not arranged adequate sub-frontloading. The shortage of change was made more acute by the decision of many customers to pay for low-value purchases with high-value notes. This did not affect the level of trading in shops, but some small shopkeepers initially provided change in legacy currency, when they received legacy currency in payment, either by choice – it simplified the calculation of change – or because they had no euro to give.

13 During the first week of January, many retailers needed additional supplies of euro notes and coin. Large retailers received these through deliveries by CIT companies, while small retailers collected extra supplies from banks (where many had to queue). By the first weekend in January, almost all retailers had sufficient supplies of euro change, and the winter sales passed without difficulty. Thereafter, the demand for lowest denomination notes subsided (Chart 2).

CHART 2: BANKNOTE DENOMINATIONS AS A PERCENTAGE OF TOTAL VOLUMES



Source: ECB

Cash for tickets and vending machines

14 Public transport ran smoothly during the cash changeover, though some transport authorities only avoided long queues by letting some passengers travel free for a few days. Many operators of cash machines (such as vending machines, parking meters and telephone kiosks) had planned to use the full two months of the cash exchange period to adapt their machines from legacy currency to euro, and there were limits to how far these plans could be accelerated even when they realised that the public wanted a quick changeover. As a result, the adoption of the euro in cash machines took place at a slightly slower pace than the rest of the cash changeover. Even so, by 5 January, the Commission reported that just over 50% of vending machines in the euro area had been adapted to euro, and 90% by end-January (although the European Vending Association has no comprehensive data to confirm this).

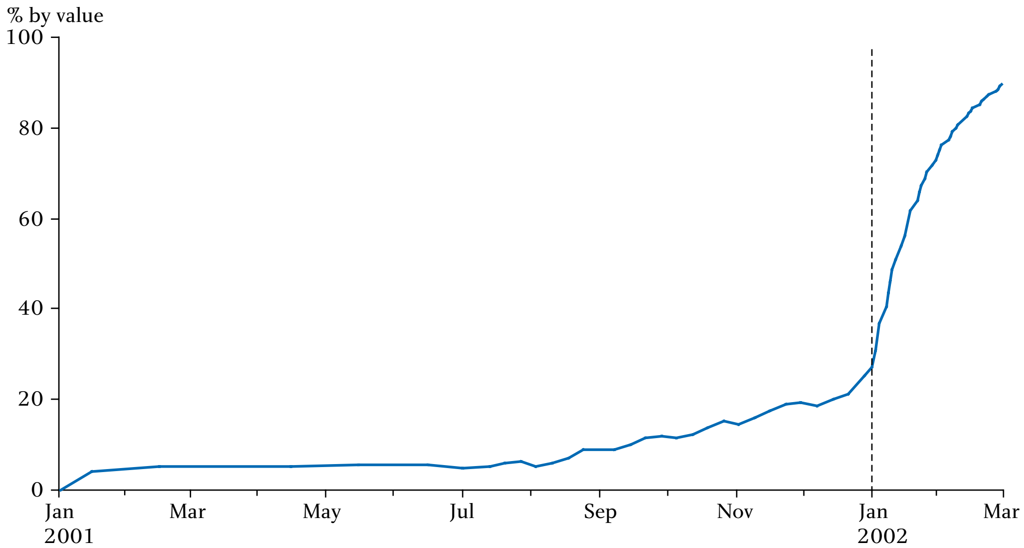
Withdrawal of legacy cash

15 National authorities across the euro area tried, so far as possible, to reduce the changeover task during the cash exchange period by encouraging the public to return hoarded legacy coin and high-denomination legacy banknotes early, before the cash exchange began. Approaching one-third of the value of notes in circulation had been returned to NCBs by end-December, with legacy banknotes in circulation falling from €380 billion to €270 billion during the course of last year. Legacy coin in circulation fell from €17.9 billion to €16.3 billion. National schemes, many organised by charities, for the early return of hoarded legacy coin met a significant response, without causing coin shortages to emerge before the changeover.

16 The bulk of legacy notes and coin were, however, still outstanding at end-year, and remained to be withdrawn (Chart 3).

- Notes in issue in the euro area increased to €403 billion on 1 January (6% higher than a year earlier), as all euro notes frontloaded were recorded as in issue at that point. As legacy banknotes were withdrawn, total notes outstanding declined to €285 billion by end-February (19% lower than a year earlier). In total, 6.7 billion legacy banknotes with a value of €231 billion were returned during the cash exchange period. They represented 86% of the value and 75% of the volume of notes outstanding at the end of last year. Central banks expect that up to 5% of legacy notes will never be returned.
- By contrast, out of 116 billion legacy coins outstanding with a value of €16.3 billion on 1 January, only 27% were returned by end-February, representing 35% by value. Central banks expect that around 30%-40% of coin will never be returned.

CHART 3: RETURN OF LEGACY NOTES



Note: as a percentage of stock outstanding at end-2000
Source: ECB

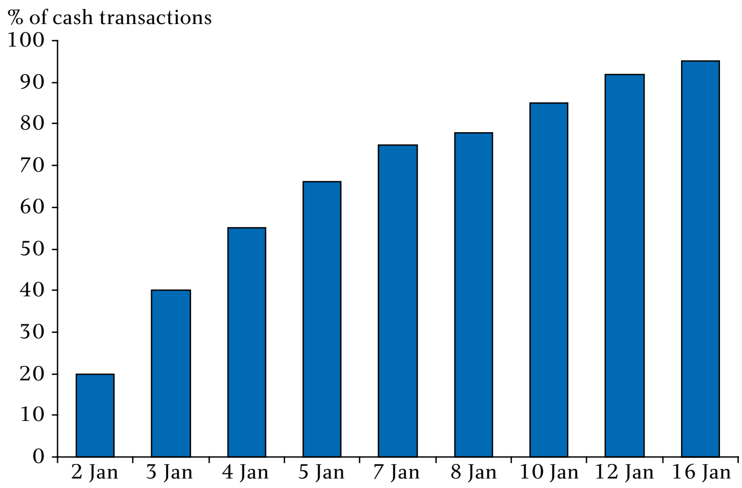
17 The withdrawal of the bulk of legacy cash took place in a shorter period than the distribution of euro cash. There were bottlenecks in withdrawing legacy cash early in the

New Year, as transport and secure storage capacity were strained for a short period, and CIT companies took time to sort and count legacy cash. Banks generally gave their customers value for legacy notes and coin when they received them. But banks' own accounts at NCBs were not always credited until the legacy cash was returned to the NCBs and verified, which involved substantial delays in some countries.

Pace of the cash changeover

18 Euro-area governments aimed to change the bulk of cash transactions into euro in just two weeks. The ECB and the Commission published data showing that this was achieved by them all: two-thirds of cash transactions by number were reported as denominated in euro rather than legacy currency by the end of the first week of January, and over 90% by the end of the second week (Chart 4).

CHART 4: CASH TRANSACTIONS IN EURO

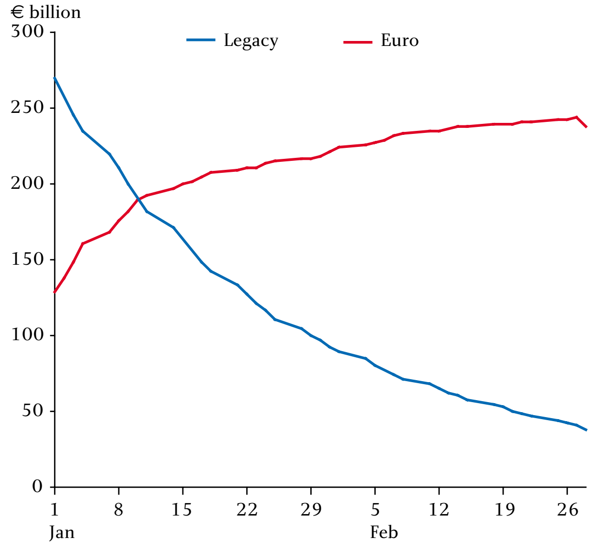


Source: European Commission

19 During the first two weeks of January, the number of euro notes in circulation increased from 6.4 billion to a peak of 8.1 billion on 15 January, before falling back to 7.5 billion at end-February, once low-denomination euro notes began to flow back to NCBs (Chart 5). The number of euro coin in circulation reached a peak of 38.6 billion on 15 January, 1 billion higher than the amount frontloaded. The ECB also monitored the pace of the cash exchange in the euro area and published a euro progress ratio (EPR) – the value of euro notes divided by the total value of legacy and euro notes in circulation (Chart 6).

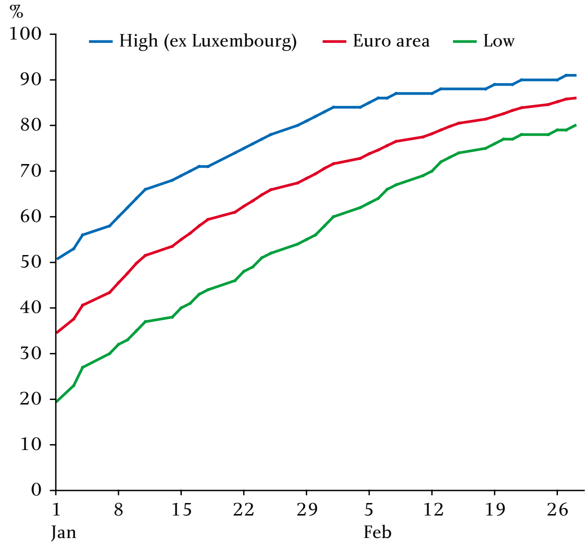
20 Data on the pace of the changeover are limited, and can only be indicative. There are two main sources: survey data on the proportion of cash transactions conducted in euro, and the EPR. The survey-based data are imprecise; and the surveys themselves varied from country to country. The EPR can be heavily influenced by the extent of frontloading, and so say relatively little about the extent to which the euro was actually used in the first days of this year. In addition, cross-country EPR comparisons are difficult, in particular because there were differences in the point at which legacy notes were recorded as 'returned' to NCBs, and some legacy notes were used much more extensively outside the relevant country and took longer to return.

CHART 5: NOTES IN CIRCULATION



Source: ECB

CHART 6: EURO PROGRESS RATIO



Source: ECB

Other issues

21 *Information campaign* The changeover was preceded by a major information campaign, organised by euro-area governments and by the Eurosystem (the ECB and the NCBs of EU countries which have joined EMU). The campaign was obviously concentrated in, but went beyond, the countries immediately affected. Its purpose was to explain the mechanics of the changeover and the features of the new euro banknotes and coin. The ECB campaign was supplemented by NCBs providing detailed national messages. The overall budget for the Eurosystem campaign was around €400 million, including €80 million for the campaign organised by the ECB.

22 *Counterfeits* Euro banknotes incorporate more security features than the national banknotes they have replaced. As part of the information campaign, the Eurosystem raised public awareness of these security features. Relatively few counterfeits have been reported so far, and they were all of low quality.

23 *Impact on prices* The ECB reported no evidence that the cash changeover had a significant impact on prices at the aggregate level, though there was evidence of increases in some individual items. The Eurosystem sought to counter public perception that the changeover had led to a rise in prices.

24 *Costs of the changeover* Governments endorsed the basic principle that changeover costs should be borne where they fell, though incentives were provided in some countries to encourage frontloading and sub-frontloading, and the return of legacy cash. No reliable estimates of the overall cost of the cash changeover are available.

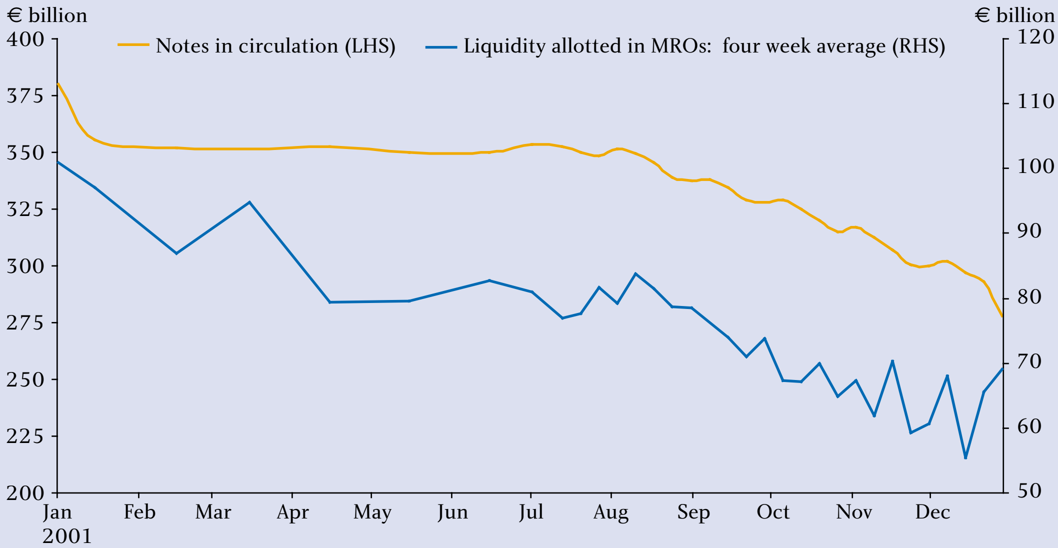
25 *The changeover outside the euro area* Euro notes worth around €4 billion were frontloaded to 26 central banks and some commercial banks outside the euro area, especially to replace Deutsche marks used in eastern and south-eastern Europe. The changeover in many countries in eastern and south-eastern Europe was much slower than in the euro area itself.

IMPACT ON EUROSYSTEM MONETARY OPERATIONS

The ECB was given great credit by the money market for the adept way in which it handled liquidity management in the lead up to and through the cash changeover period. Last year, it had to cope with the fall in legacy cash outstanding. And early this year, it had to cope with the temporary increase in cash, when frontloaded euro was put into circulation; the additional supply of euro cash subsequently; and the withdrawal of legacy cash.

Last year, the fall in the note circulation reduced banks' liquidity needs, and the provision of liquidity through the ECB's weekly main refinancing operations (MROs) declined (Chart 7). Liquidity forecasting became more difficult at the very end of last year, as the fall in legacy notes outstanding accelerated unpredictably. There was also an additional problem in those countries where banks could choose to collateralise frontloaded euro with either securities or cash, since use of cash changed unpredictably the banks' liquidity needs.

CHART 7: NOTES IN CIRCULATION AND LIQUIDITY PROVIDED



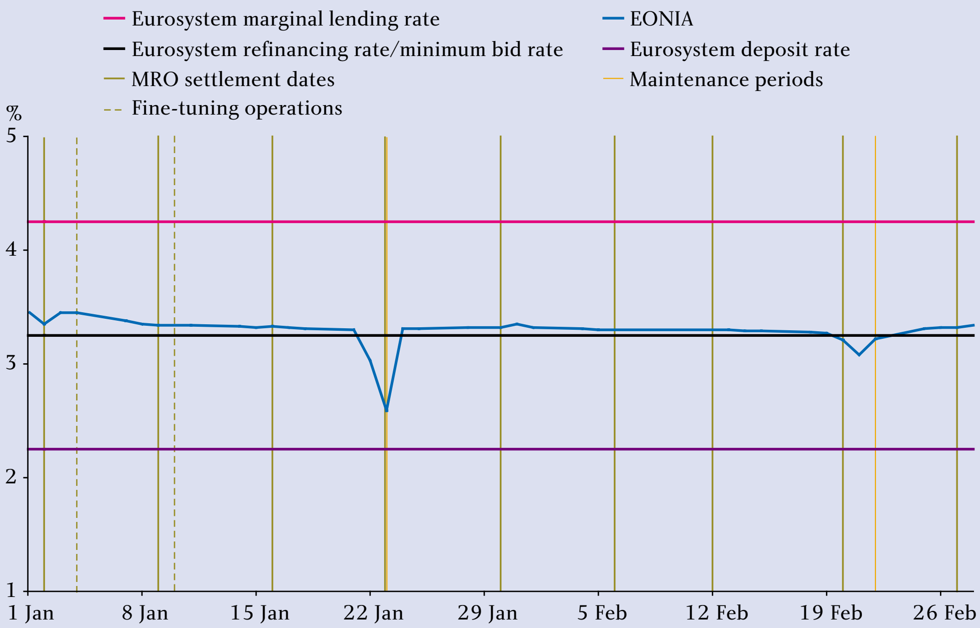
Source: ECB

At the beginning of this year, there was a massive but temporary increase in total cash outstanding, reflecting the frontloaded euro being put into circulation and the more gradual withdrawal of legacy cash. The timing and amount of frontloaded euro cash entering circulation was known in advance, but the timing and amount of both the additional supplies of euro being put into circulation, and the legacy cash being withdrawn from circulation, were highly uncertain. However, the impact on liquidity was smoothed because: the initial rise in cash in circulation occurred at the start of a maintenance period, giving banks three weeks to meet their reserve requirements; and, under the ECB's debiting model, banks were debited for frontloaded euro cash in three instalments during January (on days on which the ECB could adjust its liquidity injection).

In the event, the liquidity requirement of the Eurosystem was far in excess of initial forecasts and, unusually, the ECB adjusted its published weekly estimates of liquidity needs several times during January. This was primarily because initial demand for euro cash was unexpectedly high, resulting in extra supplies in early January; and also partly because the return of legacy cash to NCBs was slower than expected, delaying the crediting of banks' accounts.

The ECB could not take account of the unexpected demand for liquidity in its weekly MROs, and therefore also held two fine-tuning operations – on 4 and 10 January – to supply additional liquidity to the market. The operations were conducted as variable rate tenders, with a minimum bid rate of 3.25% and overnight maturity (the first operation spanning a weekend). They injected liquidity to a value of €25 billion and €40 billion respectively. These fine-tuning operations successfully smoothed liquidity conditions, and EONIA remained well within the standing facility rates throughout the changeover (Chart 8).

CHART 8: EUROSYSTEM RATES AND EONIA



Source: ECB and EBF

By end-April, the value of notes in circulation was €287 billion, some €66 billion (19%) lower than the level a year earlier. It is not yet clear whether this reduction in notes outstanding is permanent, or whether in due course there will be some rebuilding of hoarded cash.

AUSTRIA

Despite the relatively high usage of cash in Austria, the changeover was effectively complete by the second weekend in January. This reflected very high levels of frontloading, and widespread sub-frontloading, following meticulous planning and modelling by the Oesterreichische Nationalbank, as well as an efficient system for processing the schillings withdrawn.

Organisation

1 Organisation of the changeover was decentralised, with no national changeover board or equivalent. The Oesterreichische Nationalbank (OeNB) was responsible for the cash changeover and co-ordinated the logistics, supported by the printing works, the Mint and the main cash distribution company, Geldservice Austria (GSA), a Central Bank subsidiary. OeNB enlisted the help of external consultants, and ran its own information campaign to supplement those of the Government and the ECB. STUZZA, a representative body for Austrian banks, provided a forum to discuss and resolve issues relating to the banks' preparations.

Bank accounts

2 Banks planned to convert the majority of customer accounts in a 'big bang' during the final weekend of last year, and in practice only a few corporate customers requested an earlier conversion of their accounts. The bulk conversion was completed without banks experiencing any problems, generally taking less than a day and leaving the rest of the weekend for testing. OeNB provided a contact point during the weekend in case banks did experience problems, but it was not needed.

Payments

3 The launch of the euro in 1999 had been used as an opportunity to introduce a modern domestic payment platform for euro payments. The older, schilling, platform continued in operation until end-December. Although some companies were still not ready to use the new format from 1 January this year, in most cases banks continued to accept schilling payment instructions in the old format and converted them manually to euro for processing. The interbank clearing of remaining paper-based payments in schillings continued until 28 February, when very little schilling paper was still being presented.

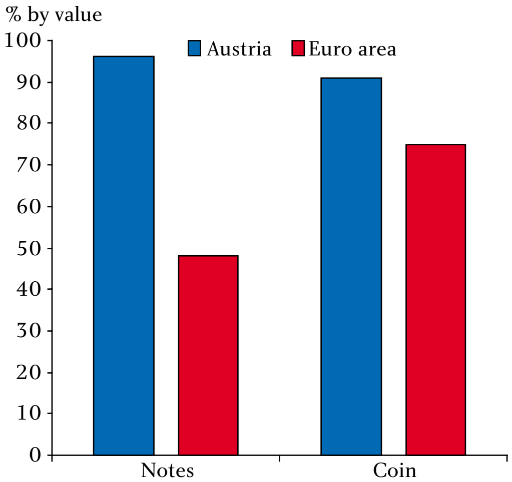
4 In the early afternoon of 2 January, a software fault caused a temporary breakdown of the central system through which POS terminals and ATMs operate. On 31 December and 1 January, more than 400,000 smart cards were converted to euro without any problem, but on 2 January it became clear that the conversion procedure contained a bug which materialised only when transactions reached 1,000 per minute. The cause was quickly identified and resolved, so that the system was working again within 65 minutes.

Prior distribution of euro cash

5 Prior distribution and frontloading were worked out in detail between the parties involved, and organised centrally by OeNB, allowing it to monitor progress in real time. GSA transported euro cash from the printing works and Mint to its seven storage depots, from where the two largest CIT companies distributed it to banks and larger retailers. In total, deliveries of notes and coin were made direct to 7,200 bank branches.

6 Frontloading and sub-frontloading were proportionately higher in Austria than other first-wave countries (Chart 9). Frontloading was completed in September and October, so that November and December could be used for sub-frontloading, and also for the early withdrawal of schillings. Early frontloading also reduced the risk of disruption from winter weather. But banks had to store large amounts of euro cash for up to four months, incurring extra security and insurance costs. The Ministry of Internal Affairs provided armed guards both for the transport of cash and for individual bank branches, which reduced insurance and security costs. In some cases, banks had insufficient storage space, so OeNB offered to store euro in the seven GSA depots.

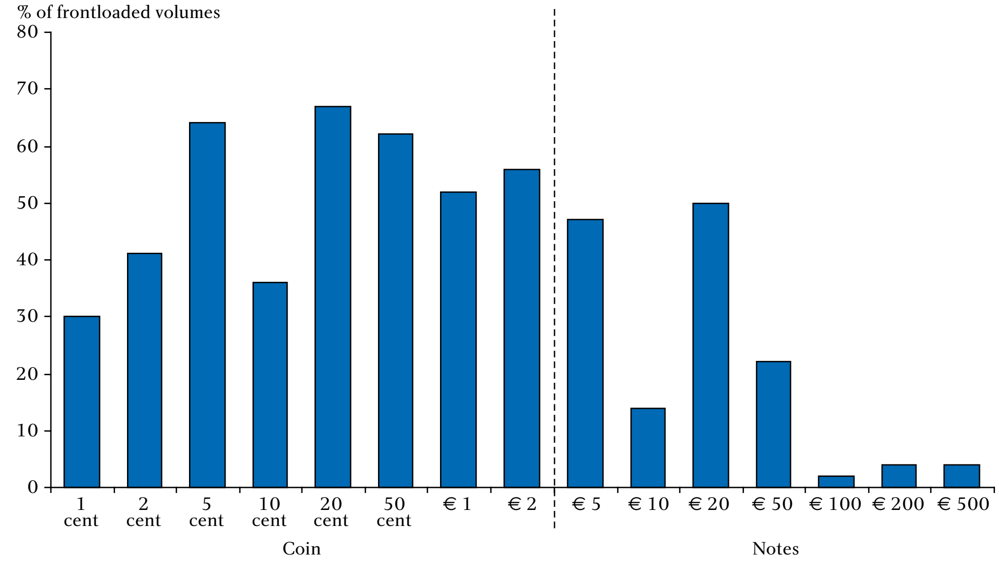
CHART 9: FRONTLOADING COMPARISON



Note: as a percentage of stock outstanding at end-2001
Source: ECB

7 Sub-frontloading was arranged via the banks, which relayed customer demand to OeNB and indicated whether each customer wished to receive a direct delivery of euro (for larger retailers) or to collect retail starter packs from its bank (for smaller retailers). 700,000 starter packs for smaller retailers were produced. They were easily portable and each contained coin with a value of ATS2,000 (about €145). OeNB modelling suggested that retailers would need between five and six times their normal cash float. Sub-frontloading accounted for 12% of the total value of euro frontloaded, but by volume the proportion sub-frontloaded was much higher, because most was of coin and low-denomination notes (Chart 10). The bulk of sub-frontloading (84%) took place in December, when most retailers wanted to receive euro cash. Some banks allowed customers to pay for sub-frontloaded notes on 2 January, or a few days later.

CHART 10: SUB-FRONTLOADING BY DENOMINATION



Source: Oesterreichische Nationalbank

8 From 15 December, starter kits for the public were sold by banks for ATS200, each containing coin with a value of €14.54. They were very popular. Thousands of people queued in Vienna's central railway station at midnight on 14 December when they first went on sale. The 5.5 million kits produced sold out by end-December.

Cash at banks

9 Different methods were used to convert ATMs to euro. 'On-site' ATMs have four drawers, so two were pre-loaded with euro and the machines were converted (by the banks) to euro at midnight on New Year's Eve. Most 'off-site' ATMs have two drawers. They were converted (by APSS, the operating company) during 31 December in two groups, the first half being shut down at 16.30 for conversion and the second half at about 18.00. Conversion took less than an hour and only a few machines required an engineer subsequently to rectify a problem. About 90% of ATMs were dispensing euro by 23.00, 96% by midnight and 100% during 1 January. Dispensing euro just before midnight on 31 December did not in practice cause any difficulties.

10 ATMs were heavily used in the first days of January. 'On-site' four drawer ATMs dispensed €10, €20, €50 and €100 notes. 'Off-site' ATMs, which dispensed only €10 and €100 notes, had their algorithms (determining the denominations to be dispensed) adjusted, so that the first €100 of any withdrawal consisted of ten €10 notes, to help reduce the change needed. Dispensing €5 notes was ruled out by the need frequently to restock. Instead, a large number of €5 notes were sub-frontloaded to retailers.

11 More people than expected visited banks to exchange schillings in the first few days of January, and long queues were common. They were particularly long at savings bank branches. Customers wanted their pass-books updated for annual interest payments, but also needed their pass-books converted from schillings to euro, increasing transaction times. Bank branches generally stayed open for two hours longer than normal during the first two weeks of January, and some for a longer period. Most banks allowed customers to exchange

cash for cash, rather than to deposit schillings on their accounts. Banks exchanged up to ATS50,000 (€3,600) free of charge for both customers and non-customers during the cash exchange period. Some banks introduced charges for non-customers from end-February onwards, but agreed to exchange cash free for customers at least until end-June.

Cash at retailers

12 Widespread sub-frontloading meant that virtually all retailers were able to give euro in change in early January. Indeed, many retailers found that they had excessive sub-frontloading. To ease the changeover for retailers, the use of cards and other electronic payments was promoted through the national information campaign, and some banks also offered customers subsidies to install POS terminals. There was a 30% increase in card use in Austria during the cash exchange period, a larger increase than in most other countries, although the usage of cards is still relatively low in Austria.

Withdrawal of legacy cash

13 A very successful de-hoarding scheme was run in May and June, and also in October and November. Some 80 million banknotes, with a value of ATS51 billion, and more than 1 billion schilling coin were withdrawn, mainly during the final quarter of last year. For coin, this represented a third of the volume that OeNB estimated would be returned in total, and therefore significantly reduced the quantities to be withdrawn during the cash changeover period.

14 During the changeover, banks had to return coin in standard packaging, labelled with bar-coded stickers indicating the amount contained and the relevant bank. The stickers were read electronically at OeNB and the details entered into an electronic system for recording and tracking the coin as it returned. This procedure allowed banks to be credited for returned coin quickly, as OeNB gave credit for the amount specified on the stickers and made any adjustments later after the contents had been checked. Alternatively, banks could return mixed unsorted coin in bar-coded packaging indicating the bank but no amount. The bank had to wait longer for its account to be credited and was not compensated for the resulting loss of interest. OeNB established a special coin 'factory' in Vienna to process the huge volumes of coin. Since banks normally return coin to OeNB's regional warehouses (for recirculation), the new procedure increased the distances coin had to be transported by CIT companies. As a result, OeNB agreed to pay roughly 60% of the extra costs.

Pace of the changeover

15 The cash changeover took place much faster than expected. OeNB expected at an early planning stage that around 10% of cash payments would be in euro on 1 January and 20% on 2 January, whereas in practice about 50% of payments were in euro on 1 January, and the changeover was effectively complete by the second weekend of the year. The quick changeover reduced costs for retailers (cutting transaction times, and the amount of euro change needed), but increased pressure on CIT companies and to restock ATMs.

16 For much of the changeover, Austria had one of the highest EPRs in the euro area. This reflected: high frontloading (including outside Austria) and sub-frontloading; the

de-hoarding campaign last year; and the speed with which schillings were withdrawn, owing to the efficient bar-coding system and co-ordinated transport logistics.

Impact on prices

17 Unlike other countries, Austria adopted a law (The Euro-Related Pricing Act) which, between 1 October and 28 February, obliged companies to show prices in schillings and euro; banned price increases for reasons solely related to the euro changeover; and provided penalties for infringements. A commission set up to monitor prices over the period received 700 complaints about price increases and investigated those greater than 3%. However, the difficulty of distinguishing whether a price rise was euro-related or due to other factors meant that in practice penalties were not imposed. Market forces were more effective in limiting price increases, particularly once a major retail chain announced that it would round down all its prices. In practice, Austria's annual inflation figures were largely unchanged from December to February.

BELGIUM

The non-cash changeover was largely completed in November. Frontloading and sub-frontloading of notes were above the euro-area average, and this, together with the widespread use of electronic payments, allowed for a smooth cash changeover.

Organisation

1 The General Commission for the Euro, chaired by a director of the Banque Nationale de Belgique, was involved in detailed planning for the changeover. There were four main subgroups; one, chaired by a Treasury official, focused on the financial sector. A notes and coin working group, chaired by a Banque Nationale de Belgique official, co-ordinated the cash changeover.

Bank accounts

2 The Belgian banking community actively promoted an early and gradual changeover of non-cash payments and bank accounts (of which there are some 30 million). The banks' own accounting systems were nearly all converted by 1 January 2001; and all banking products were available in euro by 1 July 2001 at the latest. Personal accounts – other than those of a very small number who objected – were converted in bulk in the summer and autumn. Once converted, all account information was provided in both denominations at least until the end of the cash exchange period, and in some cases will be until early July. Some banks also converted business accounts in bulk, unless the customer requested a delay; some encouraged the customer to request the change; and a few opted for a 'big bang' conversion of corporate accounts at year-end. In practice, there was little use of euro payments until the end of last year.

Payments

3 While the final change of POS terminals was made late on – Banksys reported that less than 20% of machines had been converted by early December – over 70% were ready early on 1 January, with the remainder completed by 2 January. 64% of electronic transactions were in euro on 31 December; from 1 January, all Belgian franc transactions were rejected. The Commission for the Euro had encouraged the use of payment cards (debit, credit and Proton e-money cards) where possible; but in December and the first days of January card usage fell, as consumers used up Belgian francs, and tried out the new currency.

4 Proton cards were mostly converted automatically when they were loaded again, after the related bank account conversion. 85% were converted in this way by end-year. The remaining 15% could not be used in a POS terminal after 1 January until they had first been converted via insertion in a Banksys ATM. The frequency of Proton card loading tripled over the turn of the year.

5 Cheques are little used in Belgium; many banks no longer promote eurocheques – the only form of cheque used in Belgium – in part because the guarantee scheme was discontinued from 1 January. Any outstanding Belgian franc-denominated cheques and

paper-based credit transactions will be cleared centrally until July, although in principle they should not be accepted if dated after end-December. To help reduce the number of Belgian franc credit transfers, utility bills were denominated in euro from last autumn; and to avoid confusion, euro-denominated credit transfer forms are a different colour to those for the Belgian franc.

Prior distribution of euro cash

6 Notes and coin were pre-distributed to the Banque Nationale de Belgique's 12 branches on production. Banks' definitive orders for frontloading had to be made by June 2001; actual frontloading of coin began in September, and of notes (concentrating on low denominations) in November. Transportation costs for the frontloading of both notes and coin (and withdrawal of legacy coin) were borne by the central bank; banks were charged a handling fee for any orders not collected. Sub-frontloading started on 1 December, though in a few cases this was delayed because the required frontloading had not been delivered to the correct location; and several of the larger retailers would not take delivery of notes and coin until mid-December, to reduce costs, security risk and storage constraints. Cash distribution used the normal CIT network. But all orders were handled centrally by a small team in the Banque Nationale de Belgique, rather than by its local branches, as a more efficient way to manage the process.

7 The Banque Nationale de Belgique required collateral for all frontloaded currency, regardless of whether it was sub-frontloaded. Based on the amounts ordered by last June, collateral was collected in fixed tranches – seven for notes and three for coin – from September to December, to facilitate collateral management. Banks did not as a rule take collateral from customers, because it was complicated, and might discourage sub-frontloading; and while retailers' accounts were normally debited on delivery of cash (to give some security to the bank), the value date for this was delayed until 2 January or later.

8 Frontloading of notes was about 10-15% higher than the euro-area average (on a per capita basis); for coin, Belgium was in line with the euro-area averages for both frontloading and sub-frontloading. Around 90% of the €5.1 billion of notes frontloaded were accounted for by seven standard packs designed for the changeover: three for bank counters; two for ATMs (€20s and €50s); and two for retailers (€5s, €10s and €20s, with the notes in bundles of 25 rather than the normal 100). The amount of frontloading may have been excessive: up to a fifth of the low-denomination notes were returned to the Banque Nationale de Belgique never having been used. The value of euro notes in circulation increased steadily as higher denomination notes were made available. (While cash holdings in Belgium are around the euro-area average, a relatively high proportion consists of high-denomination notes used mostly for precautionary holdings rather than transactional purposes.)

9 All 5.5 million starter kits for individuals were sold; around one million of these were given to staff by employers, a scheme encouraged by the General Commission for the Euro. In addition, 800,000 coin starter kits for retailers (80% of the amount requested by banks) were distributed to banks and La Poste, but a substantial part was not collected by retailers.

Cash at banks

10 During the first week of January, there was an increase in the number of people visiting banks, though queues were not longer than an hour. The amount of euro disbursed over counters far exceeded that of ATM withdrawals during the same period. The number of ATM withdrawals was nevertheless above average during the first week of January, as was the average value of withdrawals (around €100), thereafter returning to normal. One large bank delayed conversion of its ATMs to ensure that sufficient cash in Belgian francs was available on 1 January; but virtually all ATMs were converted by the end of 2 January. Most banks provided only €20 notes initially, adding €50 notes during the first week. Only one bank – accounting for 20% of ATMs – provided (and still provides) €5 notes.

11 Consideration was given to operating separate queues for retailers (who needed to obtain euro cash quickly) and individuals (who did not on the whole need to exchange legacy cash early in January). Most banks found it was not possible to discriminate. Some banks were reluctant to deal with non-customers, other than for small amounts, not least in view of the additional anti money-laundering requirements announced in a 20 November communiqué from the Banking and Finance Commission.

12 Exceptionally, the Banque Nationale de Belgique's counters were open from 8.30 to 16.30 throughout the cash exchange period (an hour and a half longer than normal), and until 19.00 on Thursdays.

Cash at retailers

13 In the first few days, most cash payments were still in francs, though the majority of shopkeepers tried to provide change in euro. Many operated two tills, one for each denomination. In the first two weeks, a quarter of small shops had to obtain additional supplies of euro cash from banks, particularly of low-denomination notes; occasionally change had to be given in francs. At the same time, some banks were returning to the central bank, unused, stocks of €5s and €10s, implying frontloading had been somewhat excessive. And while sales were delayed a fortnight until 19 January, with hindsight the extent of this delay was judged unnecessary. By 10 January, 80% of cash transactions were in euro, and 90% by 15 January.

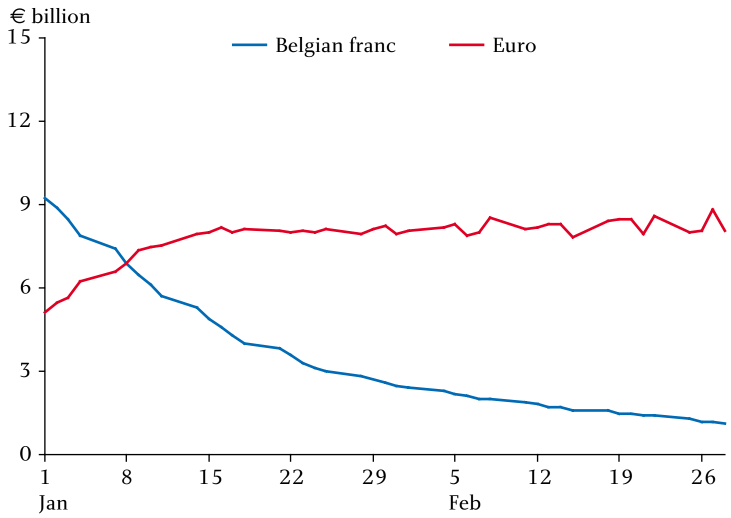
14 There were complaints about people using high-denomination franc notes for small purchases and expecting euro in change (this may in part reflect the queues at banks through the first week or so, as well as the tighter reporting requirements on deposits and cash exchanges). The Government refused retailers' requests to remove legal tender status from the BEF10,000 note from 1 January to prevent this; but a few retailers did refuse these notes (as well as high-denomination euro notes). The Commission for the Euro said that all notes should be accepted during the cash exchange period; but reminded people of the 'principle of proportionality' – ie that the value of a note used in payment should not be significantly bigger than the value of the purchase.

15 Conversion of vending machines was relatively slow: after a fortnight, many still returned change in francs, although all were able to accept euro. A third were not fully converted until February.

Withdrawal of legacy cash

16 Campaigns to withdraw Belgian francs from circulation ahead of the changeover involved the use of plastic clips – distributed to the banks by the Banque Nationale de Belgique – to facilitate counting of the returned coin; but in practice these were not used by the public nearly as much as had been hoped. Between end-2000 and end-2001, 32% of notes and 24% of coin, by value, were withdrawn; but much of this came from retailers, and was not sorted before being returned. A further 60% of notes and 25% of coin were withdrawn by end-February (Chart 11). Some 20-30% by value (30-45% by number) of coin in issue are expected never to return.

CHART 11: NOTES IN CIRCULATION



Source: ECB

17 Higher denomination notes paid into banks (most BEF10,000 and some 25% of BEF2,000) were marked – by a single hole centred in the watermark – before being returned to the central bank, in order to reduce the security risks of transport. Handling problems arising from the marking were minor; the scheme, well advertised, is believed to have been useful in reducing the security risks in the return of the high-denomination notes. Large retailers were allowed to mark notes, but in practice did not do so.

18 Banks were prepared to exchange small quantities of coin into euro; but large amounts had to be deposited. Some banks offered immediate crediting of accounts for coin which were already sorted in standard clips provided; but for unsorted coin credited the relevant account only once the value had been verified (potentially some weeks later). Deposits of both notes and coin will be possible at banks until end-2002; thereafter, coin can be exchanged at the central bank or La Poste until end-2004, and notes at the central bank indefinitely.

19 As in most countries, the volume of coin returned in January exceeded the banks' and CIT companies' capacity to sort and count, leading to delays of 4-6 weeks before accounts were credited. In some cases – notably for vending machine companies, where coin is a significant part of cash flow – banks were prepared to offer credit, and to back date the

value of the deposit once it had been verified. Immediate crediting – on trust – was not always possible, as some banks' systems are set up to take electronic information from the CIT companies.

Impact on prices

20 As in many countries, there was a widespread perception that prices rose with the changeover, notably in restaurants and bars, taxis and cinemas. But the overall impact on inflation was small and in March, when dual pricing became less widespread, annual inflation actually fell compared with February.

21 In the first week in January, over 100 retailers were fined for displaying prices only in Belgian francs.

FINLAND

The changeover in Finland was characterised by a calm, pragmatic approach, with the changeover logistics facilitated by the low level of cash usage. In line with experience elsewhere, the cash changeover was faster than expected and very smooth.

Organisation

1 An oversight committee, chaired by the Ministry of Finance and involving a wide range of social partners, produced an overall *Plan for Adoption of the Euro*. This was first published in October 2000 and revised in April 2001. Suomen Pankki (the Central Bank in Finland) drew up a *National Plan for the Cash Changeover*, in cooperation with the Finnish Bankers' Association and its member banks; and a smaller taskforce chaired by Suomen Pankki produced a detailed logistical plan, both for euro distribution and for markka withdrawal. In addition, there was a Euro Cash Group, involving the commercial, savings and co-operative banks. In general, these groups operated on an informal basis, with frequent bilateral contacts outside the regular meetings.

Bank accounts

2 In the vast majority of cases, bank accounts and contracts were converted in a 'big bang' approach at end-December; information in both denominations was available to customers earlier. Minor technical issues were easily dealt with over the weekend; in some banks, the conversion took a little longer than they had expected on the basis of test runs, but was nevertheless completed with plenty of time to spare.

Payments

3 Most payments in Finland are made electronically. A campaign by the banks led to a substantial increase last year in the number of credit and debit cards held; but there was a small fall in card payments in early January, as many people either used up their holdings of markkas in shops, or wanted to handle the new euro notes. Some direct debits and credit transfers – eg relating to bills issued last year and denominated in markkas – could be made in markkas until end-February; and a small number of companies which were unprepared for the changeover continued sending electronic payment instructions to their banks in markkas until end-February. But from 1 March, all payments had to be in euro.

Prior distribution of euro cash

4 A relatively high proportion of the launch stocks of notes and coin were frontloaded to the CIT companies' 21 distribution centres around the country (ATMs are supplied direct from these stocks) and to the banks. The process was managed by Automatia, a non-profit cash distribution company owned by the large banks. Real-time information on the location of frontloaded cash was made available to Suomen Pankki during the changeover period. The procedures were essentially the same as those developed the previous year for markka

cash distribution, though the information system – which had to be modified to include more banks than normal – was only finalised as frontloading started.

5 There was relatively little sub-frontloading in Finland: just 1.9% of notes frontloaded, and 9% of coin (around a fifth and a half of the euro-area average, respectively). This reflected the relatively low level of cash usage, and the conditions required of retailers for sub-frontloaded cash (the need to sign a contract, increase insurance cover, and in some cases use higher security safes because of the additional amounts of cash involved), which discouraged most from receiving euro ahead of 1 January. However, many retailers placed orders for euro cash with their banks in advance, and were able to collect the money quickly when banks opened, many earlier than normal, on 2 January.

6 Starter kits for individuals were smaller than in most countries, containing just one of each coin; and only 500,000 were made available – one for every ten residents – via a chain of kiosks (banks were reluctant to sell them, in part because the price of FIM23.10 did not correspond to a national banknote denomination, making the purchase more cumbersome). They sold out on the first day, leaving unsatisfied demand, particularly on the part of coin collectors. Suomen Pankki decided as a result to produce 3 million more of both the 1 and 2 cent coins – which had only been minted for these starter kits, as all cash payments are (by law) rounded to the nearest five euro cents. These were made available from banks from end-February. (1 and 2 cent coins are of course legal tender in Finland but it is not expected they will be much used.) A small number (26,000) of standardised starter kits for retailers were distributed; but most retailers made their orders individually.

Cash at banks

7 Conversion of ATMs was, deliberately, targeted at a slower pace than in most countries. ATMs were not pre-loaded with euro, in part to avoid the risk of them running out of markkas before end-December: Finnish ATMs are very heavily used. Unconverted ATMs continued to dispense markkas. The Commission criticised the Finnish approach as too slow, though with no obvious justification. Some 50% of ATMs were converted by 1 January, and the process was complete by 4 January – ahead of schedule.

8 As in many countries, queues formed at the Central Bank at midnight; in Finland the public had to brave temperatures of minus 15 degrees centigrade. There were some queues in banks in the first week in January; but most people spent markkas in shops and obtained euro from ATMs, perhaps responding to the nationally-tailored information campaign from Suomen Pankki. ATM withdrawals were higher than normal, but less so than in many other countries.

Cash at retailers

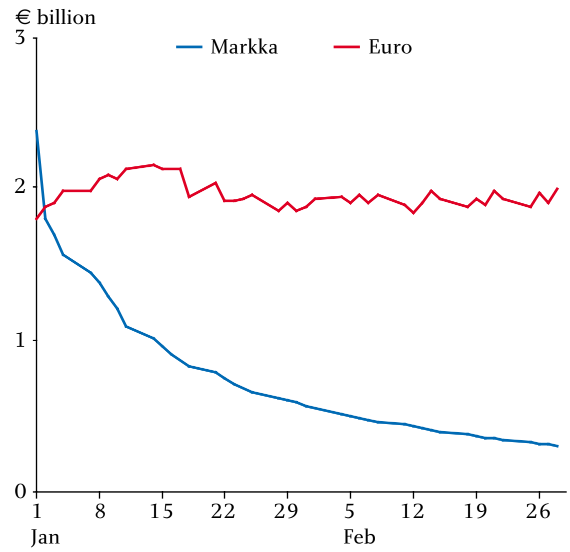
9 Shops reported some increased use of high-denomination markka notes; and a general increase in the number of cash transactions in early-January. Markkas could be, and occasionally were, used in shops until the end of the cash exchange period. Peak euro circulation was reached by 11 January. Thereafter, as in most countries, circulation of the lower-denomination notes (€5, €10 and €20) and of all coin (other than 1 and 2 cents, for the reason identified above) fell.

10 Vending and other coin-operated machines were converted at a slower pace, but by mid-January most were functioning in euro. Where the public did not have the right denominations for parking meters and tram ticket machines, police and ticket inspectors were reportedly lenient during the first few days of January.

Withdrawal of legacy cash

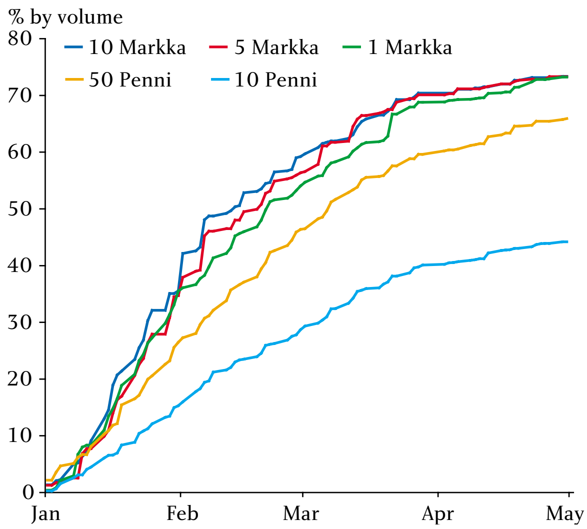
11 Relatively few markka notes – about 10% by value – were withdrawn from circulation in 2001. A quarter of the outstanding amount had returned by 2 January (via retailers rather than being brought to banks, on the whole), though thereafter the pace eased. As regards markka coin, 22% of the amount expected to be withdrawn was returned to Suomen Pankki by last autumn. Most banks outsource the counting of returned coin to CIT companies: the volume of coin returning in January, from individuals (piggy banks etc), resulted in delays of several weeks before accounts were credited (retailers' pay-ins were handled faster, as a rule). The backlog was not expected to be cleared until now. Just under 13% of the stock of notes outstanding at the start of the year, and 45% of coin was still in circulation, or awaiting return to Suomen Pankki, at end-February (Charts 12 and 13); expected final return rates are 95% and 70%.

CHART 12: NOTES IN CIRCULATION



Source: ECB

CHART 13: RETURN OF LEGACY COIN



Note: as a percentage of stock outstanding at end-2001
Source: Suomen Pankki

12 Banks will continue to exchange markkas for customers until late summer or end-December (banks decide individually), but, other than for small amounts, most now charge a fee: where non-customers are served, fees are higher.

Impact on prices

13 Suomen Pankki estimated that the impact of the changeover on prices in January was small, at 0.1-0.2% (in line with the euro-area average). The changeover is said to have raised awareness of the higher level of prices in Finland compared with the rest of the euro area; in the longer term, this may exert downward pressure on prices.

FIRST THE FIFTEEN SHILLING COIN
— NOW THE 300 EURO NOTE!

(a €300 counterfeit reportedly turned up in one euro-area country)

FRANCE

The French changeover was distinguished by strong encouragement for an early conversion of bank accounts to euro, and an early use of the euro in banking transactions, both to spread the burden and risks of the changeover work, and to familiarise the public with the euro. This approach succeeded in increasing significantly the proportion of banking payments in euro rather than French francs in the latter months of last year. The cash changeover itself was relatively smooth, though there were a few, very localised, shortages of euro cash and some logistical difficulties 'behind the scenes'.

Organisation

1 The National Committee for the Euro was chaired by the Minister of Finance. The changeover for the banking and financial sector was co-ordinated by the Co-ordination Group for the Changeover to the Euro, chaired by the first Deputy Governor of the Banque de France, with the support of the Euro Steering Committee, co-managed by the Banque de France and the French Association of Credit Institutions and Investment Firms. Distribution of euro notes and coin was managed by the Banque de France, using a range of regional and local committees, involving its branch network for notes and special storage facilities for coin. Information for banks was provided through a variety of channels. But some banks suggested the respective responsibilities of the Treasury, the Mint and the Banque de France were not sufficiently clear; and the emergence of problems in coin distribution late last year required a clarification of these roles.

Bank accounts

2 Most French banks converted current accounts for personal customers in bulk from July to September, and accounts for business customers later in the autumn. Very few customers objected to conversion on this timetable, not surprisingly as the change made little practical difference to them. French franc cheque books could still be used until end-December, although they were no longer distributed from end-September, and statements provided at least summary information in both euro and French francs – and in most cases will continue to do so until at least end-June. A number of larger corporates wanted to wait until end-December for their account conversion, and were on the whole accommodated. At end-December, a few minor technical problems arose with the conversion of corporate accounts, generally when the companies had not adequately prepared.

Payments

3 There was official encouragement to make payments through the banking system increasingly in euro during 2001. Few problems arose with direct debits (as these are typically pre-printed), or with cheques – where franc and euro cheque books were visibly different, and the bar code on cheques allowed those tills which print cheque details to distinguish between the two. The option of making card payments in euro was little used until December, and a small number of errors arose when operators forgot in which denomination the POS terminal was working (banks had in place contingency arrangements for correcting such errors). But from 1 January all systems operated smoothly in euro, and

the small number of residual franc transactions – both cheques and POS – rapidly tailed off. (In the case of one bank, faulty programming meant that some POS transactions effected at end-December were credited, correctly, in francs but debited from users' accounts at the beginning of January with the same number of euro, but this was quickly resolved.) In the first 2-3 weeks of January, some retailers reported a fall in the use of card transactions – though the public had been encouraged to use these to avoid the need for calculating and providing euro change. This appears to reflect 'mattress' money being spent in shops, rather than exchanged at banks – perhaps to preserve anonymity but possibly also to avoid queues in banks early in the month. For the month as a whole, however, there was an increase in card usage.

Prior distribution of euro cash

4 Overall, frontloading and sub-frontloading went more or less according to schedule; but bottlenecks occasionally prevented distribution all the way down the chain, and there were a few local shortages of some denominations. Delays, due to the sabotage of some starter kits, meant that some coin due in December was not in fact delivered until January.

5 Note distribution was handled through normal channels – Banque de France branches and CIT companies. From mid-October, Banque de France branches had extended operating hours to cope with the volume of cash handling. The Banque de France monitored closely the progress of frontloading, both at regional and branch levels. 70-80% of the target for frontloading was reached by end-December and continued at a high rate for the first 10-15 days of January. Sub-frontloading of notes progressed a little more slowly: many small shopkeepers were reluctant to take delivery of notes before mid-December, for storage, security, and cost reasons (particularly insurance costs and the timing of payment). Nevertheless, some larger retailers which had expected to need re-stocking with euro as soon as 5-6 January found that they had a surplus of euro cash at that point, which they returned to their banks. The January deliveries had a much higher proportion of high-denomination notes than those frontloaded, and by the end of that month there was a net reduction in the circulation of €5 notes.

6 The logistical problems of coin frontloading required a different approach. Coin was transported, mostly by train, to five main depots (in military bases), and from there to 80 regional centres managed by the CIT companies for on-distribution to banks and large retailers. The decision to set up these regional centres was not taken until February 2001 and required changes to normal procedures. The volume of coin far exceeded that normally handled, and put severe strains on the sorting and administrative capacity and systems of the CIT companies. This was exacerbated by rapidly increasing demands for coin by retailers during 2001. The estimate of 3.5 billion coin made in the spring had risen to 6.7 billion by the autumn. In part this was because rumours that supplies might be insufficient led to retailers increasing their orders (expecting to be scaled back). Commercial banks said that the three week delay in distribution, following the discovery of faulty starter kits, encouraged these rumours. But although sub-frontloading did not reach (final) targeted amounts, it was probably still more in aggregate than was actually needed: 15% of the 6.3 billion coins issued had been returned by mid-March. Indeed, the oversupply of euro coin itself caused problems by putting further strain on the CIT companies, battling with the withdrawal of francs.

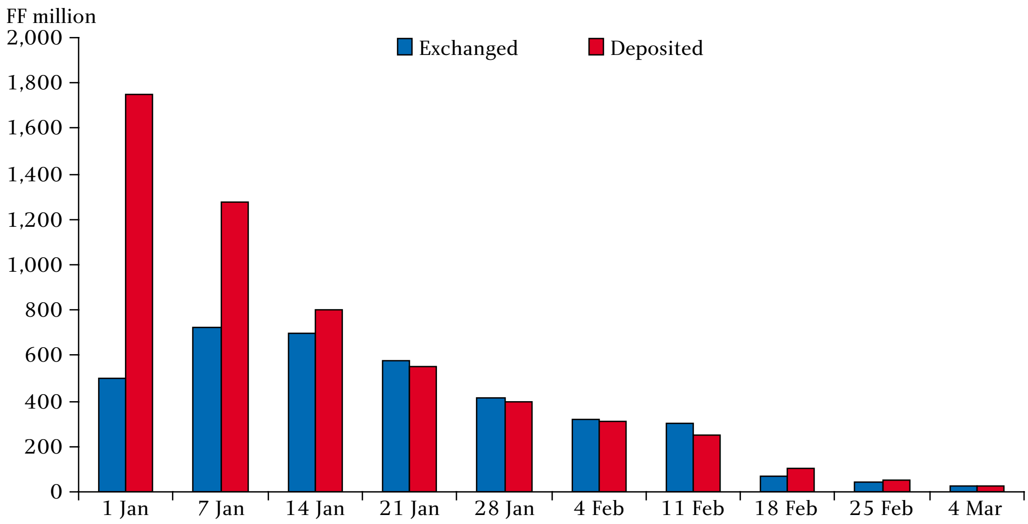
7 There was some reluctance by banks to be involved in the supply of starter kits for the public, but also an expectation that demand would be high. Many banks consequently limited sales to one per customer. 53 million kits were prepared (over 30% of frontloaded coin), and while 20-25% of these were not sold, the number of starter kits sold per capita was still well above the euro-area average. Disposing of the unsold kits was expensive, as they required repackaging. Most of the 1.5 million starter kits for retailers were sold; but by contrast with the kits for individuals, the format of these kits made it easy to re-use unsold kits.

Cash at banks

8 90% of ATMs switched to euro on 1 January. The small proportion not converted then were mostly in shops or malls which were closed on 1 January. From 4 January, no machines distributed French francs. The number of ATM withdrawals was relatively high in the early hours of 1 January; and the average value rose about 30% to over €80. But over the first few days as a whole the number was rather lower than normal, as 'mattress' money covered spending needs. No machines (apart from the Banque de France itself) distributed €5 notes; but most provided €10 and €20 denominations at least for the first fortnight, later switching to €20s and €50s.

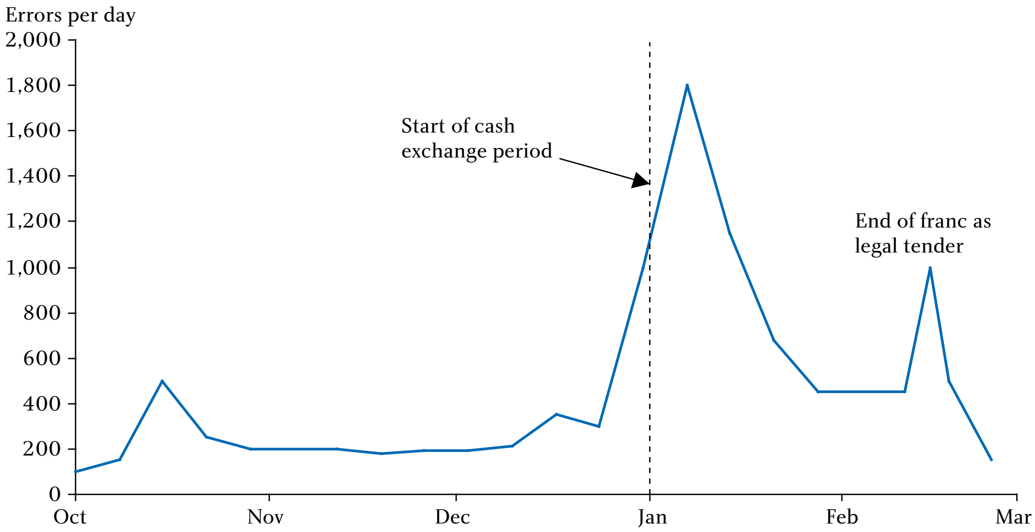
9 Many people took very small amounts of franc cash to banks to exchange in the first days of January – 8-10 times the usual number of clients went to banks – resulting in long queues, even though banks took on thousands of part-time additional staff to help cope and in some cases extended opening hours. The Banking Federation issued a reminder to the public that there was no need to rush to dispose of francs. A number of banks asked, or even insisted, that customers pay francs into their account (there was an above-trend increase in bank deposits and sales of savings products in January), and withdraw round amounts of euro (preferably from ATMs), to avoid the need for cashiers to count out odd amounts of euro, and to handle euro coin, as this both increased transaction times and the number of mistakes made (Charts 14 and 15). Some banks declined to serve non-customers (effectively giving customers priority when queues were long). The Minister of Finance and the Governor of the Banque de France reminded banks of their prior agreement to serve everyone.

CHART 14: FRANCS EXCHANGED INTO EURO



Note: data are weekly, commencing on date shown above
Source: A French bank

CHART 15: NUMBER OF CASHIER ERRORS



Source: A French bank

Cash at retailers

10 Consumer behaviour was in general not entirely consistent with that recommended, but it is not clear how this affected the pace of the cash changeover: it may have slowed it somewhat. High-denomination franc notes were used in some 15-25% of shops (FF500 notes were occasionally refused) and motorway tolls, while small (even very small) change was taken to banks, resulting in longer queues than expected. At the same time, there was a sharp increase in the use of cash – major retailers saw the share of cash payments double – as well as specifically in the use of high-denomination notes in shops. Major retailers were as a rule able to provide change in euro. In some cases, the calculation of change was made automatically by the till; in some cases, separate tills were nevertheless made available for franc payments. But some smaller retailers (a quarter of retailers questioned in a survey by the Ministry of the Economy during the first week) gave change in the currency proffered, rather than always in euro, as this made it much easier to calculate change, and so reduced transaction times. Around a third of retailers commented on a shortage of certain notes or coin in the first few days.

11 Vending machines were converted more quickly than planned; the original schedule was accelerated in response to the faster than expected adoption of the euro by the public. (There were some delays with parking meters, but customers did not object to being unable to pay!) A few problems were reported with one cent coins, and non-French coins, not being accepted at first, requiring recalibration of machines; but on the whole, operators were pleased to note that customers were using more exact amounts than they had done with francs.

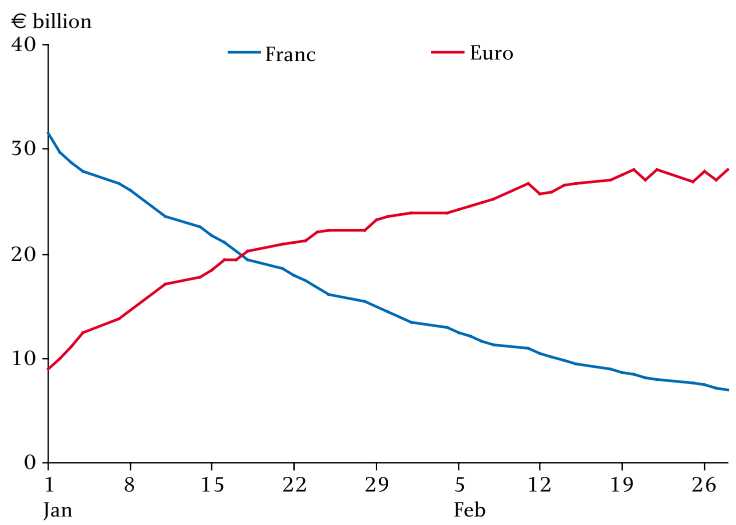
Withdrawal of legacy cash

12 Just under one third, by value, of franc notes outstanding at end-2000 were returned to the Banque de France by end-2001; and almost the same proportion of coin. A substantial part of returned coin consisted of stocks held by large retailers, perhaps in order to make available storage space for sub-frontloading of euro. To manage the unexpectedly early

return of this coin to its branches, the Banque de France brought forward from January to November plans to transport it to the 80 regional centres and then to the five main depots.

13 The return of franc notes to the Banque de France in early January (Chart 16) was a little slower than expected. This reflected: the tendency to spend high-denomination notes over the first few weeks (in part coinciding with the sales in mid-January), rather than changing them at banks; initial backlogs at CIT companies (though banks' accounts at the Banque de France were credited immediately the CIT companies had checked the notes); and possibly also higher than expected holdings of franc notes abroad, which took longer to repatriate. There were also indications that precautionary cash holdings (likely to be held more in higher-denomination notes), after a high rate of return last year, were returning more slowly than transactional balances during the cash exchange period: the highest denomination note (FF500) accounted for over 47% of the value of notes outstanding at end-2000, falling to 41% at end-2001, but had risen back to 51% of franc notes outstanding by mid-March.

CHART 16: NOTES IN CIRCULATION



Source: ECB

14 Banks were allowed to deface franc notes being returned, by punching holes in a precise pattern; two-thirds of banks used the process (after acquiring 50,000 dedicated punching machines). The practice was widely advertised by the French Banking Federation, which believes the scheme helped to deter thefts, even though the notes remained legal tender until they reached the Banque de France.

15 Although the public was not aware of anything other than a smooth changeover, the return of coin was not so straightforward 'behind the scenes'. Knock-on effects of the frontloading delays added a particular complication, but the main problem – as in many other countries – was the sheer scale of the returned coin in such a concentrated period. This was unpredictable. The banks and retailers typically delivered coin unsorted to the CIT companies; but in the absence of sufficient sorting capacity, some depots reached storage capacity, and coin had to be passed uncounted to the CIT regional centres. Without a single database accessible by all parties – a problem common to most countries – a complete audit

trail was difficult; and administrative problems in tracking returned coin caused delays of several weeks before bank accounts at the Banque de France could be credited. The banks said this cost several million euro.

Pace of the changeover

16 The proportion of euro in cash transactions rose more slowly than the euro area average. But the changeover was essentially complete by end-January, well ahead of 17 February, the official end of the cash exchange period.

Impact on prices

17 INSEE's price surveys continue to show the limited effects of the euro on inflation, though there were clearly increases in many individual prices – small shops and restaurants are most frequently cited. Nonetheless, the Minister of Finance expressed the hope that prices should remain unchanged after the self-imposed price freeze, lasting to end-March, by large retailers.

18 An INSEE survey in March showed that 53% of the public wanted dual pricing to be maintained after June: 31% until the end-2002, and 22% beyond. 21% said they were already thinking in euro, without having to convert; but 22% said this would take a number of years.

GERMANY

The completion of the non-cash changeover in Germany went according to plan, with different banks converting their customer accounts at different times. The cash changeover was quick, despite a large population and a high cash ratio. The initial stock of euro notes and coin was more than twice as large as any other country, there was extensive frontloading, particularly of low-denomination notes, and the ATM conversion was effectively completed on 1 January. Many low-denomination euro notes were returned to the Bundesbank early in the cash exchange period, once no longer needed.

Organisation

1 Whilst its role in the completion of the non-cash changeover was limited, the Bundesbank played a key role in the cash changeover, which was a major task. The Bundesbank organised this on the basis of the *Cash Changeover Plan* agreed with all the main parties involved in February 2001.

Bank accounts

2 There were an estimated 400 million bank accounts to convert throughout Germany, at 2,500 credit institutions with 50,000 branches. Different types of bank adopted different approaches to conversion. The large private sector banks (Commerzbank, Deutsche Bank, Dresdner Bank and HypoVereinsbank), for example, converted the accounts of their personal customers early, generally starting last October, having provided information in advance on their bank statements. Deutsche Bank also converted many of its corporate customers' accounts early, but Dresdner Bank did not do so until end-year, except where corporate customers requested earlier conversion (7-8% of the total, in line with other German banks). A large majority of customer accounts at the savings banks, co-operative banks and Postbank, which together account for 85-90% of personal bank accounts in Germany, were converted at end-year. Bank statements continued to be issued with both euro and Deutsche mark data for a short period.

3 In each case, the conversion of bank accounts took place more or less as planned. There were only minor teething problems in a few banks, which took a few days at most to correct. Some arose when different IT programmes were run at the same time, and might have been eliminated altogether by end-to-end testing of all systems in advance, though this would have been expensive. These teething problems, minor though they were, tended to support the large private sector banks in their view that their own operations – in contrast to the savings banks – were too complex to convert in a 'big bang' over the final weekend, especially as they also had end-year processing to undertake as well. Even though the conversion was staggered, a four-day weekend was necessary to complete it. Some banks were open (even if only for business customers) on 1 January, while others were closed so that they could concentrate entirely on completing their own preparations.

Payments

4 The main residual issues related to the conversion of POS terminals and Deutsche mark payments outstanding. POS terminals were converted at end-December, with statements before then being made in Deutsche marks (with euro in brackets) and thereafter in euro (with Deutsche marks in brackets). The Bundesbank had agreed in advance to continue clearing and settling Deutsche mark payments until 28 February. In the event, acceptance of credit transfers and direct debits in Deutsche marks was extended until 28 March, because of transfers associated with the return of Deutsche mark banknotes. (Receipts at one bank branch would typically involve internal group transfers to its head office, which are treated indistinguishably from other credit transfers). From end-February, Deutsche mark cheques were handled on a collection basis: this did not cause any problems, as cheques represent less than 10% of payments in Germany, and there were few Deutsche mark cheques outstanding.

Prior distribution of euro cash

5 The actual amount of euro notes frontloaded (€57 billion) corresponded quite closely to the amount originally forecast by the Bundesbank (€66 billion). Although banks made their own decisions about frontloading, they followed the general advice of the Bundesbank. As a result of pressure from both the Bundesbank and retailers, bank requests for low-denomination notes (including for use in ATMs) increased substantially during the course of last year. In the event, the banks over-ordered low-denomination notes, but they had wanted to be on the safe side, and the Bundesbank was keen to avoid any impression that any denomination was in short supply. About 50% of the €5 notes issued in Germany were returned within six weeks.

6 Frontloading began for both notes and coin on 1 September. About 16% of the value of notes frontloaded was sub-frontloaded to retailers and other cash users. The penalty regime did not prove to be an obstacle to sub-frontloading in Germany, because the Bundesbank made it clear in advance that penalties would only be imposed in the most extreme circumstances. None was imposed in practice. Even so, the amount of euro cash sub-frontloaded was not sufficient everywhere. While large retailers obtained the supplies they needed in advance, many small shopkeepers waited until the New Year to collect their supplies. However, banks anticipated this and were able to supply them at short notice.

7 The Bundesbank is responsible in Germany for distributing coin as well as notes. Instead of making up starter kits of euro coin for smaller retailers itself, the Bundesbank paid banks and cash transport companies to do so (at €400 for each container they received), on condition that distribution of the kits to retailers took place without charge during September or October. It was recommended that kits should have a value of €275. In addition, 53.5 million starter kits containing 20 coins, each with a value of €10.23 (the equivalent of DM20), went on sale to the public in mid-December, and sold out very quickly. The banks were authorised to make up and sell additional kits. It is not clear how much difference these starter kits made to the pace of the changeover in Germany, but they may have helped to increase public awareness that the changeover was imminent and, by increasing public familiarity with the new coin, to reduce transaction times subsequently.

Cash at banks

8 The ATM conversion was virtually complete on 1 January. A number of older machines did not initially work. This was partly because the volume of withdrawals in the early part of the New Year was four times higher than normal; and partly because some euro notes either stuck together in the machines (a phenomenon not uncommon with new notes) or were put into ATMs the wrong way round. More ATMs were initially out of order than the normal 3-5%, but only for the first few days.

9 The banks were surprised by the large number of people who decided to exchange their Deutsche mark cash over bank counters as soon as possible in the New Year. Queues were much longer than normal, though only for the first few days, and the public was good-humoured. To minimise transaction times at bank counters, the public was encouraged to deposit Deutsche mark cash on their accounts, and withdraw euro notes from ATMs. Many customers were willing to do this, but some insisted on exchanging Deutsche mark for euro cash, and others wanted to exchange more cash – some substantially more – than could be withdrawn from ATMs.

10 Banks made their own decisions about the amount of Deutsche mark cash they were prepared to exchange. Most exchanged unlimited amounts for their customers, but imposed rather strict limits for non-customers (eg a maximum of DM1,000 in the case of Deutsche Bank). These limits at banks may have encouraged more people to queue to exchange cash at Landeszentralbank counters. Transactions there took longer than at commercial banks, because visitors were not regular customers, and they were able to exchange all euro-area legacy currencies free of charge. Many banks extended their opening hours for a few days early in the New Year to help cope with the workload. And the Bundesbank similarly extended its own opening hours to accept late payments from banks.

Cash at retailers

11 Retail outlets were generally able to offer euro in change from the outset. To help reduce transaction times, some large retailers set up separate exchange counters in their shops, so that all customers could pay in euro. Some small shops sold starter kits to customers in the New Year to give them standard amounts of euro change quickly and easily. As retailers were soon operating almost entirely in euro, some shops refused to accept Deutsche marks in payment well before the end of the cash exchange period. Usage of payment cards increased in the first week of the New Year, but then returned to normal.

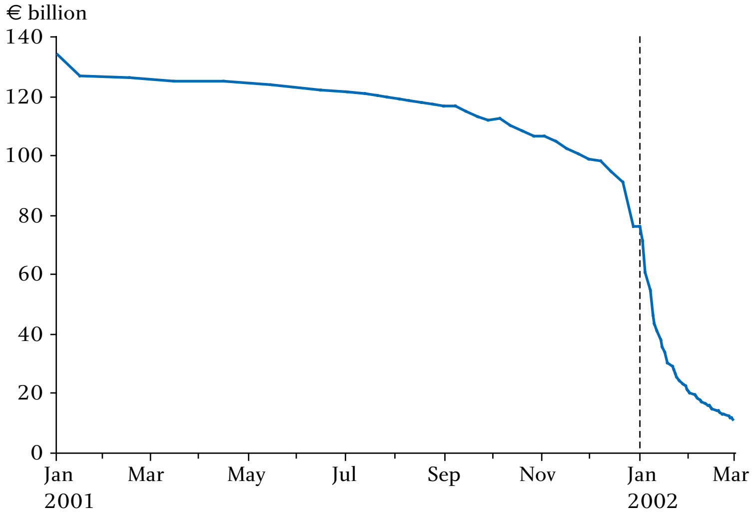
12 90% of vending machines were converted in the first ten days of January (some were dual currency, and so were euro-compatible before 1 January). Sometimes ticket machines initially rejected euro notes and coin. But as they were programmed to 'learn', the incidence of notes and coin being rejected subsequently fell.

Withdrawal of legacy cash

13 Owing to the success of the 'Schlafmünzen' campaigns last spring and autumn for the early return of Deutsche mark coin, the value of coin in circulation fell last year from €8.2 billion to €6.4 billion (a reduction of around 12 billion coin). There was an even more

substantial reduction in Deutsche mark banknote circulation (from €134 billion to €77 billion), with a particularly sharp fall in total cash in circulation of around €25 billion in December (Chart 17).

CHART 17: WITHDRAWAL OF DEUTSCHE MARK NOTES



Source: Bundesbank

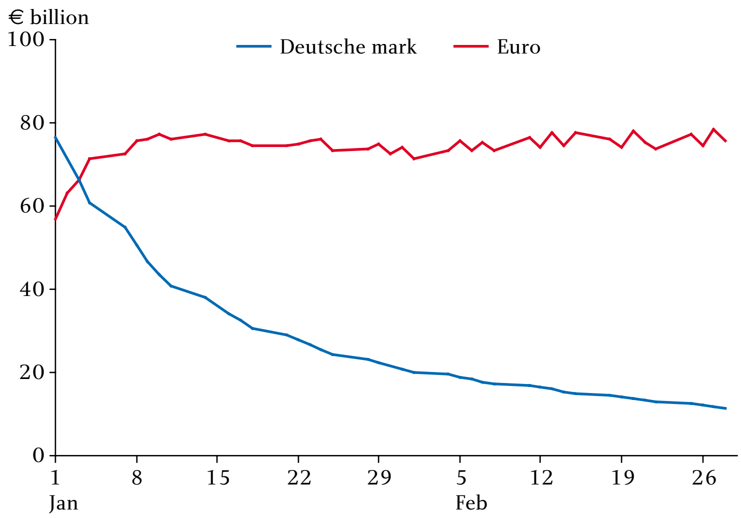
14 The de-hoarding campaign eased the task of withdrawing Deutsche mark cash in January and February. Banks had an incentive to return the Deutsche mark notes they received to the Bundesbank quickly so they could obtain value for them. By end-February, around 15% of Deutsche mark notes (by value) remained outstanding; 2% (mainly low denominations) are expected never to be returned. But banks and CIT companies proved a bottleneck for returning coin, where there was a backlog of several days. About half the coin outstanding at the start of 2001 had been returned by end-February; the bulk of the remainder is not expected ever to return.

15 A considerable proportion of Deutsche mark banknotes outstanding were held outside Germany, mainly in Turkey, but also in a number of countries in eastern Europe, notably former Yugoslavia. These countries tended to continue using Deutsche marks. For instance, at the end of the cash exchange period, about 50% of currency in circulation in Kosovo was still denominated in Deutsche marks rather than euro. It could take a long time for the bulk of these Deutsche mark notes to be returned. By contrast, other countries in eastern Europe which mainly use the dollar as a parallel currency tended to convert residual holdings of Deutsche marks to euro at an earlier stage. Although there was extensive frontloading of commercial banks in the region, no detailed figures are available. At a global level, €3.2 billion out of €4.0 billion euro notes frontloaded outside the euro area came from Germany (ie 5% of the total amount of German frontloading).

Pace of the changeover

16 The value of euro banknotes exceeded the value of Deutsche mark banknotes in circulation by 3 January (Chart 18), compared to 11 January for the euro area as a whole. The banks had expected the cash changeover to be completed in two weeks. In practice, it was completed in only one. This was due to the extensive frontloading, especially of low-denomination notes; the quick conversion of ATMs; and the attitude of the public.

CHART 18: NOTES IN CIRCULATION



Source: ECB

Impact on prices

17 The Federal Statistical Office provisionally estimated consumer price inflation in January at 2.1% on a year earlier, against 1.7% in December. The month-on-month increase was 0.9%. However, without the effects of tax increases, and the bad weather on food prices, the Statistical Office estimated that the increase would have been 1.6% on a year earlier, and 0.1% month-on-month. The Federal Consumers' Association reported on 23 January that during the cash changeover period there had been more price reductions than increases, but argued that retailers had tended to increase their prices beforehand, so as to create a margin for rounding prices down during the cash changeover itself. The Bundesbank and the Federal Statistical Office continue to monitor the impact of the changeover on prices.

GREECE

Following its entry to EMU on 1 January 2001, Greece had less time than other countries to prepare for the final changeover to the euro. It also faced logistical problems in distributing euro to its more remote islands and mountainous regions. In the early days of the year, many shoppers stayed at home because of the unusually bad weather, which tended to slow the initial cash changeover and spread it out somewhat. However, these difficulties did not result in a changeover significantly out of line with other countries.

Organisation

1 The changeover was overseen by a National Changeover Board, which was chaired by the Minister of Economy and Finance and included other government officials, the Governor of the Bank of Greece, the President of the Hellenic Bank Association and the Chairman of the Retailers' Confederation. A national cash changeover plan was jointly published by the Bank of Greece and the Ministries of National Economy and Finance in December 2000, and throughout last year various working groups addressed more detailed aspects of the changeover. Preparations were completed within the one-year transition period, although it was widely considered that an extra six months would have been helpful in allowing more thorough planning and consultation.

Bank accounts

2 The commercial banks had been able to offer retail customers full euro functionality on their drachma accounts since the wholesale changeover on 1 January 2001, although in practice very few requested this. It was left to individual banks to decide when to undertake their mass account conversion, although most did so during October and November, having notified customers of the proposed change (either by letter, on statements, or via a newspaper advertisement). They received very few objections. Exceptionally, the National Bank of Greece, the largest commercial bank, left the majority of its accounts to be converted during the final weekend of last year, in order to avoid any risk of system errors caused by operating in both drachmas and euro. In the event, there were no real problems associated with the conversion of accounts at any bank, nor with companies coping with the change to euro.

Payments

3 The widespread practice of post-dating cheques, which often serve as a form of trade credit in Greece, meant there was a large volume of drachma cheques dated after 31 December. During last year, banks encouraged the holders of such cheques to obtain euro replacements from payers, and more generally discouraged the use of post-dated cheques, a message that was also included in the national information campaign. However, legislation was also passed to allow legacy cheques written before end-December, but dated afterwards, to be read as euro during 2002. To do so, such cheques had to be officially stamped (by a bank or notary), to verify that they had been written before end-December. These cheques were then settled through the drachma clearing system until end-February, but manually thereafter.

4 Both the central processing system and individual POS terminals had to be adjusted, including to accept a comma as the decimal separator, for euro payments. No problems with POS terminals were reported. The national information campaign encouraged the public to use cards for transactions in January to ease the changeover, and there was an increase in the volume of card payments in the first days of January, by as much as 10-20%, from the relatively low levels normal in Greece.

Prior distribution of cash

5 Cash distribution was in two phases: pre-distribution to the Bank of Greece's 27 regional branches and 96 of the National Bank of Greece's branches, where cash was held to order on behalf of the Bank of Greece; and then frontloading to bank branches around the country. The frontloading of coin began in September so as to allow sufficient time for distribution across branch networks, particularly to the remote mountain regions and islands. The frontloading of notes began in October. Frontloading levels were high, and banks' initial orders for some denominations exceeded the Bank of Greece's production. In these cases, the mix of denominations supplied was adjusted, but the total value of orders was satisfied in full. Given the high levels of frontloading, little extra euro cash by value was subsequently required for the changeover. Frontloaded notes accounted for 82% of the value of euro notes in circulation on 1 March. In the event, a high level of frontloading proved necessary, in view of the bad weather in early January.

6 Sub-frontloading of coin began in November, and of notes in December, but demand was much less than expected. Initially, only supermarkets ordered supplies of euro cash, with the majority of retailers put off by the strict regulations applied to any euro sub-frontloaded, such as the posting of collateral, payment in full on receipt and penalties for premature circulation. As a result, the Ministry of National Economy and the Bank of Greece decided quite late to allow banks to sell retailer starter kits from 17 December onwards. They were collected by customers from bank branches and paid for on receipt. Owing to time constraints, but also to allow for additional flexiblity, the Bank of Greece did not pre-package these kits, which were made up by the banks; for some, this involved buying new machines. Packs for retailers varied in size from bank to bank and contained between about €110 and €300 in coin. Nevertheless, only 107,000 retailers, roughly one-third, were sub-frontloaded with coin and hardly any with euro notes. As a result less than 1% of notes and 15% of coin frontloaded to banks were sub-frontloaded ahead of the cash changeover – only in Italy and Finland (in the case of coin) were the proportions lower.

7 Three million starter kits for the public were produced and sold quickly from banks and some retailers, with 39% of the total being sold on 17 December (the first day). The number produced represented just over one kit for every four people in Greece, lower than in most countries. More could have been sold, but shortage of time restricted production by the Bank of Greece.

Cash at banks

8 Banks were closed for normal business on 31 December, but some staff were on-site to give retailers pre-ordered packs of euro. From 2 January to end-February, banks extended opening times by two hours each day, under an industry-wide agreement with the unions

that only euro changeover-related business would be conducted during the extra time and that bank staff received a bonus of €450 as well as overtime payments. There were some queues at banks in early January, but generally not as many as feared, partly because the bad weather deterred many people from visiting banks to exchange cash.

9 Of the roughly 4,300 ATMs across Greece, 92% were converted by 2 January and 100% by 3 January. Unconverted machines continued to dispense drachmas, but displayed a message indicating this to customers and informing them of the location of the nearest ATM dispensing euro. The average withdrawal in Greece is relatively high, and so the vast majority of ATMs dispensed only €20 and €50 notes, to reduce the number of notes the public had to handle and minimise banks' restocking needs. However, to avoid undue pressure on retailers, banks ensured that the majority dispensed were €20 notes.

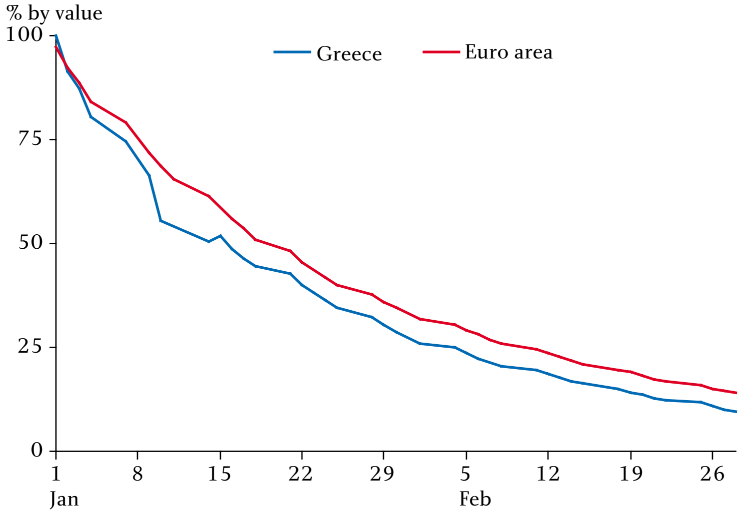
Cash at retailers

10 Shops generally did not re-open until 3 January, snow storms kept many closed until even later, and sales were delayed until 15 January. As a result, overall retail activity was more subdued than normal and those retailers not sub-frontloaded were able to obtain euro cash from banks in the early days of January, so that very quickly virtually all were giving euro in change. There were some isolated reports of initial shortages of €5 and €10 notes, which were met from reserve stocks held at Bank of Greece branches. A scarcity of 1 and 2 cent coins also led some shops to round payments. The cash-operated industry converted to euro less quickly, though more than 75% of machines were accepting euro by mid-January and almost all by end-February.

Withdrawal of legacy cash

11 Drachma notes were returned quickly (Chart 19), with 90% outstanding at end-2001 withdrawn by 28 February. Initially, the rate of drachma coin returned was lower than expected: only 7% were withdrawn by end-January, compared to 19% for all legacy coin in

CHART 19: WITHDRAWAL OF LEGACY NOTES



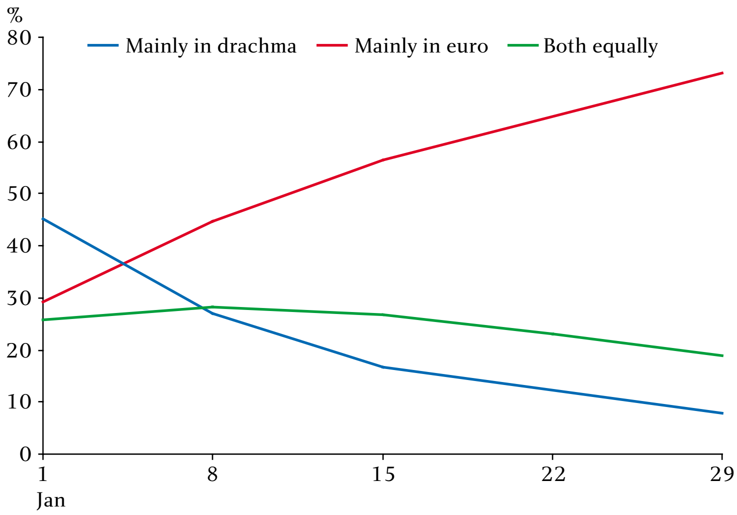
Note: as a percentage of stock outstanding at end-2001
Source: ECB

the euro area; but this rose to 27%, against 30% for the euro area, by end-February. There were specific instructions for sorting and packaging coin returned by banks to the Bank of Greece. This significantly speeded up the process and reduced the delay in banks receiving value for the coin returned.

Pace of the changeover

12 Greece's EPR started at a relatively high level, because of the high level of frontloading, and remained above the euro-area average, though this gives no indication of the rate at which euro cash was put into circulation. The cash changeover started relatively slowly, owing to the subdued level of retail activity. However, this had the benefit of allowing businesses more time to correct any initial problems and, by the time of the sales in mid-January, the euro was being used in over 80% of cash transactions (Chart 20).

CHART 20: IN WHICH CURRENCY DID YOU MAINLY UNDERTAKE TRANSACTIONS?



Source: Metron Analysis survey

Impact on prices

13 Unlike most other countries, dual pricing was a legal requirement for the whole of the transition and the cash exchange period. In addition, the Government reached a voluntary agreement with trade associations that retailers would not use euro conversion to raise prices, with compliance signified by the display of a 'eurologo' sticker. The Bank of Greece compared prices on an item-by-item basis with previous years and, after taking account of other influences (including oil and food prices) estimated that, in cumulative terms, the effect of the changeover might have been about 0.5% of the 4% annual inflation rate in March.

IRELAND

The final changeover to the euro in Ireland took place very quickly. Banks completed the non-cash changeover as planned in a 'big bang' during the final weekend at end-December. And the cash changeover was, apart from some rural areas, also virtuallly a 'big bang', owing to extensive frontloading and sub-frontloading, the exceptional preparedness of retailers and the enthusiasm of the public for the euro. One or two glitches occurred, but they were minor and did not affect the overall success of the changeover.

Organisation

1 The Euro Changeover Board of Ireland (ECBI) oversaw the detailed implementation of the changeover, and provided information to the public. Its staff were drawn from the Ministry of Finance, but the Board comprised representatives of a wide cross-section of other organisations, which were also involved in the ECBI's working groups. The Central Bank of Ireland's preparations were overseen by a steering committee, and a sub-committee brought together those involved at an operational level. Contingency arrangements were planned, but in the event not needed.

2 A feature of the Irish changeover was how well prepared and informed retailers and other businesses were, owing to help and information packs provided by the business awareness campaign run by Forfas (a State body under the Department of Enterprise, Trade and Employment). In addition, the ECBI arranged for every household to be sent an electronic converter and a changeover handbook, which were widely judged to have increased the public's understanding of, and enthusiasm for, the changeover.

Bank accounts

3 The 'big-bang' conversion of bank accounts during the final weekend of last year went smoothly. Banks undertook extensive testing and contingency planning beforehand, but carried out the actual conversion work within one day, leaving the remaining three days of the weekend for further testing and checking.

Payments

4 As the retail payment infrastructure was made compatible with the euro by the start of 1999, with Irish pound and euro payments cleared in parallel streams from then on, the former could simply be discontinued at the end of the changeover. POS terminals were made euro-compatible (involving a software change, and sometimes a hardware change) in the second half of last year, but payments were all processed in Irish pounds until the close of business on 31 December, and then only in euro from 1 January once the central system had been switched over. The currency indicator on the magnetic tapes used for electronic payments was removed ahead of the changeover, so that all payments would be assumed to be in euro from 1 January. This was designed deliberately as an incentive for businesses to prepare by then to operate in euro, and few difficulties were encountered in practice.

5 The only form of Irish pound payments continuing after 31 December was cheques, the clearing of which banks agreed to maintain until 28 June – as cheques are valid in Ireland for six months. Most banks prepared their customers by sending out euro cheque books in bulk in October or through the ‘trigger’ system of replacement. Customers who did not receive euro cheque books by 1 January were advised to continue writing Irish pound cheques and, as a result, the number of Irish pound cheques being cleared by banks early this year was greater than anticipated. All customers had received euro cheque books by end-January, and it is expected that by 28 June few Irish pound cheques will remain outstanding.

6 Data pollution (arising, for example, from customers writing euro amounts on Irish pound cheques or vice versa) had been a major concern in Ireland, partly because of the high usage of cheques, and partly because the conversion rate was closer to unity than in any other country. It was thought the clearing system could have coped with such problems on about 4-5% of cheques, but the actual figure was less than 1% (it would have been higher but some banks introduced manual procedures to filter polluted cheques).

Prior distribution of euro cash

7 Distribution of euro cash was co-ordinated by the Central Bank of Ireland’s Currency Centre. For coin, the frontloading process was complete by early December, leaving nearly a month for deliveries in excess of banks’ initial orders, where customers realised late in the day that their supplies were inadequate. The packaging and distribution of coin was outsourced to a CIT company, which managed the process from two warehouses, in Dublin and Limerick. The Central Bank had a direct link to the CIT company’s computer system, which recorded the location and movement of all coin from the warehouse to its destination. The frontloading of euro banknotes commenced in early November and was carried out as far as possible through the normal distribution channel (ie the main banks’ cash centres). The exception was bank branches in and around Dublin which received direct deliveries from the Currency Centre. All banknote deliveries were escorted by the Gardai and the Army.

8 Frontloading levels were high in Ireland: coin frontloaded represented 90% of the total volume of coin produced, the highest proportion of any euro-area country, and the value of notes frontloaded was equivalent to 66% of national banknotes in circulation on 31 December (well above the euro-area average of 49%). In addition, the actual value of notes held on bank premises was higher still, as many notes were ‘held to order’ at the cash centres of the four main banks. Notes held in these cash centres were not classed as frontloading, and remained the property of the Central Bank even after 1 January, until they were needed, when they were transferred onto the relevant bank’s balance sheet and used to supply its branches and its customers across the country.

9 About 43,000 retailers were sub-frontloaded, accounting for virtually 100% of cash-based businesses. This extensive sub-frontloading was key to the quick changeover of coin in Ireland, since almost all retailers could immediately and systematically supply euro coin to the public in change. By contrast, ATMs, bank counters and welfare payments were key to the supply of euro notes to the public.

10 There were two main reasons for the high levels of frontloading and sub-frontloading in Ireland. One was the campaign by the authorities to explain the benefits of having sufficient supplies of euro cash in advance and the expectation of the public, known to retailers, that they would receive change only in euro from 1 January. The other was the actions taken by the authorities to remove disincentives to retailers for obtaining euro cash in advance. A range of measures was agreed.

- The Central Bank engaged CIT companies to deliver euro cash to bank branches and larger retail outlets late last year, and to collect legacy coin early this year.
- In return for the payment of a lodgement fee by the Central Bank on returned Irish pound cash (see later), the banks agreed not to charge cash handling fees to retailers on sub-frontloaded euro or on Irish pound cash lodged by retailers between 1 January and 15 February (ie until a week after the end of the cash exchange period on 9 February).
- The insurance industry agreed to provide, free of charge, an automatic uplift in cover for storing cash between 1 December and 15 January to four times retailers' existing policy limits or I£20,000, whichever was less. The agreement also provided that only notes had to be held in a safe; coin could be held in other secure storage.
- Banks passed on to retailers some of the benefits of the ECB's debiting model. In the event, most banks delayed debiting retailers for euro cash until the second week of January.
- Collateral was not required for sub-frontloaded coin, which also simplified the task of the Central Bank.
- The penalty regime was not in practice a disincentive to sub-frontloading (even though technically retailers were liable for up to 3% of the amount frontloaded, if any notes entered circulation prematurely), because banks drafted contracts which played down the risk of penalties, setting retailers' fears at rest, and because penalties did not apply to coin.

11 This package was one of the main factors behind the extensive sub-frontloading of retailers, and hence the quick changeover in Ireland. And the cost to the Central Bank was not considered large in comparison with the achievement of a smooth and rapid changeover, with minimum disruption of commerce.

12 165,000 retail packs were prepared by a CIT company, each containing €253 in coin. These packs, which were easily portable as they each weighed only 6.5kg and had a handle, were designed with small shops and pubs particularly in mind. The original intention was that small retailers should collect one or two from their banks at end-December. However, the packs proved extremely popular, and some banks had exhausted their supplies by the time some café and pub owners and other small shopkeepers asked for them – so further supplies had to be made up from the large boxes of coin supplied to banks.

13 Starter kits for the public, each containing €6.35 of euro coin and costing I£5, went on sale on Friday 14 December, rather than 17 December as initially planned, both to increase the number of effective selling days (given that financial institutions were closed for most of the Christmas week) and so that the commencement of sale would coincide with the day for

paying old age social welfare pensions in post offices. The initial supply of 750,000 packs sold out from banks and post offices within a matter of days, even though some imposed a limit of one kit per person. This was the earliest indication of the public's enthusiasm for euro cash, and therefore of the likely pace of the cash changeover in Ireland. An additional 250,000 kits were available to banks and post offices, but they were reluctant to take further supplies since the operation involved costs to them. The sale of starter kits to the public proved a useful means of familiarising the public with euro coin, but was judged to have contributed little to the changeover itself given the small value of the starter kits (intended to encourage public take-up of them) and the fact that the number of packs covered less than one-third of the population. Ireland relied instead on extensive sub-frontloading of retailers to ensure a swift changeover to euro coin at retail counters.

Cash at banks

14 The 1,500 ATMs in Ireland were converted quickly, with 85% dispensing euro on 1 January, 97.5% on 2 January and 100% by the morning of 3 January. None dispensed Irish pounds after 31 December. Most ATMs were initially stocked with €10, €20 and €50 notes. During the first two weeks, banks altered ATM algorithms (which determine the mix of denominations dispensed) to enable more low denominations to be dispensed than normal, so as to reduce the need for euro change in shops. Usage of ATMs was about 20-25% higher than normal in the first few days of January. The only minor glitch reported was that six ATMs were wrongly recalibrated and initially recorded euro withdrawals as Irish pounds, with the result that too much was debited from customers' accounts. The problem was resolved and the relevant accounts credited within 24 hours.

15 Given that €5 notes were not dispensed through ATMs, bank counters and welfare payments were key conduits for them. Under an agreement with the Central Bank, the banks provided plenty of low-denomination notes when exchanging cash, while Ireland's *Cash Changeover Plan*, published in April 2000, had already undertaken that post offices would include at least four €5 notes in each welfare payment during the first week of January. In practice, about two-thirds of the adult population received euro notes in the first few working days from ATMs and bank counters, and one-third through welfare payments. These channels proved highly successful and the very large number of €5 notes put into circulation undoubtedly assisted the initial days of the changeover. Thereafter, however, by end-January, some 40% had returned to the main banks or the Central Bank.

16 The Central Bank of Ireland was open on 1 January, and attracted a surprisingly long queue, though the provision of champagne and whiskey by the Governor and staff ensured it was a good-natured event. It was extensively covered in the media and set the tone for the changeover. Commercial banks also experienced long queues during the first week of January, as the Irish public were enthusiastic about the changeover and keen to switch to euro cash as quickly as possible. Most branches were well organised, limiting queuing times as far as possible. Banks did not extend opening hours. More people than expected went to banks to exchange cash, rather than simply spending their Irish pound cash in shops. There was pressure on banks' supplies of euro in some cases, but additional deliveries were arranged at short notice. In some cases, notes were loaded onto lorries that were being sent to branches to collect Irish pound cash.

17 Banks had agreed to exchange household amounts of cash free of charge for individuals until, and for a time after, the end of the cash exchange period on 9 February, though with an overall limit of I£500 for non-customers, and generally higher limits for customers (typically I£1,000, though more in some banks). Queues lengthened as some members of the public needed to change legacy cash on a number of occasions to avoid charges. Banks subsequently agreed to continue offering cash-for-cash exchange services until at least end-February, and also agreed to continue accepting Irish pounds deposited into accounts for longer – at least until end-March for coin and end-December for notes. The Central Bank of Ireland will give value indefinitely for Irish pound notes and coin.

Cash at retailers

18 All retailers were able to give change in euro from the beginning of January, owing to the extensive sub-frontloading exercise, which contributed significantly to a quick changeover. Indeed, as more people than expected changed cash at banks, many retailers did not need all their sub-frontloaded supplies of euro cash and returned some to the banks. There were isolated reports early in January of local shortages of €5 notes and some denominations of coin, particularly the 10 cent coin. Transport of extra supplies was arranged wherever possible, but the shortages were only short-term and local and did not materially affect the changeover.

19 There were reports that a small number of pubs refused to accept Irish coins from early January onwards, but this did not cause a problem. Numerous shops and businesses decided not to accept Irish pound cash over their counters, but instead to provide a separate cash exchange service for customers, in order to keep the two different currency denominations separate. For example, some pubs had pre-prepared envelopes containing the euro equivalent of I£20, which they exchanged with customers before ordering. In some, but not all, a limit was imposed on the amount of cash each customer could exchange. In some cases, retailers who offered exchange services ran out of euro cash.

20 Over 75% of all vending machines were converted to euro by 15 January.

Withdrawal of legacy cash

21 The Irish pound note circulation fell during the final quarter of last year, and was roughly 20% lower than normal over Christmas. Some Irish pound coin was also returned late last year, largely as a result of two media campaigns by the authorities and some charities to encourage the public to release their hoarded Irish pound coin. The success of these campaigns meant that demand for new coin lessened significantly. The Central Bank of Ireland issued some 90 million Irish coin in 2001, compared to the normal annual demand of about 250 million.

22 In order to promote acceptance by retailers of sub-frontloading and lodgement by them of all Irish pound cash received, the Central Bank of Ireland introduced lodgement fees equal to 0.1% of the value of notes returned and I£3.50 for every bag of coin (each containing approximately 1,000). Lodgement fees were subject to certain conditions, including minimum quantities, the coin being packaged uniformly in single denominations, and lodged on full pallets. Fees were payable to others as well as banks, but the vast majority

of cash was returned by the four main banks. This eased the counting process and allowed banks to receive value quickly for returned coin and facilitated crediting retailers immediately.

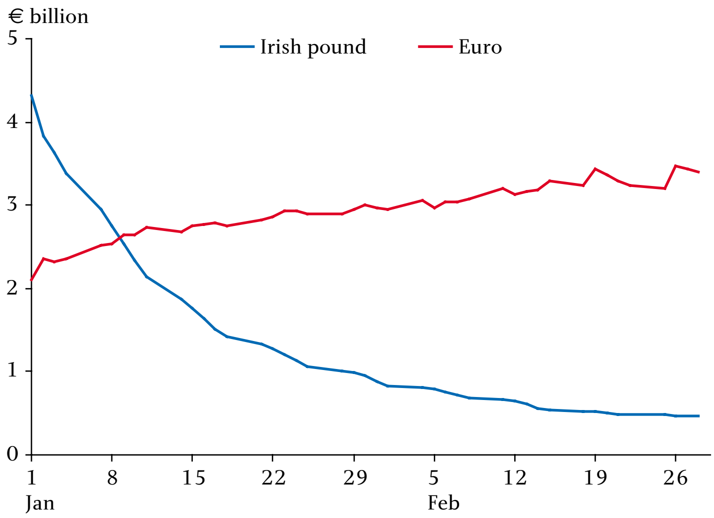
23 The Central Bank of Ireland needed to set up a new system for processing coin, because of the huge volumes returned, whereas coin is normally recycled. The Central Bank organised the transport logistics and asked the banks to identify from where coin should be collected by CIT lorries a few days in advance. A representative of the Central Bank and the bank concerned agreed the value of coin at the point of collection, so that value be given immediately and the lodgement fee paid. Notes were returned via the cash centres of the four main banks. This helped produce a quick fall in Irish pound cash in circulation, since notes held to order in their cash centres are treated as the property of the Central Bank.

24 As the public made the switch to euro very quickly, Irish cash was returned to banks much more quickly than anticipated. Nevertheless, the withdrawal of Irish pound cash worked efficiently. By the end of the cash exchange period on 9 February, 83% of Irish pound banknotes by value had been withdrawn from circulation. The withdrawal of coin (45%) was somewhat slower, as the logistics were more cumbersome.

Pace of the changeover

25 For all practical purposes, the cash changeover in Ireland was complete by 8 January, and in Dublin by 5 January. The value of euro banknotes exceeded that of Irish pound banknotes outstanding by 9 January (Chart 21).

CHART 21: NOTES IN CIRCULATION



Source: ECB

Impact on prices

26 The rise in consumer price inflation in January was broadly in line with expectations. Although there was a widespread perception in Ireland, as in other euro-area countries, that the changeover had resulted in higher prices, there was little concrete evidence to substantiate this.

I'M HOPING FOR ANOTHER EURO PARTY NEXT NEW YEAR'S DAY

ITALY

The non-cash changeover was completed successfully, once a decree was adopted on 25 September allowing banks to give customers notice of early conversion unless they objected in writing. The cash changeover was slower than in other countries, partly because the public withdrew large amounts of lira cash from ATMs at the end of last year as a precautionary measure; and partly because sub-frontloading was very small indeed, as most retailers regarded the risks of the penalty regime as too great. Even so, by end-January, 92% of cash transactions in Italy were in euro.

Organisation

1 The completion of the changeover in Italy was overseen by a Euro Committee, chaired by a senior official in the Ministry of Economy and Finance, and containing representatives of other Government departments, the Banca d'Italia, the Banking Association, business and consumer groups. One of its three main sub-committees, in which the Banca d'Italia took a prominent role, was concerned with the financial sector. The Banca d'Italia was heavily involved in organising the cash changeover in detail. There was a national information campaign both by the Government, which also distributed euro converters free to Italian households, and by the Banca d'Italia (as part of the Eurosystem campaign), on the introduction of the new euro notes and coin.

Bank accounts

2 Early last year, the Banca d'Italia began to oversee bank preparations for the completion of the changeover of their customer accounts, with the objective of ensuring a timely changeover. As a check on the state of preparations, the Banca d'Italia carried out a survey of each bank in Italy (of which there are around 850, including subsidiaries and co-operatives), and followed this up with further surveys at quarterly intervals for large banks and those smaller banks whose preparations were lagging behind. These surveys were judged to have helped push the changeover to the top of the agenda of bank chief executives.

3 Many banks initially took the view, informed by legal advice, that they were obliged to seek express customer consent before changing over their customer accounts early until, under pressure from the banks, a decree was adopted on 25 September. This decree allowed them to publish a notice in the *Official Gazette* giving customers 15 days to object in writing, after which they would be deemed to have given their consent. Although the decree came rather late in the day, some banks converted their customer accounts in October and November. The others converted them in a 'big bang' at end-December and, in both cases, the changeover was successful. The proportion of converted accounts increased from 12% at end-September to 80% at end-November.

Payments

4 In Italy, new cheque books have to be collected in person, for security reasons. Many bank customers did not collect new euro cheque books until the New Year, when it was no

longer possible to write lira cheques. However, lira cheques written before end-year were cleared electronically until end-February, and if necessary manually thereafter.

5 Where POS terminals were adapted to euro use before end-year, customers had a choice between paying in lire or euro, though retailers preferred to operate in lire. Remaining POS terminals were adapted to euro use over the New Year, other than those temporarily shut down because of the season. In the first two weeks of January, card use was 60% higher than the equivalent period last year, with average transaction values a third lower. The need to use a decimal point in POS transactions led initially to a few errors.

Prior distribution of euro cash

6 The Banca d'Italia produced 2.4 billion euro notes, including a reserve stock of just under 400 million, and created some 1.5 million packs of notes, each containing 25 €5 notes. 60 million more €5 notes were printed towards the end of last year to meet demand. The Mint produced 7.95 billion euro coins, and assembled some 1.2 million coin kits for retailers, each with a value of €315.

7 The prior distribution of euro, and collection of lira, notes was arranged through the branches of the Banca d'Italia and the banks; and coin through Poste Italiane. There was local discretion to raise limits on the value of the notes that CIT companies could carry (from around €1.5 to €7 million per van). The police provided security for cash in transit, and thefts were substantially lower over the completion of the changeover than in a normal period.

8 Euro notes were frontloaded from 1 November, and euro coin from 1 September. The Ministry of Economy and Finance arranged (through Poste Italiane) for the prior distribution of euro coin free of charge. Frontloading of euro notes by the Banca d'Italia represented around 22% of production by value, and 48% by volume. However, the total amount of sub-frontloading of euro notes and coin in Italy was very small indeed, and mostly to a few large supermarkets. Virtually all small shopkeepers waited until the New Year to obtain supplies of euro notes and coin from banks, even though distribution of coin before end-year was free of charge.

9 Small shopkeepers were reluctant to take delivery of euro cash in advance, partly because of lack of secure storage, partly because of the need to make early payment, but mainly because of the penalty regime introduced by the Banca d'Italia last July. Under the regime, retailers had to sign a contract with their bank, as a result of which they undertook not to put euro cash into circulation prematurely, with a minimum penalty for infringement of €25,000, plus €3,000 per note lost or distributed prematurely, up to a maximum amount of €2 million. Small shopkeepers were not prepared to take the risk, even though penalties were at the Banca d'Italia's discretion rather than automatic. Concerned at the perception of the penalty regime and its effect in curtailing sub-frontloading, the Banca d'Italia exempted coin from mid-December (when the starter kits were issued), and €5 notes from 27 December, but by that time it was too late to make any material difference to the level of sub-frontloading.

10 30 million starter kits for the public, each with a value of €12.91 (ITL25,000) went on sale to the public from mid-December. By end-December, around 50% had been sold. Few starter kits for retailers were sold before 1 January.

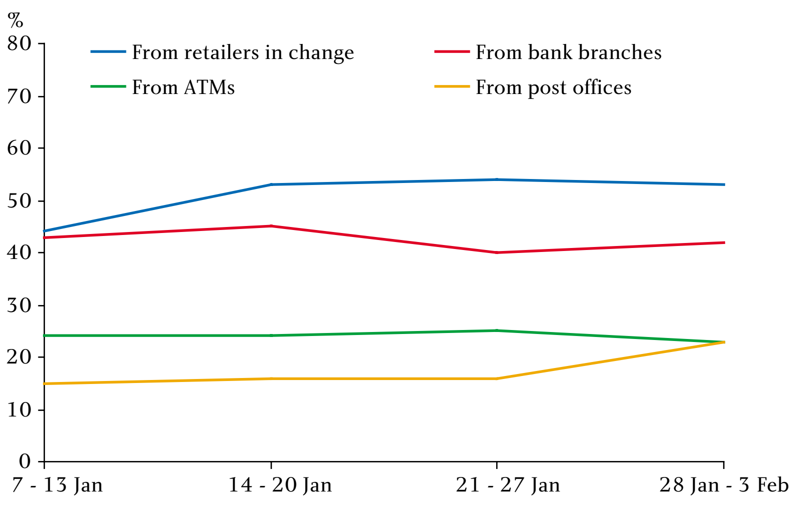
Cash at banks

11 95% of ATMs in Italy were converted in the first week of January, and 100% by 12 January, three days ahead of the target. Until they were converted, ATMs continued to dispense lire. ATMs in frequent use were converted first, with the result that the proportion of euro withdrawals was higher than the proportion of ATMs converted. However, between 10% and 20% of ATMs were temporarily out of order in the first few days of January, against a normal rate of less than 5%. In some cases, this reflected problems with €10 notes. ATMs initially dispensed €10 notes and either €20s or €50s. Most ATMs have two rather than four drawers, but machines in Italy are normally stocked only to 50% capacity, so by increasing this proportion during the changeover period, banks could reduce the likelihood of machines running out of cash.

12 In the last few days of December, the public withdrew, mainly from ATMs, some 10 trillion lire (€5.2 billion) – a much larger amount than normal – as a precautionary measure, in case the completion of the changeover did not go according to plan. The rate of withdrawals from ATMs remained high early in the New Year. In the first six days of January, the number of withdrawals from ATMs was 50% higher than normal, and the average value of withdrawals was also higher.

13 Although 70% of notes normally reach the public in Italy through ATMs, this proportion fell early in the New Year, as the public took their residual holdings of lira cash into bank branches to exchange into euro over the counter (Chart 22). By 9 January, a total of €12 billion in cash had been withdrawn from bank and Poste Italiane counters, compared with €2.5 billion from ATMs.

CHART 22: SOURCE OF EURO USED FOR PURCHASES



Note: figures sum to more than 100%, as euro were obtained from more than one source
Source: Report from the Euro Committee to Parliament

14 Queues at banks and post offices were much longer than normal during the first two weeks of January. This was only partly because the public chose to exchange lira cash for euro over bank counters. It was also because payments (many of which are made in cash) to 8 million pensioners fall due on the first working day of the month, and annual mortgage payments also fall due at the beginning of January. In Poste Italiane, at the same time as collecting their pension payments, many pensioners asked counter staff a variety of questions about the euro. Instead of a customer taking three minutes at the counter on average, each customer took up to seven minutes. There were queues of three to four hours in main post office branches in cities for a short period, though queues were only 20 minutes or so in most rural post office branches. It would clearly not have been possible for the payment of pensions to be delayed.

Cash at retailers

15 Large supermarket chains, which had been sub-frontloaded, gave euro in change from the outset. But as almost all small shopkeepers waited until the New Year to obtain euro notes and coin, there was a shortage of euro change (particularly coin and €5 and €10 notes) in some smaller shops. The shortage was exacerbated by the use of higher-denomination lira notes by the public. The Confesercenti (representing many small firms) lobbied banks to open counters specifically to allow small traders quick access to small change. The Banca d'Italia, banks and Poste Italiane resolved the problem within a few days.

16 The rate of conversion of vending machines in Italy was above average. However, travel agents were not initially able to issue railway tickets to customers owing to a problem with the software provided by the state railway company: the euro conversion programme incorporated price increases, and when the price increases were rescinded at a late stage, the software required amendment.

Withdrawal of legacy cash

17 The withdrawal of lira notes and coin proceeded relatively slowly. There was a scheme ('l'ultima buona azione della lira') in the second half of last year, organised by cancer charities, for the collection of hoarded lira coin in advance. However, the amount of hoarded coin withdrawn in total before end-year was low. Once coin started flooding back in the New Year, there was an additional problem, as counting was in many cases entrusted to CIT companies and other third parties, which were not used to dealing with such large volumes. Banks encouraged retailers to sort coin before return – using special packaging – by dropping normal charges for returned coin where this was done.

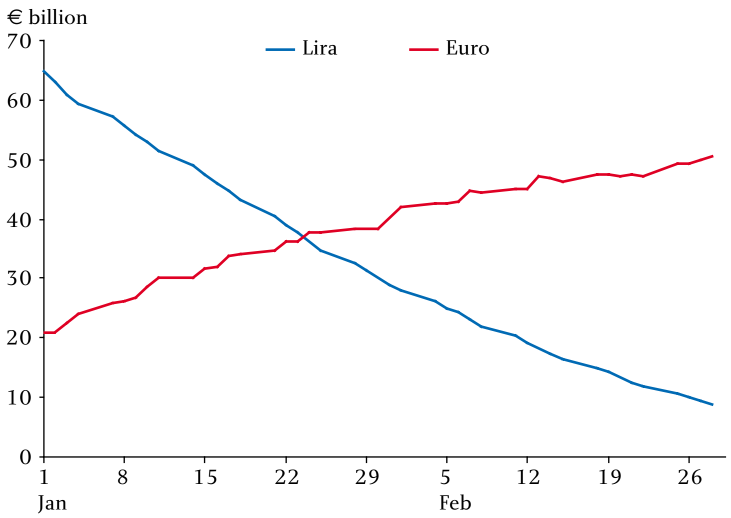
18 To deter theft when lira notes were collected, a law was passed on 14 December permitting banks and Poste Italiane to deface lira banknotes with special hole punches during the cash exchange period. In practice, few banks implemented the scheme, because it was introduced at a relatively late stage, and the equipment for multiple hole-punching was not readily available.

19 Banks and Poste Italiane agreed to continue exchanging lire into euro until 30 June. For customers who give one day's notice, there is no limit; otherwise there is a limit of ITL1 million per day, and ITL500,000 for non-customers. Lire can also be exchanged free of charge without limit at branches of the Banca d'Italia for ten years from 28 February.

Pace of the changeover

20 The pace of the changeover in Italy was somewhat slower than other countries in the euro area. On 1 January, the proportion of cash transactions in euro was only 10%, rising to 50% on 7 January, and 75% on 14 January. Similarly, the EPR exceeded 50% only on 25 January (Chart 23) – later than other large countries. One of the reasons for the relatively slow pace of the changeover was that the public withdrew significant amounts of lira cash in late December as a precautionary measure, increasing the amount in circulation subsequently to be withdrawn. A second reason was that, in the New Year, ATMs which were not initially adapted to dispense euro continued to dispense lira notes. Third, because small retailers were not sub-frontloaded, and only obtained euro supplies after 1 January, they initially dispensed lire in change when presented with lire in payment. The result was to increase the amount of lira cash to be exchanged for euro. Even so, by end-January 92% of cash transactions in Italy were in euro.

CHART 23: NOTES IN CIRCULATION



Source: ECB

Impact on prices

21 Initially, there was concern among the public that the changeover was being used by retailers to increase prices. Some basic items (eg newspapers and cups of espresso) increased in price over the cash exchange period. However, Banca d'Italia estimated the impact of the changeover on prices in the first two months of 2002 at just 0.1%. Confcommercio (a trade association representing small traders) estimated the impact at 0.2-0.4% for the same period.

LUXEMBOURG

Compared with other countries in the first wave, the changeover was more straightforward in Luxembourg, owing to its small size and the familiarity of its small population with multiple currencies. Levels of frontloading and sub-frontloading were high, and the public was encouraged to use 59 dedicated cash exchange centres.

Organisation

1 The Ministry of Finance took overall responsibility for the changeover, and organised regular round-table meetings of the various parties involved, at which industry or country-wide initiatives were agreed. The Banque centrale du Luxembourg (BCL) organised preparations for the cash changeover, whilst the Luxembourg financial supervisory authority actively monitored banks' internal preparations. The Government offered companies tax relief on the costs they incurred in preparing for the changeover, both in 1999 and this year.

Bank accounts

2 The banks decided individually their approach to the conversion of their customers' accounts. Last year, following the Commission's Recommendation, the Government encouraged the banks to undertake an early, gradual conversion, though in some cases it was too late to alter their plans. In practice, some banks adopted an early and gradual conversion to minimise operational risks, whilst others converted in a 'big bang' at end-December, on the grounds that this cost them less, was less confusing for customers and involved manageable risks.

Payments

3 During the three-year transition period, the payment infrastructure was run as a dual currency, single system with most payments in Luxembourg francs converted to, and processed in, euro. In the first two months of this year, the banks continued to process in euro any franc payment orders, irrespective of when these were dated. As cheques have no formal period of validity in Luxembourg, no deadline was set for accepting franc cheques, though in practice few were presented after the end of last year. Banks agreed bilaterally whether to process them.

4 POS terminals not already operating in euro were switched over centrally to euro at the end of last year by Cetrel (the company that owns them and runs the clearing system for POS payments and those made via ATMs). To promote the use of electronic payments during the changeover, in the hope this would lead to a permanent increase, Cetrel reduced its charges to retailers by 50% during January and February. The total value of payments made via domestic cards during the cash exchange period was 35% higher than the corresponding period last year, though slightly lower than in December.

Prior distribution of euro cash

5 BCL used a single point of distribution for euro notes and coin. The method of distributing cash was the same as normal, with CIT companies transporting euro from BCL to bank branches. BCL retained ownership of frontloaded euro until the beginning of January, but banks had fully to collateralise all frontloaded supplies on the day of delivery. This simplified the process.

6 Euro coin was delivered to banks first, the bulk between last September and November, and notes mainly in December so as to reduce the length of time that banks had to store them. In total, 69.7 million coin with a value of €26 million were frontloaded, an amount equivalent to the coin in circulation in Luxembourg at the end of last year; and €545 million of euro notes, only slightly less than the value of notes in circulation. In the event, about 10% of the cash frontloaded was not needed, and was returned without being used.

7 Over 30% of notes and almost 60% of coin frontloaded were estimated to have been sub-frontloaded to retailers, especially supermarkets. To facilitate sub-frontloading, BCL produced starter kits for retailers containing €111 of coin, initially producing 50,000 kits, and then 3,500 more to meet demand; the kits were available for retailers to collect at banks from 1 September onwards. BCL also produced, and distributed to banks, small packages of certain denominations of notes. Instead of the normal single-denomination bundles of 100 notes, it produced bundles consisting of 25 notes for €5s, €10s and €500s. (There was little demand for bundles of €500 notes.)

8 Financial incentives for frontloading and sub-frontloading were not provided. Banks agreed to debit larger retailers for sub-frontloaded cash, under the same model applied to them by the ECB. Smaller retailers, which collected pre-prepared retailer packs of euro from banks, generally paid for these on the day they collected them, or on 2 January.

9 Starter kits for the public were very popular. All 600,000 kits produced were sold quickly by banks and supermarkets. Many people bought a number of kits, as there was no limit. Luxembourg was the only country to sell more starter kits than its total inhabitants – 440,000, plus 90,000 cross-border commuters. Many of the kits were taken abroad or kept by collectors, rather than being used.

Cash at banks

10 All 500 ATMs in Luxembourg were converted at midnight on 31 December. Since the network was modern, this posed few problems. ATMs were all pre-loaded with euro and switched remotely, which took 10-20 seconds. Banks agreed to put low-denomination notes in a proportion of ATMs during January, a sticker on the machine indicating which were stocked with €5s. Some ATMs continue to dispense €5 and €10 notes. Volumes of ATM withdrawals in the first few days of January were only slightly higher than normal, and the average size of each withdrawal was the same as normal.

11 A feature of the cash changeover in Luxembourg was the establishment of 59 dedicated cash exchange centres across the country. These were located in selected branches of the six

main banks, accounting for around a quarter of the bank branches in the country, as well as some post office branches. Whilst other branches also offered cash exchange services, the national information campaign promoted the use of exchange centres, as these were better prepared, with counters dedicated to cash-for-cash exchanges, more trained staff and larger stocks of euro. Banks exchanged cash free of charge both for customers and non-customers, in unlimited amounts at the exchange centre branches, whilst an upper limit of €1,000 was imposed at other branches. The exchange centres were open on 1 January between 14.00 and 17.00, but banks did not need to extend opening hours during the rest of the changeover.

12 The use of the exchange centres was more efficient for the banks and caused less disruption for customers. While there were long queues in the first few days of January, they were generally good-humoured and provided an opportunity for banks to market other products. Retailers were encouraged to phone in advance and served separately. 78% of euro were dispensed via bank counters, and 22% via ATMs, roughly the opposite to normal.

Cash at retailers

13 The vast majority of retailers provided change in euro from the start of January. Previously, in Luxembourg, retailers often had to cope with five different currencies, so the changeover to euro was less of a problem for them than in other countries.

Withdrawal of legacy cash

14 Since Luxembourg and Belgian franc notes and coin previously circulated interchangeably, with Luxembourg francs only accounting for a small proportion of the overall circulation, banks and retailers withdrew both currencies. Notes collected by Luxembourg banks were transported to BCL by CIT companies, with banks separating Luxembourg and Belgian franc notes, as normal. Banks were then credited, leaving BCL and the Banque Nationale de Belgique to make any net payments between them. A marking scheme for withdrawing notes was put in place, involving a simple, inexpensive machine to perforate notes. However, in practice the scheme was not used by banks, as it did not reduce their insurance costs, and if the perforation was not in exactly the correct place, this led to sorting problems at the BCL.

15 The Luxembourg authorities played no part in the bulk withdrawal of coin, for which they had no facilities. All the coin was taken from banks, by CIT companies, to the Belgian processing centre in Anderlecht, where it was processed and credit given to the bank concerned. Luxembourg and Belgian franc coin was not separated, the relevant amount being claimed by the Luxembourg Government on the basis of a previously agreed percentage. Banks did not have to sort the coin by issuer. Generally, CIT companies collected a particular denomination each day. There was no 'piggy bank' operation in Luxembourg, but there was one in Belgium, which might have slightly reduced the volume of coin to be withdrawn in Luxembourg, owing to cross-border flows between the two countries.

Pace of the changeover

16 The pace of the changeover in Luxembourg was a little quicker than the euro-area average.

Prices

17 The preliminary findings of a joint study by the BCL and STATEC (the national statistical body) are that the final changeover to the euro had a small upward impact on prices in Luxembourg. Initial results suggest that changeover may have added between 0.1% and 0.15% to inflation in January, but some of the effects might have been delayed to March or April, once double-pricing became less widespread and retailers had adopted 'psychological' prices in euro. The BCL is continuing to study the effects on prices and will publish its findings later this year.

THE NETHERLANDS

The final changeover took place particularly quickly in the Netherlands, even quicker than planned. The cash exchange period was set at four weeks (the shortest in the euro area), but the cash changeover was largely complete within one week. A Ministry of Finance report to the Dutch Parliament concluded that such a short official changeover period, coupled with a campaign to achieve a considerably faster changeover in practice, was a success; and that, while the short changeover – to a large extent determined by the behaviour of the public – reduced the business costs of conversion, a 'big bang' would have been disruptive.

Organisation

1 The Ministry of Finance co-ordinated the changeover preparations for the public and business sectors, and the information campaign, while the Nederlandsche Bank supervised and oversaw the preparations by the banking sector and co-ordinated the cash changeover. This division of labour was decided in mid-1999. The Nederlandsche Bank involved a wide range of groups in planning and organising the cash distribution. Communication with all involved, and clear definitions of each party's roles and responsibilities, were regarded as crucial. Because of additional policing and other security measures during the changeover, incidents involving cash transport and storage were 20% lower than a year before.

Bank accounts

2 Each bank determined its own changeover timetable. While a number of banks gave customers the option of converting accounts earlier than the bulk conversion towards or at the year-end, in practice this option was little used. Some banks thought, with hindsight, that the functionality supporting this option was an unnecessary expense. Most banks organised the conversion of the bulk of personal accounts over the final weekend, though a few, mostly larger, banks converted them during the autumn in order to divide the processing time needed and spread out the operational risks. Business accounts were generally converted early, because of their greater complexity. Whatever the timetable chosen, the conversion of accounts and contracts was trouble-free.

Payments

3 All 170,000 POS terminals (except 0.5% too old to be converted) were switched over to euro remotely at midnight on 31 December. This required a physical, on-site upgrade earlier in the year, and many retailers had left it until late before arranging for this; but there were no reported problems in January of terminals not capable of functioning in euro. POS usage did not increase in January – indeed it fell in some shops – as most consumers seemed keen to use up guilder cash, or experiment with the new euro cash.

4 Cheques were little used in the Netherlands, and have been abolished as of 1 January. Credit transfers from the public to businesses are made using 'accept giro' forms. Euro forms have a different colour and document code, to avoid confusion; and there was a four month dual-running period, from 1 December to 1 April. Some problems arose because a

number of the 140,000 companies which issue the new forms did not arrange for adequate testing; nevertheless, the system was able to cope during the first few weeks, though the rejection rate (at 5%) was twice the norm.

Prior distribution of euro cash

5 Lower denomination notes (€5, €10, €20 and €50) made up over 98% of the number of notes frontloaded. Arrangements for note frontloading and sub-frontloading were the same as for normal note distribution: banks and large retailers were frontloaded by the CIT companies, while smaller retailers collected notes from their bank branch (to facilitate this, the Nederlandsche Bank made up packets of small amounts of the three lowest-denomination notes). The bulk of frontloading took place before, and sub-frontloading in, December. In order to simplify the task, the Nederlandsche Bank required collateral for all frontloaded notes, rather than (as required by the Eurosystem regime) only those sub-frontloaded. But survey data on retailers' ability to give change in euro – 97% on 2 January – indicate that sub-frontloading was more than adequate.

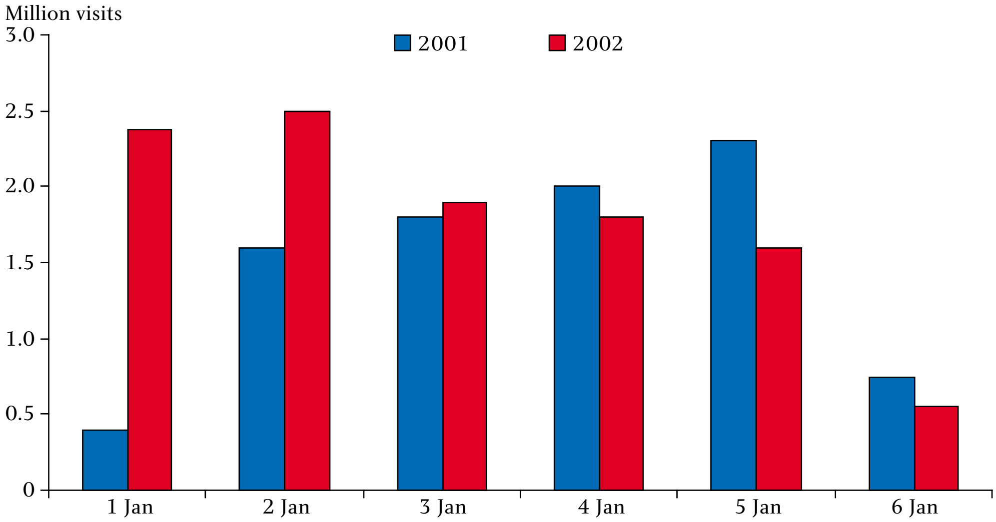
6 Coin was also distributed to banks and large retailers through the CIT companies, which hired 120 extra vans. But the 184,000 small retailers which agreed to be sub-frontloaded were able to request delivery direct from the purpose-built distribution centre of the Nederlandsche Bank at Lelystad. This process – unique in the euro area, and known as 'fijndistributie' (tailor-made distribution) – was initiated and funded by the Nederlandsche Bank. It involved banks contacting their customers over the summer with a questionnaire to ascertain their needs; a centralised database managed by a private sector company, through a call centre, to record firms' requests for coin (the same form indicated to individual banks the retailer's request for note sub-frontloading), together with their bank's willingness (or otherwise) to provide credit; and the direct delivery – free of charge – by post office vans to these firms, in the last three working days of December, of the requested amounts. In the event, 85% received the requested coin by 29 December and the remainder by 2 January. Some 40% of the 1.4 billion coin frontloaded were distributed in this way.

7 Some 8 million starter kits for the public (each containing coin to the value of €11.35, the equivalent of DF25) were distributed to banks and retail outlets, and were sold out within a few days; and, in addition, some 14 million free kits (each containing coin to the value of €3.88 – one of each coin) were collected by those entitled (all residents 6 years old or over).

Cash at banks

8 From midnight on 31 December, no ATMs dispensed guilders, and all ATMs were available for euro transactions at some time on 1 January. ATMs were very actively used (Chart 24), with over 10 million withdrawals in the first five days of the month, for an average amount of €110 (around three times the norm). ATMs malfunctioned 2-3 times more than the normal 2-3% during the first 10 days of the month. Up to 40% of machines dispensed some €5 notes for the first week or two of January. Others dispensed predominantly €10, €20 and €50 notes.

CHART 24: ATM TRANSACTIONS IN THE NETHERLANDS



Source: Postbank

9 As a considerable number of small retailers indicated from 1 January that they would not accept guilders at all (though large retailers continued to do so), many individuals went to banks to exchange small amounts of guilders. As in other countries, there were long queues there for the first few days. Most banks had to open for longer hours than normal during the first week of January, and also on Saturday 5 January, to cope with the workload; a few had to close their doors to prevent overcrowding. As a rule, banks encouraged customers to pay guilders into their accounts, and to withdraw euro from ATMs, as this speeded up transaction times – important in the early days as a means of taking some pressure off the long queues. Non-customers could not of course do this, and were in some cases charged a small fee for cash-against-cash transactions (the fee was not always clearly indicated at the start of the queue, causing occasional annoyance). One bank pointed out that customers with unauthorised overdrafts would also be reluctant to pay guilders into their accounts, as they might not subsequently be allowed withdrawals from an ATM.

10 While queuing to change guilder cash early was quite unnecessary – notes and coin could be spent in shops until 28 January, and exchanged free of charge at the customer's own bank until 1 April – this 'irrational' behaviour reflected a widespread desire both to make a quick and clean break with the past, and to 'be involved' somehow in such an historic event. The fact that most people were having a two-week Christmas and New Year holiday also contributed to the queuing. (From 1 April until end-December, guilders can be exchanged at banks, for a small fee; and for a much longer period at the Nederlandsche Bank free of charge.)

Cash at retailers

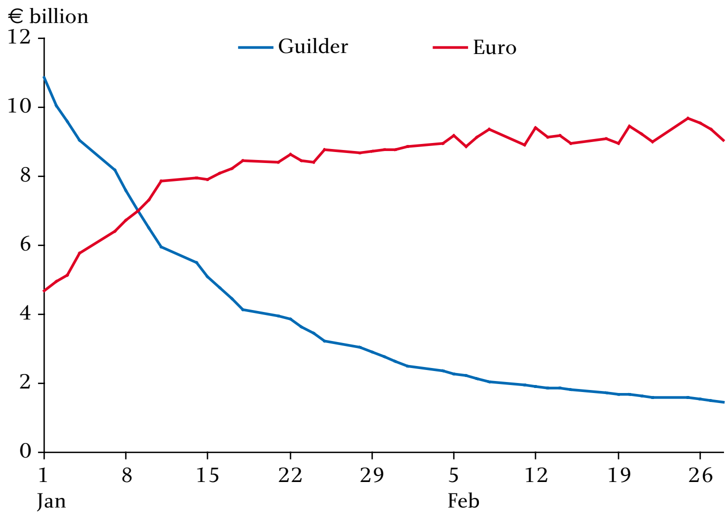
11 Some of the larger retailers experienced a shortage of low-denomination euro notes on 3-4 January, leading to an emergency additional distribution via the CIT companies on 5 January, organised by the Nederlandsche Bank. The problem may have arisen because consumers spent their high-denomination notes – both guilders and euro – in the larger stores (small retailers were more likely to refuse high-denomination notes), necessitating

large amounts of (small note) change, rather than as a result of any overall shortage. Survey results showed that the public did have enough low denominations at their disposal. And this shortage was localised and short-lived: by the third week in January, low-denomination euro notes in circulation started to fall, as they returned to the Nederlandsche Bank.

Withdrawal of legacy cash

12 During 2001, 33% of guilder notes by value were returned to the Nederlandsche Bank; and 11% of coin by number (a quarter of those expected to be returned). Logistical arrangements for collecting guilders in early 2002 mirrored those for euro frontloading and sub-frontloading, including (up to 15 February) through the 'fijndistributie' channel. Note return accelerated in the first three weeks of January, without major problems (Chart 25).

CHART 25: NOTES IN CIRCULATION



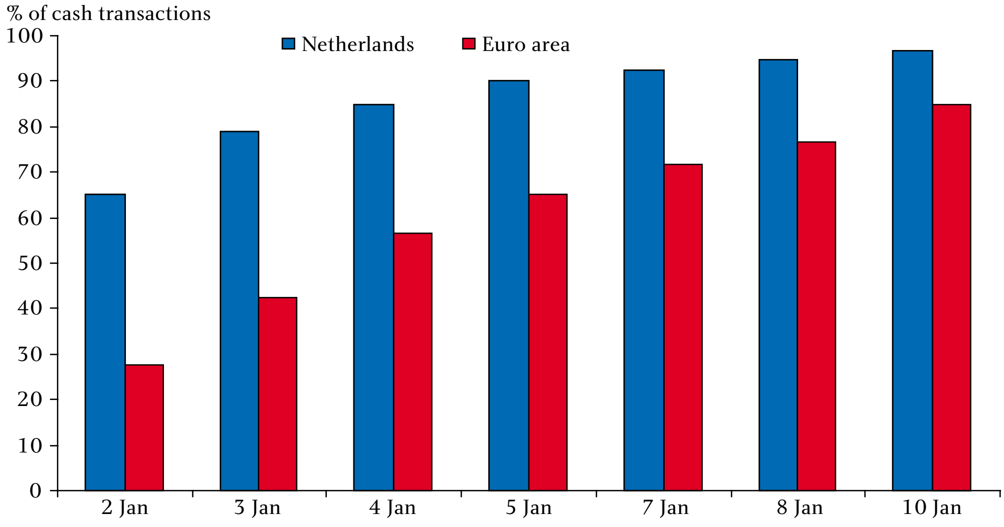
Source: ECB

13 The return of coin also accelerated, but this did cause logistical problems. While retailers could earn €11 per bag (of 200) of sorted coin, many sent back coin unsorted. More coin than expected was returned via the banks than the 'fijndistributie', reflecting the quick changeover to euro payments in the retail sector; and the CIT companies' capacity to sort and count it was limited. Since this capacity to sort remained fully geared to the larger than expected volume of guilder coin, the process of recirculating euro coin did not start soon enough to keep up with the quicker than expected cash changeover, leading to temporary shortages in some denominations. Moreover, boxes of coin being returned from banks to the Nederlandsche Bank were not always properly labelled or recorded. The resulting delays and confusion took several weeks to sort out. However, the relatively low value of the coin involved limited the cost.

Pace of the changeover

14 The pace of the cash changeover in the Netherlands appeared to be quicker than in any other euro-area country (Chart 26).

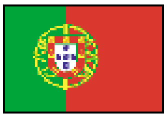
CHART 26: CASH TRANSACTIONS IN EURO



Source: European Commission and De Nederlandsche Bank

Impact on prices

15 As in most countries, the strong perception was that prices increased during the cash changeover. There was clearly some rounding up, including of certain local government charges. But statistically it has been difficult to distinguish euro-specific factors from seasonal and tax-related rises. Inflation may have been 0.2 percentage points higher in January as a result of the completion of the changeover, and a similar level of increase was probably spread over a longer period; but this should be a one-off effect. An increase in cross-border shopping was also observed as early as January, as not only price comparisons, but also cash payment, became easier. In time, this is expected to contribute downward pressure on prices.



PORTUGAL

A relatively gradual approach to the changeover had been planned in Portugal, making full use of the cash exchange period. So the public's desire to switch almost instantly to using euro put unexpected additional pressure on the banks and retailers in the first few days of the year. Nevertheless, a smooth transition to the euro resulted overall, and the few problems arising were quickly resolved.

Organisation

1 The *National Changeover Plan* was included in a Resolution of the Council of Ministers published in December 2000. The Ministry of Finance took overall responsibility for the changeover in Portugal, but there was no single forum for co-ordinating the whole changeover process. The National Commission for the Euro focused exclusively on the national information campaign and preparations in the public and business sectors. The Banco de Portugal oversaw the financial sector's preparations and managed the cash changeover through various contact groups with the commercial banks, infrastructure providers, the Ministry of Finance and the Mint; and promulgated its own information campaign.

Bank accounts

2 Under national legislation enacted in May 2001, banks were permitted to convert customer accounts from 1 October, unless customers objected. In practice, very few objections were received, and the mass conversion of accounts began in October, with the bulk completed in November, and the remainder of accounts and other financial products at end-December. The conversion took place without material problems.

Payments

3 The retail payment infrastructure was adapted to allow use of the euro in 1999, though in practice the euro was little used until late last year. Cheques, which in Portugal can be supplied at ATMs as well as ordered through banks, were distributed in euro (in a new format) from 1 October, though escudo cheques could still be obtained from bank counters or ordered by telephone until end-December. Banks are obliged by law to accept escudo cheques dated 31 December or before, but can now only process them bilaterally since the escudo clearing system was closed on 28 February.

4 POS terminals were made compatible with the euro over a two-year period, though payments continued in escudos until terminals were converted to euro. Terminals were converted automatically at end-December, though some were converted earlier, where retailers chose to initiate the switch themselves. A few older, less frequently-used machines were withdrawn from use.

Prior distribution of euro cash

5 The banks finalised their requirements for frontloaded euro notes and coin with the Banco de Portugal last summer, but negotiated distribution schedules directly with the two CIT companies. The frontloading of coin began last September, and notes in October. The larger banks were able to arrange for later delivery, minimising storage and insurance costs.

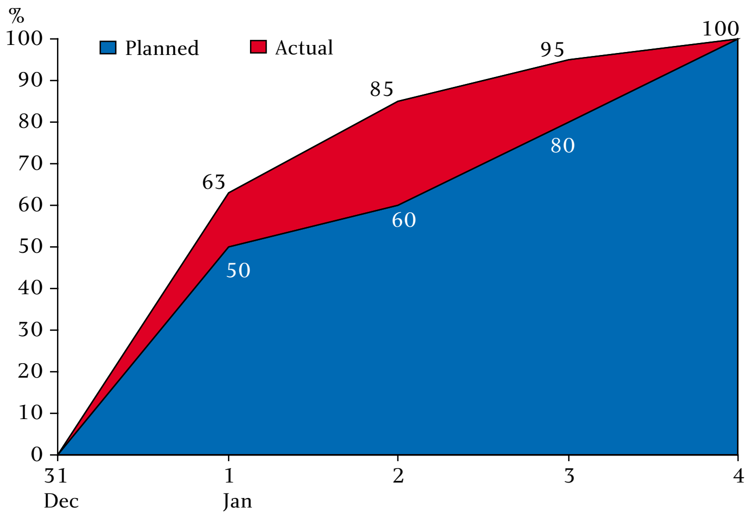
6 Banks began sub-frontloading their customers in early December. Demand was low (3.8% of notes frontloaded). While large customers were able to negotiate later delivery and less stringent conditions, many smaller retailers were deterred by the costs and conditions imposed by the banks, and were also confident of being able to obtain their euro requirements in early January and being able to continue to use escudos during the cash exchange period. The concentration of sub-frontloading in late December created some logistical problems for CIT companies. The Banco de Portugal agreed last November to compensate banks for the costs of transporting frontloaded notes, though this represented a small part of their total changeover costs. No compensation was paid to retailers.

7 150,000 starter kits, each with a value of €250, were made available to retailers from 1 December; and 1 million, each with coins to a value of €10, were sold to the public from 17 December. Production was limited to a modest 0.1 per capita. There were some localised shortages, but supplies lasted until end-December, as banks supplemented their official allocation from the Banco de Portugal by making up their own bags from frontloaded coin.

Cash at banks

8 The Portuguese approach to the conversion of ATMs, though slower than in many countries, was carefully considered and worked well. ATMs were converted over the first few days of January (Chart 27), with some machines continuing to dispense escudos in the meantime. 30 and 31 December are the days in the year with the highest number of ATM transactions in Portugal, and the banks did not want to disturb this by taking out capacity and filling some drawers with euro. The extensive ATM network and co-ordination between the banks ensured that the public had ready access from the outset to an ATM dispensing

CHART 27: ATM CONVERSION IN PORTUGAL



Source: SIBS

euro. The most frequently used ATMs were converted to euro first, and marked with a bright yellow stripe to alert users. Consequently, although 63% were converted on 1 January, these accounted for 86% of withdrawals. In the event, the conversion process was completed on 4 January, faster than planned. ATMs dispensed €5, €10 and €20 notes, and continue to do so, with CIT companies contracted to restock machines using on-line monitoring.

9 Commercial bank counters were closed on 1 January, but the Banco de Portugal opened its nine branches. The intention was to allow small retailers to obtain euro notes and coin, but there were long queues of the general public wishing to exchange escudos. Some people queued as a way of marking, and taking part in, an historic occasion, whilst others (particularly the elderly) did not understand that there was a two-month cash exchange period. Queues continued at bank counters for the first two weeks of January.

10 Banks in Portugal are obliged to exchange escudo notes and coin free of charge by law until end-June. However, the Banco de Portugal had to clarify the position following complaints that banks were refusing to serve non-customers, imposing charges or limiting amounts exchanged.

Cash at retailers

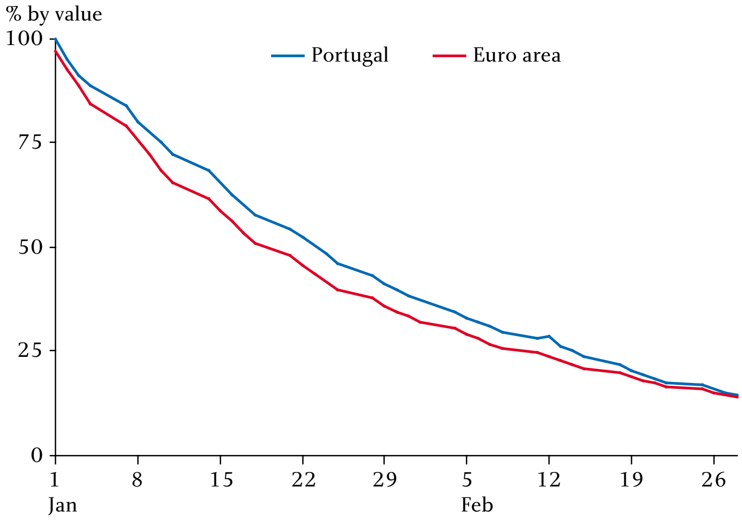
11 The reluctance of small retailers to be sub-frontloaded led to localised shortages of low-denomination notes and coin, with many shops having to give change in escudos in the first few days of January. However, the key larger stores and other enterprises were able to operate in euro from the outset. 80% of the cash-operated industry was adapted to euro by mid-January, and the remainder by mid-February. Use of credit cards did not increase, as the public preferred to use the new cash.

Withdrawal of legacy cash

12 There was no national de-hoarding campaign in Portugal, because of concerns that this might cause a shortage of escudo coin, but the banks began running their own charity schemes late last year.

13 Unlike the euro area as a whole, the circulation of escudo notes rose slightly in December, and withdrawal was slightly slower than average in January. Even so, over 85% (by value) of escudo banknotes outstanding at end-December were returned by end-February, much the same as elsewhere (Chart 28). The withdrawal of escudo coin was much slower – only 13% by value was returned by end-February. This reflected problems in their collection, sorting and storage, with bottlenecks occurring at CIT companies. Priority was initially given to distribution of euro coin, and then to collection from larger retailers who were able to package coin by denomination. Consequently, it took up to 10 days for smaller retailers to obtain value for the return of escudo coin. To help offset this, the Banco de Portugal agreed to meet the transport costs for those retailers not normally involved in large-scale coin collection.

CHART 28: WITHDRAWAL OF LEGACY NOTES



Note: as a percentage of stock outstanding at end-2001
Source: ECB

Pace of the changeover

14 According to a survey by IAPMEI (a representative organisation for SMEs), over 90% of cash transactions at retail outlets were in escudos in the first two working days of January, as the public spent their remaining holdings. Euro usage gradually increased, exceeding 50% on 4 January; 65% on 5 January; and 70% on 10 January. By end-January, over 95% of cash transactions were in euro, much the same as elsewhere. The rise in Portugal's EPR was also initially slower than the euro area as a whole, in part due to transport delays in returning escudo notes to the Banco de Portugal, though it reached 84% by end-February, close to the euro-area average.

Impact on prices

15 There appears to have been little or no impact on overall inflation as a result of the changeover: the month-on-month increase in January was 0.2%, half the increase in January last year, though this may have been influenced by the National Commission for the Euro's request for annual price increases to be delayed from January to March. Some retailers began setting 'psychological' prices in euro from the start of dual pricing in October, although the most prominent prices did not switch from escudos to euro until 1 January. Dual pricing was compulsory until 28 February, and many large retailers continued to display prices in euro and escudos after that date.

SPAIN

The non-cash changeover was completed on schedule, except that clearing of peseta cheques was extended beyond end-February. The cash changeover began slowly, but then accelerated and was effectively complete by end-January. The slow start was due to relatively low levels of euro note frontloading and some logistical difficulties in the frontloading of coin last year. Coupled with unexpectedly high public demand for euro cash, this caused shortages at a few banks and retailers in early January. Dual pricing persisted well after the end of the cash exchange period in many shops and on bank statements to help people cope with the relatively difficult conversion rate.

Organisation

1 The changeover was co-ordinated by the Ministry of Economy and the Banco de España, with the latter taking the lead on the cash changeover. There was a high degree of consultation (including through monthly meetings) between the Banco de España, the Mint and the Ministry of Economy to discuss logistics, in which CIT firms, the banking association and the vending associations were also involved. Minor difficulties, such as coin not being delivered to banks as quickly as planned, and banks' advice to customers that they should use the whole of January and February to exchange cash conflicting with the Government's message encouraging people to make the change as quickly as possible, had only a limited impact.

Bank accounts

2 Most bank accounts of personal customers were converted, in accordance with the agreed Memorandum of Understanding, over a four-week period starting on 15 September, mainly during weekends. Banks wrote to their personal customers twice – in June and August – informing them of the conversion, and assumed their implicit consent unless they objected (less than 1% did).

3 Only a small proportion of company accounts were converted during this period, as companies were asked to agree to the change explicitly, and the majority did not reply to the letter. In mid-November, banks decided to adopt the 'implicit consent' approach for company accounts, so that they were not all left to be converted at end-year. In practice, few problems were experienced with the conversion of company accounts.

4 Banks planned to remove peseta reference values on account statements at end-February. But since many people continued to think in pesetas, banks decided to keep peseta reference values – generally just opening and closing balances – until at least end-June, for the benefit of their customers.

Payments

5 It was planned that the retail payment infrastructure would continue to clear euro and peseta payments in separate parallel streams until 28 February, so as to handle outstanding peseta payments written before 31 December. In practice, banks also accepted cheques

written after end-December, and also continued to process peseta cheques after end-February. This was because many customers did not receive euro cheque books before the end of last year, so they continued using peseta cheques early this year. Many of these were dated 30 December, to avoid their validity being questioned. Clearing of peseta cheques was extended until end-June, by when the number presented should have fallen close to zero.

6 POS terminals are mostly owned by retailers, and the majority were made compatible with the euro during the second half of last year, though some were too old to be converted and had to be replaced. Once euro-compatible, a currency code indicated whether a transaction was processed in euro or pesetas. Whilst in practice the vast majority of transactions continued to be in pesetas until end-December, a small number of transactions used the wrong code. From 1 January, the central system no longer responded to transactions initiated in pesetas. An extra difficulty in Spain was training operators of POS terminals to use a separator for decimals rather than thousands (which had been the norm for peseta payments).

Prior distribution of euro cash

7 The Banco de España pre-distributed euro notes to its extensive branch network, whilst coin was pre-distributed by the Mint regional warehouses – six on the mainland, plus two each on the Balearic and Canary Islands. Frontloading of both notes and coin was arranged by banks and CIT companies. Frontloading of notes represented only 22% of the peseta note circulation on 31 December (compared with an average of 49% across the euro area). 79% of euro coin production was ordered by banks for frontloading but CIT companies delivered only one-third of this amount to banks by end-December, and the remainder in early January.

8 The proportion of notes frontloaded was low as banks considerably under-estimated the pace of the changeover, basing their orders on the assumption that people would use most of January and February to change to euro. In practice, the public wanted to change to euro as quickly as possible, and the Government encouraged this, as the changeover coincided with Spain's Presidency of the EU. The low proportion of frontloading was also due to the security risks associated with holding large volumes of notes, high insurance costs, and dramatically increased fees charged by the two main CIT companies. Recognising this, in December, the Banco de España agreed to compensate banks for CIT fees (roughly €12 million for note deliveries and €6 million for coin). Additional supplies of euro cash had to be provided quickly in January. Compared with the value frontloaded, the value of euro notes in circulation doubled by 8 January and trebled by 16 January (much greater increases than the euro-area averages of one-third and one-half respectively).

9 Sub-frontloading, predominantly to larger retailers, accounted for just an estimated 4% of the notes and 10-15% of the coin frontloaded. Little pressure was put on smaller retailers to participate. The banks' agreement with the Banco de España not to debit retailers for sub-frontloaded cash until 15 January benefited retailers, but it provided no incentive for the banks actively to encourage their customers to be sub-frontloaded. In addition, some retailers were reluctant to sign sub-frontloading agreements because of the penalty regime

for premature circulation of euro, though penalties in Spain were not unduly onerous compared with other countries.

10 Two million starter packs for retailers were produced, each containing €30.41 in coin. These packs were mainly distributed to large retail groups, for whom they were rather small in value. So their cash tills had to be re-stocked from the larger standard units of supply designed for bank branches.

11 Starter kits for the public went on sale on 15 December, each containing €12.02 of coin and sold for ESP2,000. Some banks initially rationed sales of kits, but later found they had many left. 24 million starter kits were produced, of which roughly 22 million were sold.

Cash at banks

12 The conversion of ATMs was quicker than planned, with 85% converted on 1 January, 95% on 2 January and 100% by 7 January, and with those most frequently used converted first. Unconverted ATMs continued to dispense pesetas but, as the machines were not frequently used, volumes were low. Withdrawals from ATMs were 2-3 times normal levels in the first days of January, with an average withdrawal of €100. However, amounts distributed from bank counters rose by much more: at one large bank, 80% of euro was dispensed over the counter and only 20% by ATMs, whereas normally 70% is dispensed by ATMs. Most ATMs have only two drawers, and banks were reluctant to stock these with €5 notes because of the need for frequent refilling. A few ATMs with more than two drawers were stocked with €5 notes, and some with €10 notes, but the majority dispensed €20 and €50 notes. Banks issued the majority of €5 notes over their counters and to retailers during the first two weeks of January: as against 245 million frontloaded, circulation peaked at around 350 million in mid-January, before falling back to 191 million on 21 March.

13 On 1 January, around 900 commercial bank branches (around 2% of the total) opened – from 11.00 to 14.00 – in response to a request from the Banco de España, which also opened its own 53 branches. Long queues formed and, whilst doors were closed at 14.00, in some cases it took 4-5 hours to clear those already inside. Lengthy queues continued for most of the first three weeks of the changeover. Many people arrived with several separate peseta amounts to change – for family, friends and neighbours. Banks took on additional staff, but it was difficult to find sufficient trained cashiers. Transactions took longer in the first days of January, owing to unfamiliarity with the new notes, and their greater number (Spain previously had only four banknote denominations). Some bank opening hours were extended during the first 15 days, with branches opening from 8.00 to 20.00, though others did not do so initially owing to the risk of running short of euro notes.

14 Banks generally performed cash-for-cash exchanges, rather than encouraging customers to deposit pesetas into their accounts. They agreed to exchange pesetas free of charge in unlimited quantities for both customers and non-customers until end-June. However, in practice some banks were prepared only to serve customers, or to serve non-customers only in limited amounts. On occasion, this was unhelpfully not made clear until people reached the counter.

15 High levels of cash usage and hoarding in Spain meant that amounts changed over bank counters were often large, with the average transaction being €400 and some people

exchanging amounts up to the money laundering ceiling. This meant demand was particularly high for €200 and €500 notes, denominations which the Banco de España had not itself produced.

Cash at retailers

16 Whilst the majority of larger retail groups was able to give change in euro from the start of January (some had even overestimated their need for frontloading and had too much euro cash), much less had been sub-frontloaded to smaller retailers and there were some reports of localised shortages of coin in the first days of January. 20% of the 4,000 complaints received by the Chamber of Commerce were about this, and the Banco de España asked the public not to hoard coin. There was a shortage of €1 coin, caused mainly by gaming companies changing the standard cost of a game to €1 from 50 cents. An additional 145 million €1 coin are to be provided this year, and the scarcity of €1 coin was largely alleviated by mid-March.

17 Having changed large values of cash in banks, some customers then used the high-denomination notes they obtained in shops. In a Chamber of Commerce survey, 52% of businesses thought that customers had used them as bureaux de change. Numerous shops were reported to have insisted on giving change in the currency denomination provided by the customer, with some retailers having set up separate tills to handle transactions only in pesetas. Unlike some other countries, there was little evidence of shops or services refusing pesetas during the cash exchange period.

18 As the public was eager to use the euro in cash form, the use of electronic cards fell during the changeover. This was contrary to predictions by companies operating the electronic payment system. They had increased fees to take advantage of expected higher volumes.

Withdrawal of legacy cash

19 There was a significant reduction of peseta banknotes in circulation last year, with notes in issue falling by €11 billion, or 18%. Peseta coin in circulation also fell, by 5% over the final three months. Although a de-hoarding campaign was organised, with savings boxes placed in department stores and airports, the reduction in national coin in circulation was less than in other countries.

20 The withdrawal of peseta notes was quicker than expected. In January, the rate of return to the Banco de España averaged about €1.5 billion per day. Owing to the unexpected need for extra deliveries of euro in early January, and the resulting backlog of pesetas at bank branches and CIT companies, contingency arrangements had to be introduced for counting notes. They were normally counted at CIT companies' premises, but from early January until 10 March the Banco de España took notes with less stringent controls than usual, and credited banks with the amount said to be enclosed. Without this change in practice, some CIT companies would have breached their insurance limits. Around 70% of the value of notes returned were handled in this way, and subsequent checking was expected to be complete by now. Only marginal discrepancies were found, and were reconciled with each bank concerned. Banks were allowed to mark returned notes to reduce security risks, but in

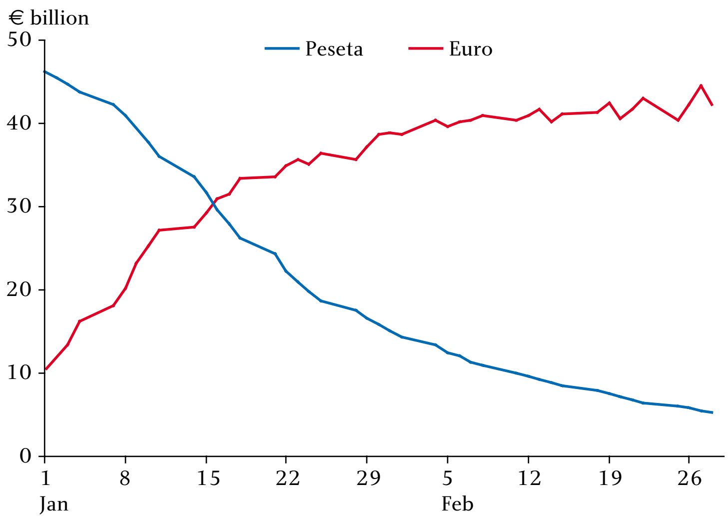
practice none did so. The Banco de España planned for the destruction of all peseta notes by end-June.

21 Peseta coin was not returned via Banco de España branches, as these did not have sufficient capacity. Instead, Banco de España staff noted the value of coin arriving at CIT companies' premises. The value of coin was easier to check, because plastic containers for returned coin had been distributed to banks and retailers last year. The coin was then processed by the Mint on behalf of the Treasury. By 1 March, 21% of peseta coin outstanding at end-December by number, and 34% by value, had been returned. A significant proportion was not expected to flow back, particularly as 50 million tourists visit Spain each year and most take at least a few coins away with them. The withdrawal process caused storage problems at banks and CIT companies, but the Mint dealt with them by arranging additional transport to its regional depots, and clearing space by transferring coin to the larger Madrid depot. The depots have been rented until end-December (and to end-2003 in the case of Madrid), though it is planned to complete the return and destruction of coin earlier than this. Proceeds from the sale of the metal are expected to exceed the costs of the introduction of euro coin by a large margin.

Pace of the changeover

22 The changeover began relatively slowly in Spain, but accelerated rapidly, despite the size of the country and the relatively high usage of cash (Chart 29). Virtually all cash payments were in euro by end-January.

CHART 29: NOTES IN CIRCULATION



Source: ECB

23 Spain's EPR started from a low base, owing to the low level of euro notes frontloaded. The EPR then rose rapidly, to above the euro-area average, as a result of the delivery of further supplies of euro to banks and the quick withdrawal of pesetas to the Banco de España, facilitated by its decision to relax checks on notes received.

Impact on prices

24 The changeover undoubtedly led to some individual prices being raised, but this is hard to discern from the official aggregate data. In a survey of businesses conducted for the Chamber of Commerce, 9% of respondents thought the changeover had led to an increase in prices of their products (although 5% said it led to a reduction); but 24% thought it had increased suppliers' prices. The public had some difficulties adapting to thinking in euro instead of peseta, possibly because the conversion rate in Spain was not an easy one, so most retailers decided to extend their dual-pricing after end-February, at least to end-June. This became a competitive issue since, if one retailer maintained peseta prices, others felt they had to do the same – the Government did not set a date when dual-pricing should end. The continuation of dual pricing meant extra costs (during the sales four prices were required), and made it more difficult to move to new 'psychological' prices.

PART II: LESSONS FROM THE EURO CHANGEOVER

1 The purpose of Part II is to compare and contrast the completion of the euro changeover in different countries in the first wave, and draw lessons from central banks and commercial banks, in case the UK were to join as a later entrant. These lessons concern:

- the organisation of the changeover;
- the completion of the non-cash changeover;
- the cash changeover;
- the costs and benefits of a quick changeover; and
- other issues, including the impact on prices.

The main lessons to be drawn are summarised in italics at the head of the sections to which they relate. There are cross-references to subjects covered in more detail in previous editions of *Practical Issues*.

A THE ORGANISATION OF THE CHANGEOVER

- *The completion of the euro changeover would not have been a success without meticulous preparations from an early stage, and project management by the key parties involved (governments, central banks, commercial banks, CIT companies, retailers and the cash-operated industry), with effective co-ordination and adequate channels for resolving urgent problems when they arose.*
- *National central banks (NCBs) played a key role in organising the cash changeover, but also in monitoring or assisting preparations in the financial sector.*
- *As there were a large number of different parties in each country involved in implementing the cash changeover, it was essential to be clear in advance about the allocation of responsibilities between them.*
- *In all countries, early national legislation was needed to facilitate specific aspects of the changeover, both for EMU entry and for completion.*

2 The euro changeover was organised in detail and implemented at national level. But it was overseen at European level by ECOFIN, and specifically the Eurogroup, supported by the EFC and the Commission. The Governing Council of the ECB played a major role in organising the cash changeover, and set up a Eurosystem committee at working level (CashCo) to plan, execute and monitor it.

3 Although the changeover was organised in different ways in different countries, there were common features which proved important in securing a successful outcome. In almost all euro-area countries, national preparations for the euro were co-ordinated by a national changeover committee (or the equivalent in the form of a changeover board, forum or steering group), which was generally chaired by a senior official in the ministry of finance. In some countries, the national changeover committee or equivalent closely co-ordinated

preparations for completing the changeover according to a common plan. In others, the approach was less prescriptive and more informal, leaving the initiative to a greater extent to individual institutions.

4 Within the work of each national changeover committee, the NCB played a significant role in the practical preparations in two main areas.

- First, monitoring or assisting preparations in the financial sector: initially for the launch of the euro at the beginning of 1999, when the changeover in wholesale financial markets took place; and subsequently for the completion of the non-cash changeover, in some cases closely co-ordinating the changeover in bank accounts, and in others following a more decentralised approach.
- Second, organising the cash changeover, in close co-operation with the ECB through CashCo: in each euro-area country, the NCB took responsibility for the distribution and withdrawal of banknotes, and in some cases also for coin under delegated authority from the ministry of finance.

5 A high degree of co-operation was needed between the parties involved to ensure the success of the cash changeover. Effective project management (eg with the central bank as 'conductor of the orchestra' and all the relevant parties sharing information), with a clear allocation of responsibilities, was essential. In France, where there was some delay in the distribution of euro coin during frontloading, the Banque de France strengthened its project management of coin in response.

6 In order to prepare for the changeover, early decisions were required, though some had to wait until the relevant national legislation had been implemented. Apart from the basic euro Regulations with EU-wide effect (EC/1103/97 and EC/974/98), all euro-area countries needed to introduce their own national legislation to facilitate specific aspects of the changeover. Some measures were needed in time for entry, such as the method of redenominating financial instruments and replacing reference rates. Other measures were only needed later, as they related to the completion of the changeover, such as: the replacement of references to legacy currency; provisions for new round 'signal' amounts in euro, and for dual displays (where these were mandatory); measures to prevent counterfeiting; clarification that legacy cheques issued after the end of the transition period were invalid; and provisions for making the change in legal tender and fixing the length of the cash exchange period.

B THE COMPLETION OF THE NON-CASH CHANGEOVER

7 Each individual bank had to prepare intensively to replace legacy currencies with euro throughout its business by the end of last year, following the changeover in wholesale financial markets over the conversion weekend (see Box). The most important non-cash preparations for the banks were to plan and implement the conversion of their customers' accounts and related products and contracts. Given the sheer scale of the project and its complexity, which affected every part of the euro-area economy, the necessary work had to be meticulously planned.

LESSONS FROM THE CONVERSION WEEKEND

The changeover in wholesale financial markets took place largely over the conversion weekend between 31 December 1998 and 4 January 1999. The conversion weekend was a great success. Key market firms all completed their changeover operations in good time. There were no significant problems in London, nor within the euro area. There are three main reasons why.

- First, and most important, the providers of the financial infrastructure and key market firms had all made extensive prior preparations for the introduction of the euro over a long period. Market associations set out best practice for their members after consulting them. Market firms generally kept close central control over their preparations. And in the run-up to the conversion weekend, market firms all undertook a succession of dress rehearsals to train staff and to test systems, both internally, and externally with clients and with the payment and settlement infrastructure.
- Second, activity over the conversion weekend was kept to the minimum necessary, in two ways. First, trading volumes were reduced in the run-up to the weekend. Second, it was agreed in advance that, over the weekend, securities should not all be redenominated, and cash balances should not all be converted. Although most government securities in legacy currency were redenominated, and equity prices were converted, a considerable proportion of non-government debt was not redenominated, and outstanding transactions were generally allowed to run off in legacy currency.
- Third, all the infrastructure providers and key market firms recognised that good organisation and communication during the weekend itself was vital. In advance of the weekend, many of them set up 'war rooms' to control their operations and to establish clear communication lines internally, and externally where necessary. They also took the precaution of building spare capacity into their timetables for the weekend as a contingency.

Although the conversion weekend was a success, the task for market firms would have been less onerous if definitive technical information about the changeover in a number of participating countries had been made available earlier; and if there had been a single and authoritative source of information about individual securities to be redenominated and reconventioned, including worked examples.

Teething problems in the aftermath of the conversion weekend were in general less than the market had feared. In particular, there was a low level of failed securities trades. The most significant problem immediately after the conversion weekend related to delayed and misdirected euro payments. Whilst there were some initial technical problems with some of the payment systems themselves (though not CHAPS euro), a more significant issue was the misunderstanding of payment conventions by banks in some euro-area countries, which resulted in their systems misrouting a substantial number of payments. This problem was speedily addressed by the global clearing banks most heavily involved in using the new euro payments routes, in a series of meetings of the Heathrow Group. As a result, they all agreed to follow the Heathrow conventions.

In general, the market experienced fewer problems with new standard settlement instructions (SSIs) in euro than might have been expected. Even so, a number of market participants concluded that the formal adoption of market standards on the content and use of SSIs would have reduced the risk of confusion.

Residual wholesale market issues at end-2001 were discussed in the December 2001 *Practical Issues*, page 22. The completion of the wholesale changeover worked well, without any significant problems.

Accounts

- *Individual banks were typically allowed to make their own preparations for the changeover of their customer accounts and contracts, in their own way, at their own pace and in their own time, with co-ordination by the authorities where necessary.*
- *A 'big bang' over the final weekend was too risky for the largest banks, where 31 December was not a Bank Holiday, especially as they had their end-year processing to complete as well.*
- *The conversion of personal accounts was less complex, both for banks themselves and their account holders, than business accounts. The conversion of accounts for business customers was best aligned with their own internal account change.*
- *Banks needed to obtain their customers' implicit or explicit consent for conversion, because of 'no compulsion, no prohibition'.*
- *A particular issue for insurance companies was how to convert historic data. Each insurance company adopted its own approach.*
- *While more might have been done in some countries to persuade SMEs and local authorities to start preparing earlier, the few problems arising from late preparations were localised rather than having more widespread implications.*

8 The initiative for the mass changeover of bank accounts in first-wave countries lay with the banks rather than the authorities. In some countries (Belgium, France, Italy, Portugal and Spain), the authorities played a role in co-ordinating early conversion, in agreement with the banks. In the others (Austria, Finland, Germany, Greece, Ireland, Luxembourg and the Netherlands), there was a fully decentralised approach, in which the timing of the changeover was left entirely to individual banks (and their associations). However, to a greater or a lesser extent, the NCB or another supervisory body in each of those countries monitored progress (eg through regular questionnaires sent to bank chief executives) to ensure that they would become aware of any problems in individual cases or issues affecting the financial system as a whole.

9 In France and Belgium, a co-ordinated approach to early conversion was introduced about half way through the transition period in response to the slow pace of the changeover until then.

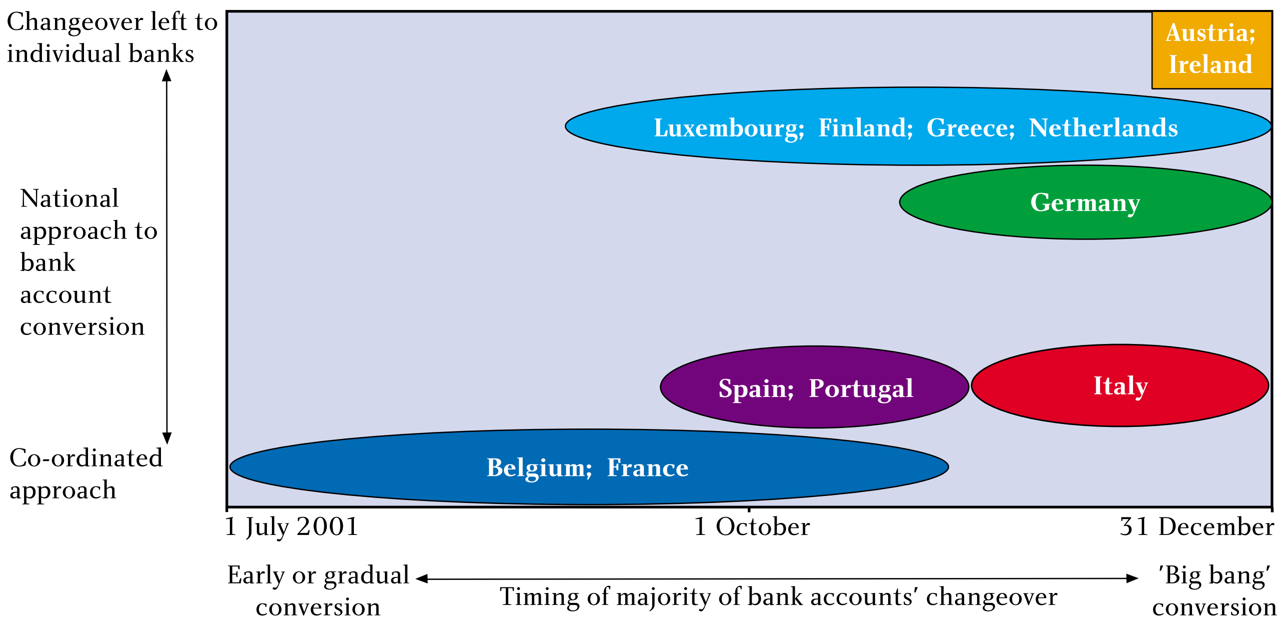
- The largest banks had so many accounts and contracts to convert, for both personal and business customers, that it was regarded as too risky to leave the changeover until the last minute, even with prior preparation and testing, as there would have been too little time to recover if anything went wrong.
- Early conversion was intended to familiarise both businesses and the public with the euro in advance.

- Early conversion provided an early warning to businesses that they needed to complete their own changeover by the end-December deadline and that they would be at risk if they were not ready to operate in euro by then.
- Early conversion helped to distance the non-cash from the cash changeover, which required extensive planning and preparation of its own.

10 By contrast, in Ireland, the banks implemented the non-cash changeover in a 'big bang' at the end of the transition period, for the following reasons.

- Banks in Ireland, which had fewer accounts and contracts on average than in larger countries, were confident that they had the technical capability to convert the vast bulk of their customers' accounts over the final weekend.
- Familiarity with the euro was expected to be highest at the end of the transition period, making the changeover of personal bank accounts at that point easiest for the public to understand.
- Managing the changeover in a 'big bang' simplified the task of communicating to customers the impact of the changeover, and reduced the possibility of confusion arising between euro and Irish pound amounts, which was a risk because the conversion rate was closer to unity than in any other country.
- A 'big bang' changeover over the final weekend avoided the need to obtain customers' prior permission.

DIFFERENT COUNTRY APPROACHES TO THE EURO ACCOUNT CONVERSION



11 In the event, the different national approaches to the account changeover, illustrated above, worked well in their own contexts. Banks throughout the euro area faced a number of similar issues.

- A 'big bang' over the final weekend was regarded as too risky for the largest banks, especially as they had their end-year processing to complete as well. Although they carried out extensive testing for the changeover in advance, there was still a significant risk that something might have gone wrong. So the largest banks staggered the conversion of their customer accounts.

- The most efficient way for banks to implement the changeover of their personal customers' accounts was to convert them in one or a series of groups. However, this was not compatible with giving full freedom of action ('no compulsion, no prohibition') to every personal customer. Banks secured their legal position by obtaining their customers' implicit or explicit consent. In most countries, the 'implicit' route was chosen, under which banks informed account holders in writing, either on a routine bank statement or by letter, that their accounts would be converted on or after a particular date, and that they would be taken to agree unless they explicitly objected. This form of 'implicit consent' was used in all but two countries. In Italy, under pressure from the banks, special legislation was introduced to make 'implicit consent' possible. And in Ireland, the question of whether or not common law (as opposed to the civil law in use on the Continent) would allow 'implicit consent' did not arise, because of the 'big bang' conversion. Throughout the euro area, there were only a negligible number of complaints about the timing of personal customers' account conversion.
- The account conversion for business customers was more complex than for personal customers, and each large business had to be treated separately. Where business customers' own internal operations were not converted until after their bank accounts, there was a risk of reconciliation problems if information was transmitted electronically to and from their banks. Although, in these cases, some banks delayed conversion of business customers' bank accounts until the end of the transition period, others overcame reconciliation problems by increasing 'tolerance levels' (eg so that a payment of FF100, converted by the bank to €15.24 and back to FF99.97 in the company's internal systems, could still be recognised and matched with the original payment) or in other ways (see the December 2001 *Practical Issues*, page 38).

12 Insurance companies faced many of the same changeover problems as banks. But a particular issue in the insurance industry was how to convert historic data, where each insurance company adopted its own approach. For large insurance companies, the sheer scale and complexity of the changeover was too great to be completed in a single 'big bang' conversion at end-year. They therefore had no alternative but to convert their customer contracts over an extended period before end-year. Some did so gradually, in stages, while others undertook their conversion internally over a period of time, with the customer only becoming aware at end-year that accounts and contracts had been converted.

13 Last year, there were concerns that some non-bank companies, particularly small and medium-sized enterprises (SMEs), and public sector organisations, particularly local authorities, would not complete their own internal changeover in time. And it is possible that more could have been done to persuade SMEs and local authorities to start preparing earlier. But the few problems which arose were localised rather than having more wide-reaching implications.

Payments

- *With hindsight, it was not necessary – though it may still have been cost-effective – to complete the retail payment infrastructure by the beginning of 1999.*
- *By informing their customers that it would no longer be possible to use legacy cheques or other paper-based payment forms from 1 January, banks were able to keep the clearance of legacy payments outstanding at the end of last year to a manageable level.*
- *The mass distribution of euro cheque books to customers 3-6 months in advance was the best way of avoiding problems with suppliers and customers at the end of last year.*
- *POS terminals needed to be prepared for euro use well in advance, particularly where owned by retailers. It was preferable not to give retailers a choice as to the denomination of transactions before the end of the transition period, but to make a clear change on a given date.*

14 Although the retail payment infrastructure throughout the euro area was largely ready for use in euro as well as legacy currency from the beginning of 1999, retail payments (such as credit or giro transfers, cheques, direct debits and credit card payments) in euro were not in practice used in significant volumes in most countries before end-2001. The residual retail payment issues that banks needed to address for the final changeover were: how to handle legacy payments outstanding at 31 December; how to ensure that all bank customers received euro cheque books in time; and how to ensure that all POS terminals were converted in time.

15 *Legacy payments outstanding* From 1 January, all non-cash payments were denominated only in euro (except in Finland, from 1 March). But there was a small number of payment orders in legacy currency to be settled after 31 December. These were mainly cheques and other paper-based payments (eg giro forms) written in late-2001 but not cleared before the beginning of this year. Bank customers were informed that it would no longer be possible to use legacy cheques or other paper-based payment forms from 1 January, as they would no longer be legal instruments. In practice, some cheques written in legacy currency and dated after 31 December were submitted to banks, and in general they were accepted.

16 Outstanding legacy payments were cleared for a limited period early this year, and in different ways, depending on the clearing method used in each country concerned, before legacy clearing systems were finally closed (on the timetable set out in the December 2001 *Practical Issues*, page 27).

- Most legacy clearing systems were finally closed on 28 February, though this date was extended to 8 March in Austria and 28 March in Germany, while in the Netherlands the legacy clearing system remained open until 1 April (for paper-based payments).
- In France, the Paris clearing house will remain open for French franc payments until 30 June.
- In Ireland, the clearing system for Irish pounds will remain open at least until 30 June. Although there was strong encouragement in Ireland to lodge cheques

written in Irish pounds by 9 February, cheques are valid for six months (as in the UK), and it did not prove feasible to shorten this period.

In all euro-area countries, once the legacy clearing system is closed, it is up to individual banks to decide whether and on what conditions to settle outstanding legacy payment orders, including charges.

17 *Cheque books* In those euro-area countries where cheques are widely used (France and Ireland), banks began to issue euro cheque books from the middle of last year and stopped issuing legacy cheque books (or provided them only on request). In Italy, where bank customers are required to collect new cheque books directly from bank branches, many did not do so until after Christmas. In Spain, there were only two companies producing euro cheque books, and some banks were unable to meet the demand late last year and early this, with the result that more peseta cheques were accepted after 31 December than expected. And in Ireland, one bank did not receive most of its order of euro cheque books from the printers until mid-January. Consequently, cheques written in Irish pounds during the first two weeks of January were not rejected, though amounts were of course debited from customer accounts in euro. The bank concerned considers in hindsight that it would have been better not to rely on a single cheque book supplier, and that it should have organised a mass distribution of euro cheque books earlier, rather than issuing new euro cheque books only when 'triggered' by Irish pound cheques running out.

18 The main concern in Ireland, given the extensive use of cheques and a conversion rate which was closest to unity, was that some customers would fill in Irish pound amounts on euro cheques and vice versa. Customers were given clear instructions that euro cheque books should not be used to write cheques in Irish pounds, and Irish banks did everything they could to distinguish euro cheques from cheques in Irish pounds (eg by using different coloured cheque books and making clear the denomination of cheques). The banks' advice was generally followed, and the number of cheques using the wrong denomination was less than 1% of the total. In France, in those cases where cheques were passed through cash registers, the risk of using a cheque in the wrong denomination was small, because cash registers could detect from the magnetic bar-code used whether a cheque was denominated in francs or in euro. However, there was more of a risk for other cheque payments, for example those sent through the post. If the wrong cheque was sent through the post, and had to be returned to the sender, there was inevitably a delay before the correct cheque was sent.

19 *POS terminals and ATMs* POS terminals, used for electronic credit and debit card payments in shops, and ATMs, in those countries in which they are used for payment of bills, needed to be adapted, and a few old terminals themselves had to be replaced. In countries in which some or all terminals were owned by retailers rather than banks, a co-ordinated and timely adjustment was more difficult to arrange. It was preferable not to give retailers a choice as to the denomination of transactions before the end of the transition period, but to make a clear change on a given date by agreement.

20 In some countries (eg Germany and the Netherlands), POS terminals were all switched over to euro remotely at midnight on 31 December. In others (eg Italy), they were adapted over a short period. In a number of countries, the main problem was that so many retailers

needed engineers to adapt their POS terminals from legacy currency to euro at the last minute that it was difficult to complete the work in time. Even so, electronic payments at POS terminals were reported by the Commission to be operating satisfactorily in euro on 1 January. (Some POS terminals used by seasonal businesses (eg some hotels) were not converted until next switched on.)

C THE CASH CHANGEOVER

21 The cash changeover began on New Year's Day, when euro notes and coin became legal tender throughout the euro area. The euro-area authorities' objective was for cash transactions to be conducted only in euro as quickly as possible, so as to help minimise costs (for banks and retailers) and confusion amongst the public. The changeover was preceded by a major information campaign, obviously concentrated in, but going beyond, the countries immediately affected, to explain both the mechanics of the changeover and the features of the new euro banknotes and coin. This was organised by national governments and the Eurosystem.

22 Notwithstanding careful and detailed logistical planning, the cash changeover involved many risks. Remarkably, none of these materialised, though, not surprisingly, there were a number of minor teething problems (see the January edition of *Euro-impact*).

Prior distribution of euro cash

- *Frontloading was critical to a quick cash changeover.*
- *The prior distribution of euro notes and coin required effective project management by NCBs, with clear responsibilities allocated between the central bank, mint, commercial banks and CIT companies for the detailed logistics of each stage in the distribution process, and contingency planning in case things went wrong.*
- *The distribution of coin was a particular challenge, as many central banks normally play either a limited role in its distribution or none at all, and coin issuance and withdrawal as a proportion of coin in circulation is normally much lower than for notes.*
- *The responsible authorities needed to consider where the normal arrangements for distributing cash would, and would not, be adequate for this one-off event.*
- *Coin needed to be frontloaded first, because of its bulk, while notes could be frontloaded later, for security reasons.*
- *Providing the right incentives for, and minimising disincentives to, sub-frontloading was very hard. The penalty regime acted as a major disincentive to sub-frontloading in some countries, though not in others, depending on the way in which it was designed and interpreted by NCBs and commercial banks, and perceived by retailers.*
- *Sub-frontloading of large retailers contributed to a quick cash changeover. Where sub-frontloading extended beyond large retailers, it was logistically complex to organise, and the alternative was for small retailers to collect supplies from their banks at the end of last year and early in the New Year.*

23 Given that the agreed objective was to complete the cash changeover from legacy currency to euro quickly, an intensive exercise was needed during 2000 and 2001 by NCBs and mints to pre-distribute notes and coin to their own geographically dispersed storage facilities; and then, during the final four months – and particularly near the end – of last year, to frontload banks and to sub-frontload retailers with euro notes and coin (though 'retailers' were not precisely defined).

24 In most countries, central banks and mints bore the costs of the pre-distribution stage, while banks bore transport charges for frontloading and retailers for sub-frontloading. But in some countries, the national authorities made a contribution towards the transport costs involved in frontloading notes (in Portugal); frontloading coin (in Italy); frontloading notes and coin (in Austria, Belgium and Spain, though in the latter the arrangements were agreed at a late stage); frontloading notes and coin to banks and sub-frontloading coin to large retailers (in Ireland); and sub-frontloading coin direct to the vast majority of small retailers (in the Netherlands).

25 *Pre-distribution* The pre-distribution of euro notes and coin was a huge exercise. In general, it was completed successfully, in sufficient volumes, safely and in an orderly way.

- Central bank branch networks (mainly for notes), and special storage facilities (sometimes for coin), were used to make it possible for euro cash to be widely distributed geographically before frontloading began. In Germany, for example, the Landeszentralbank network was used to distribute both notes and coin, while in France and Spain central bank branches were used to distribute notes, and special storage facilities for coin. The result was to reduce the logistical difficulties faced by CIT companies and costs borne by banks in transporting cash to bank premises, particularly in large countries.
- In Ireland, an agreement with the ECB on the 'notes held to order' scheme, under which cash at the four main banks' cash centres was held on behalf of the Central Bank of Ireland and not treated as frontloading, had to be negotiated separately, but was helpful in facilitating cash distribution.
- In some countries, like Finland and the Netherlands, secure vehicles were not used for the distribution of coin. But in those countries in which secure vehicles were used, their availability was only just sufficient. Trains, which can move huge quantities of cash securely, were used in France and Italy. But this means of transport proved inflexible when there were unforeseen problems in the distribution process.
- National authorities made special arrangements to provide security in transit (eg by cancelling police leave over the New Year period, allocating extra security personnel to man security vehicles, or using the army). For the most part, these arrangements worked smoothly. They also helped to create a climate of confidence in the cash changeover.
- Banks and retailers needed far more storage space than normal for notes and coin. In particular, most smaller retailers did not have much secure load-bearing capacity, a major disincentive to sub-frontloading.

- Competition among CIT companies was not always sufficient to ensure a good service (eg in Spain), or to prevent a hike in their rates, often late in the day. It was common for the NCB to have only a very few CIT companies with which to negotiate.
- Central organisation of transport logistics (eg in terms of routes, delivery schedules and capacity) helped to provide information about where euro cash was being transported and stored, and to keep overall costs under control. The Oesterreichische Nationalbank, which organised this very efficiently, calculated that the overall costs had been reduced by 40%.

26 *Frontloading* Commercial banks had to calculate in advance the amounts of each denomination they required, even though their retail customers often did not focus on their own needs early enough, and had to notify and confirm their orders with their NCBs. From 1 September onwards, commercial banks then had to arrange to: take delivery using appropriate transport; provide collateral; provide the necessary storage; negotiate with retailers the timing of onward delivery to them; and finally, make payment when it became due (see Box).

27 Frontloading a sufficient level of notes and coin to the banks did not for the most part prove to be a problem, mainly because the financial burden on the banks was eased by the ECB delaying payment for euro cash frontloaded until three dates in January, whereas cash delivered in early January had to be paid for immediately. So in general there was a sufficient financial incentive for the banks to participate – and they recognised of course their social duty and central role in the cash changeover. However, in Germany, a further explicit financial incentive was provided (see the December 2001 *Practical Issues*, page 54).

FRONTLOADING: PAYMENT AND COLLATERAL

As an incentive for frontloading, the Eurosystem agreed that banks in the euro area could pay for euro notes and coin they received before end-December in three equal instalments on 2, 23 and 30 January, which coincided with settlement dates for the ECB's weekly refinancing operations.

Banks had to provide collateral for frontloaded cash, using the same categories of eligible assets as for the Eurosystem's monetary policy operations.

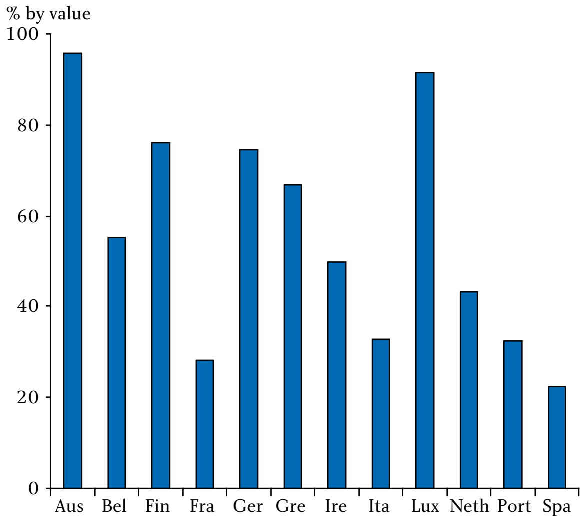
- Collateral had to be provided by no later than the last TARGET working day of 2001 (ie 28 December).
- Where central banks did not retain ownership, banks had to collateralise all frontloaded cash from the date received.
- Even where central banks did retain ownership, some still insisted on collateral being provided from the date banks were frontloaded, as this avoided the need to monitor sub-frontloading by banks to retailers.

Arrangements between banks and retailers everywhere depended on commercial negotiations between them. Some banks required retailers to pay when they received cash. Others required collateral or some form of guarantee. Others were prepared to bear the full risks associated with sub-frontloading, until the retailer paid for the cash at the beginning of January. Where cash could be provided as collateral, this made liquidity forecasting more complicated, because of uncertainty about the amount of cash involved.

28 The proportion of notes frontloaded varied within the euro area significantly from country to country (Chart 1), from 22% of notes in circulation by value in Spain, where insurance and CIT companies costs acted as a disincentive until the Banco de España agreed at a late stage to provide compensation, to over 95% of notes in circulation in Austria, where high levels of frontloading as early as possible were seen as the key to a smooth and quick changeover (see the December 2001 *Practical Issues*, page 52). Frontloading of coin also varied widely from country to country (Chart 2).

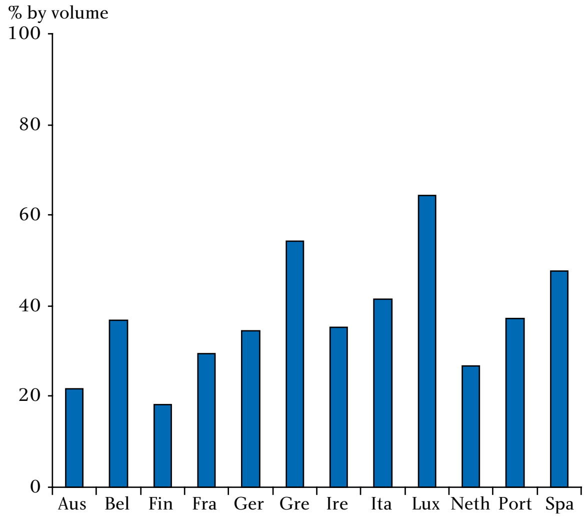
29 To ensure that sufficient euro notes and coin could be circulated widely from 1 January, most large countries needed to use the full four-month lead-time allotted for frontloading, in particular for coin, because its bulk made transport a very lengthy operation. In all countries, euro coin was frontloaded to banks from September. Five countries also started frontloading banknotes in September, while the remaining seven postponed banknote frontloading until November and December, reflecting the security risks involved. Small banks tended to be frontloaded earlier than large banks in countries in which the frontloading timetable was decided not by the authorities (as in Austria and the Netherlands) but by banks and CIT companies alone (as in Portugal), as large banks had more influence than small banks.

CHART 1: FRONTLOADING OF NOTES



Note: as a percentage of notes in circulation at end-2001
Source: ECB

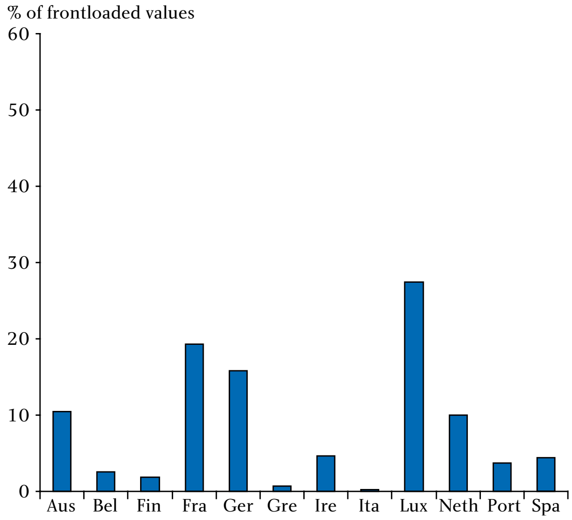
CHART 2: FRONTLOADING OF COIN



Note: as a percentage of coin in circulation at end-2001
Source: ECB

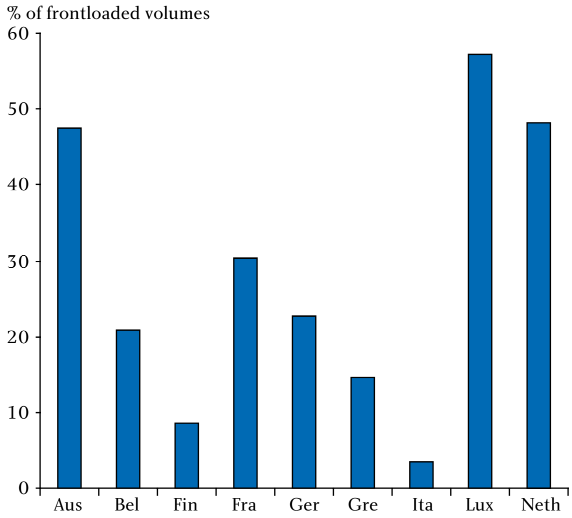
30 *Sub-frontloading* The purpose of sub-frontloading was to enable retailers and other cash users across the euro area to give change in euro from the beginning of January. On average, 10.5% of frontloaded notes by value were sub-frontloaded, with more than the average sub-frontloaded in France and Germany, and virtually none at all in Italy; and 22% of frontloaded coin by volume (Charts 3 and 4). The proportion of notes and coin sub-frontloaded by volume was much higher than by value, because of the demand for low denominations during the cash changeover. As part of their sub-frontloading, small retailers were able to obtain standard starter kits made up by the NCB concerned, which also bore the make-up costs.

CHART 3: SUB-FRONTLOADING OF NOTES



Source: ECB

CHART 4: SUB-FRONTLOADING OF COIN



Note: data not available for Ireland, Portugal and Spain
Source: ECB

31 Sub-frontloading proved very difficult to estimate in advance. In France, there were rumours of potential shortages of euro coin, and these tended to inflate demand. But in many other countries, although there was an incentive for banks to promote sub-frontloading, conversely there was little incentive for retailers to accept it, because of: the costs of providing sufficient secure storage on their premises; the costs of insurance; and the threat of heavy penalties for allowing cash to enter circulation prematurely. The Eurosystem's penalty regime was designed to discourage premature circulation without discouraging sub-frontloading. But the different ways in which it was designed and interpreted by NCBs and commercial banks had a significant impact on the amount of sub-frontloading that actually took place. This was particularly the case in Italy. The arrangements made in Ireland and the 'fijndistributie' in the Netherlands were specifically designed to ensure widespread sub-frontloading, which they did, though at a cost (see Box).

CONTRASTING APPROACHES TO SUB-FRONTLOADING

One, though by no means the only, reason for different levels of sub-frontloading was that the Eurosystem's penalty regime for allowing euro notes to enter circulation in advance was designed in different ways in different countries. The way in which it was applied affected retailers' attitudes to sub-frontloading. This Box contrasts the approaches to sub-frontloading in Italy, Ireland and the Netherlands.

In Italy, there was virtually no sub-frontloading, except for large retailers, and then only in relatively small amounts. It is not clear what steps the authorities could have taken to encourage sub-frontloading by small retailers, of whom there are a disproportionately large number in Italy. But it is clear in retrospect that the penalty regime was perceived as overly onerous and could have been explained more clearly, so that it did not have the effect of dissuading retailers from sub-frontloading.

The Banca d'Italia imposed a penalty regime last July, backed up by contracts which retailers had to sign with their banks, and so it proved difficult to change subsequently.

Originally, the penalty was intended to be 3% of the total amount frontloaded, but after discussion with the banks, incremental fines were agreed instead: €25,000, plus €3,000 for each additional note, with a maximum fine of €2 million. Most retailers – especially those needing only a few hundred euro – regarded the penalty regime as too high to risk sub-frontloading. Nor did they change their minds when they realised that the imposition of penalties was discretionary, because they could not be confident about the outcome. The Banca d'Italia announced that coin was exempted from the penalty regime, when starter kits went on sale to the public in mid-December, and €5 notes were exempted from 27 December. However, it was already too late to affect the amount of sub-frontloading. Instead of accepting sub-frontloading, small retailers visited their bank branches in early January to collect the supplies of euro cash they needed.

By contrast, in Ireland, all 40,000 retailers were sub-frontloaded, so that virtually all had sufficient euro to give in change from the outset. The main reasons why retailers agreed to be sub-frontloaded were: the use of a simple contract drawn up by their banks; the waiver of cash handling fees by banks (in exchange for lodgement fees payable until 15 February – ie a week after the end of the cash exchange period in Ireland – for the return of Irish pound cash); agreement by the banks to delay payment for sub-frontloading until the second week of January; and a common industry agreement on insurance, which increased cover for retailers by four times, or up to a limit of €25,000, whichever was less, at no extra cost. (It also provided that, while notes had to be held in a safe, this was not the case with coin, though coin had to held under lock and key.) This package was presented to retailers in the autumn of last year on the basis that it was only available if they signed up straightaway, though in practice many retailers left sub-frontloading until near the year-end.

In the Netherlands, the Nederlandsche Bank organised 'fijndistributie', which involved the centrally organised, free and direct delivery of euro coin to 180,000 small and medium-sized businesses, during the last four days of December, so as to ensure that sub-frontloading was as widespread as possible, to minimise the period in which secure storage capacity was needed, and to reduce costs to banks and retailers. From 31 December, SMEs could use the system to order additional amounts of euro coin by phone or e-mail, with deliveries being made within 48 hours.

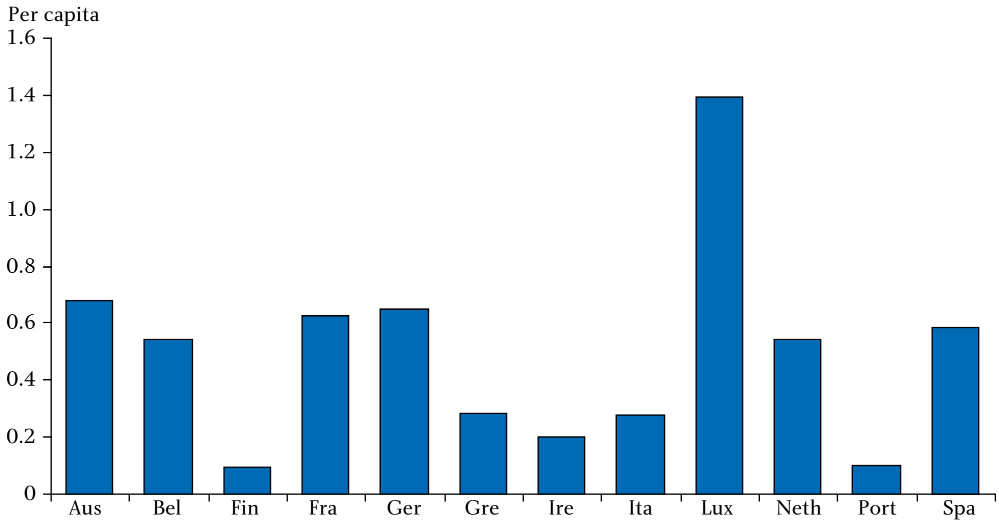
Starter kits

- *There are differing views about the extent to which the prior sale of starter kits of euro coin to the public helped to ease the shortage of change. But there is agreement that starter kits did help to familiarise the public and raise awareness that the introduction of euro cash was imminent.*
- *The arguments against the prior sale of starter kits of notes to the public were particular to the first wave.*

32 Starter kits of euro coin went on sale to the public, in most countries through a wide range of outlets (such as the NCB, commercial banks and post offices), though in Finland only through a national chain of kiosks, in mid-December. The kits, which ranged in value

from €3.88 to €15.25, corresponded in most countries to a round amount in the national legacy currency concerned. The number of kits sold per capita varied considerably (Chart 5).

CHART 5: NUMBER OF STARTER KITS SOLD

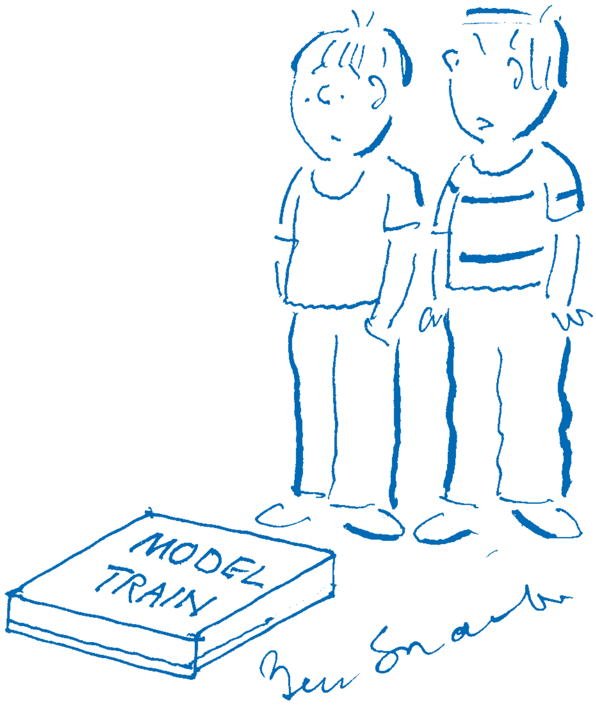


Source: National authorities

33 In many countries, starter kits sold out very quickly, reflecting the enthusiasm of ordinary people to see and feel the new euro cash, giving the first indication of the pace of the cash changeover itself. By 20 December, starter kits were practically sold out in Belgium, Finland, Germany, Ireland, Luxembourg and Portugal, with German and Portuguese banks authorised to sell additional coin to the public. In France, though very large numbers of starter kits per head of population were produced, only 65% were sold overall. Tabacs were an especially successful point of sale, while some of the banks initially rationed sales to one or two per customer. Rationing of kits also took place in some other countries.

34 There is agreement that the sale in advance of starter kits of euro coin helped to familiarise the public. In most countries, the sale of starter kits was also regarded as helpful in easing any shortage of change. However, the view in some countries was that starter kits did not make much difference, because of their small size, and the fact that the public tends to take notes rather than coin to shops. And although starter kits were generally sold in cheap cellophane wrappers, so as to encourage the public to spend them, in practice many were kept as souvenirs. In the Netherlands, 'Zalm kits', which were supplied free, and collected by 14 million people (at a cost of €42 million to produce, package and distribute, in addition to the €50 million face value of the coin) were designed as souvenirs and intended as the most realistic possible information brochure on euro coin.

35 If starter kits had also been used to sell low-denomination notes to the public in advance, this might have helped at the margin to reduce the shortage of change, where frontloading of banks or sub-frontloading of retailers was inadequate. But the Eurosystem was opposed to the sale to the public of notes in advance, mainly because of the risk that they would be put into circulation early, which would have been against the Treaty, created confusion in shops, and increased the risk of counterfeiting.



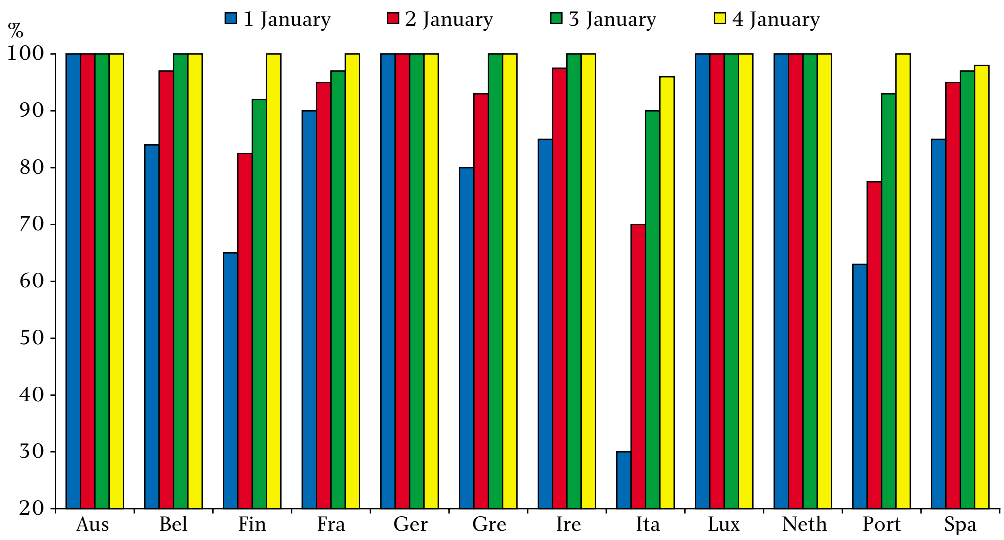
I REALLY WANTED A EURO STARTER KIT!

Cash at banks

- *The early adaptation of ATMs was key to a quick cash changeover. Where low-denomination notes were dispensed initially, that helped to reduce the amount of change needed by retailers.*
- *Many banks were caught by surprise when the public began in very large numbers to exchange legacy cash over bank counters early in the New Year. Queue management techniques were important. Yet by and large, frontloading proved sufficient to meet even the unexpectedly large demand for euro cash.*

36 *ATMs* The early adaptation of ATMs so that they could dispense euro instead of legacy banknotes was a condition for a quick cash changeover, as ATMs traditionally represent the route by which 70% of banknotes normally reach the public in the euro area. In the event, 90% of ATMs had begun to dispense euro notes within two days, and they had virtually all begun to dispense euro notes within four days, even in countries (like Finland and Portugal) where a relatively slow pace of changeover had, for good reasons, been deliberately planned (Chart 6).

CHART 6: RATE OF ATM CONVERSION



Source: National authorities and European Commission

37 Different approaches to the ATM changeover were taken in different euro-area countries.

- One approach, followed for example in Ireland and the Netherlands, was to shut down the whole ATM network late on 31 December (in the Netherlands, for 'on-site' ATMs) or early on 1 January (in Ireland) in order to stock ATMs with euro, before bringing them back into service within a few hours. Although this meant that the public was unable to obtain any notes from ATMs for a short period, this did not lead to public criticism as the decision had been well communicated in advance.
- A second approach, followed for example in France and Luxembourg, was to pre-load one or two ATM drawers with euro notes ahead of the year-end, while continuing to dispense legacy notes in the other drawers, and switching remotely to dispensing euro notes at midnight on 31 December.

- In eight countries, ATMs not converted by midnight on 31 December were taken out of service, whereas in the four others they continued to dispense legacy banknotes until conversion. In Portugal, for example, 30 and 31 December are days on which ATM usage is the highest in the year. The banks did not want to disturb normal practice. So the timetable for conversion was planned carefully to ensure that the public had access to both euro and escudos. In the event, 16% of withdrawals in the first two days were in escudos.

The proportion of withdrawals in euro as opposed to legacy currency was generally higher than the rate at which ATMs were converted to euro, as high-turnover ATMs were converted first. In general, 'off-site' or 'remote' ATMs (eg in shopping centres) took longer to convert than ATMs 'on-site' (ie in bank branches), because of dependence on third parties.

38 Using ATMs to put low-denomination notes into circulation was important to limit the amounts that retailers had to give in change. Most ATMs dispensed €10, €20 and €50 notes. Very few ATMs dispensed €5 notes, except some in Germany, Luxembourg, the Netherlands and Portugal (where most ATMs dispensed €5s, as well as €10s and €20s, as these euro denominations most closely matched the escudo denominations dispensed previously). So €5s were generally put into circulation in other ways: by banks over the counter; by supermarkets (from sub-frontloading); and through welfare payments in countries, like Italy and Ireland, where these payments are generally made in cash. In Ireland, for example, post offices agreed to include at least four €5 notes in each social welfare payment during the first week of January.

39 In most (though not all) countries, the number and value of withdrawals from ATMs early in January were much higher than normal for the time of year, though 1 January is a 'trough' day for ATM withdrawals. Heavy use of ATMs was a contributory factor to the teething problems experienced by a few banks' ATMs in some countries early in the New Year. This was the main reason why the ATM network in Austria failed for a short period on 2 January. In some countries, banks also experienced a problem with euro notes sticking together, apparently in particular because of their security foil features. As a result, more old ATMs than usual went out of order early in the cash exchange period, though the average number out of order quickly returned to normal (3%-5%).

40 *Bank counters* The proportion of euro cash reaching the public through ATMs was lower than normal in the first two weeks of January (between 25% and 50% across the euro area as a whole, compared with 70% normally), because a high proportion of the public exchanged their legacy cash into euro over bank counters. In France, for example, the number of transactions over bank counters was around six to eight times higher than normal in early January. Many people wanted to change legacy cash into euro as soon as possible, ignoring the message from information campaigns that they could do so throughout the cash exchange period. As soon as possible in the New Year, many people took all their remaining holdings of legacy cash to their banks, and exchanged them for euro in one go rather than spending them in shops. Others took only their small legacy change to the banks to exchange into euro, while spending high-denomination legacy notes in shops. In many cases, this was because of concern that, if they changed them at bank counters, they would be reported to the tax authorities. Overall, the euro amounts withdrawn from banks over the counter were high. In Spain, for example, each withdrawal over the counter averaged €400 (compared with €100 at ATMs).

41 The decision by the public to exchange legacy cash as quickly as possible complicated the changeover for banks, because queues were longer than otherwise. The number of customer visits per day increased substantially in the first few days of the New Year. Although the number of cashiers had also been increased to cope, there were still queues, because exchanging legacy cash for customers took longer than normal. Customers requiring round numbers of euro could be handled quickly. But customers directly exchanging legacy into euro cash took longer to serve, because small amounts of cash had to be counted out by hand, and this was a slow process. Some banks (eg in Germany and the Netherlands) asked their customers to pay legacy cash into an account, and to withdraw their euro in round amounts from ATMs rather than odd amounts over the counter. But clearly, though this process saved time, it could only be used by those with accounts at the bank concerned. And at banks in Germany, a large number of customers had amounts of Deutsche mark cash to exchange greatly in excess of the limits on euro amounts that could be withdrawn from ATMs.

42 As a result, there were queues initially at bank counters and at post offices in a number of countries, in places of two or three hours. Of course, not all queues were the result solely of the public changing legacy currency into euro. For example, at the beginning of the year in Italy, the public queued to receive pensions and to pay mortgages and other bills, payments which in Italy are often made in cash. Payments to pensioners could not have been delayed. However, Poste Italiane found that, instead of customers taking 3 minutes on average, they took 5-7 minutes, because they asked so many questions about the euro. In Spain, transaction times took longer than normal, because of lack of familiarity with the new euro notes, and the larger number of different denominations (seven, compared with four in Spain previously). Queues were also initially much longer than usual at NCBs. This was partly because they had agreed to exchange legacy cash from throughout the euro area, rather than solely national legacy cash, but partly also because they had few personal customers, and so it took longer to make checks when large amounts were involved. Some commercial banks sent non-customers to the central bank, rather than making checks themselves.

43 On the face of it, queuing for hours at bank branches early in the New Year to exchange small amounts of legacy currency for euro was irrational. The main explanations appear to be that: the public was keen to participate in a unique historic event; some vulnerable groups, in particular, may not have realised that they did not need to do so immediately; people were curious to see what the new notes and coins were like; and many did not want to keep cash in two different denominations in their wallets and pockets (though they could have left legacy cash at home, and some no doubt did so).

44 It is not easy to see how queues at bank branches could have been avoided. The information campaign stressed the length of the cash exchange period. Most people understood this and still wanted to exchange their legacy cash as quickly as possible. Given that queues were unavoidable, communications between banks and their customers were important about what to expect; queue management in bank branches was important in making it clear, at the beginning of the queue, where customers should queue and for what, and whether non-customers would be served; and it was useful for trained bank staff to go up and down the lines to answer customers' questions, and explain that it would be some time before they reached the counter.

Cash at retailers

- *Large retail outlets determined to provide euro change from the outset, and were able to do so. While many small shopkeepers initially gave change in legacy currency, this did not have a significant impact on the changeover.*
- *More practical steps might have been taken to encourage the public to use electronic payments in preference to cash. But it seems unlikely that they would have had much effect, as the public wanted to try out euro cash and exchange holdings of legacy cash.*

45 *Change in euro* As a way of helping to speed up the cash changeover, retail associations throughout the euro area had given a commitment that retailers would give change only in euro, whether customers paid for goods in euro or legacy currency. Supermarkets and other large retail groups were generally well stocked, and able to provide euro in change from the outset. The Commission reported on 3 January that queues in shops were not out of the ordinary, despite the start of winter sales in a number of euro-area countries. But there was a shortage of change in some smaller shops, particularly those that had not arranged adequate sub-frontloading, though it is not clear how widespread a problem this was.

46 Small shopkeepers reacted initially in different ways. Some found that they quickly became short of change when presented with high-denomination notes, and provided legacy currency in change so as to conserve their supplies. Others chose to provide legacy currency in change because they found it difficult to calculate euro change against legacy payments accurately in a hurry, and they wished to avoid making mistakes or lengthening queues. Others operated a service for exchanging legacy cash into euro separately from the normal till, so that all payments for goods were offered only in euro. And others prepared in advance envelopes of euro cash corresponding to standard amounts of legacy currency (eg at bars in Dublin). Overall, the initial shortage of euro change at small retailers may have marginally prolonged the changeover, but some shopkeepers found that a two-till policy made their own changeover easier to manage. Retailers were quickly able to replenish their stocks of cash from the banks, and most had sufficient supplies of euro change in time for the first weekend of shopping and the winter sales.

47 *Promotion of electronic payments* Some euro-area countries had hoped to reduce the changeover task during the cash exchange period by encouraging the public to make payments by credit or debit card rather than cash. A few practical steps were taken to encourage the public to use electronic payments. For example, some retailers reduced the minimum amount they would accept for card payments or allocated checkouts to card payments only. In Luxembourg, the charge for making electronic payments was reduced. In France, a cap was agreed on commissions in order to increase card acceptability. In Germany, the department store C&A offered a 20% discount for a limited period to customers who paid with a credit card rather than cash, though the offer had to be withdrawn on the grounds that it contravened the Competition Act in Germany. But in most countries, the promotion of electronic payments was not a prominent feature of the information campaign. They could have been promoted more extensively.

48 In some countries, card usage actually fell as cash usage increased, mainly because the public wanted to try out the new cash, but also to spend its remaining holdings of legacy

banknotes. Austria and Italy were exceptions. In Austria, there was a 30% increase in the use of debit cards (the dominant type of card used there) during the cash changeover, and a four-fold increase in 'smart cards' (ie cash-loaded electronic purses); and in Italy, card use was 60% higher in the first half of January than the equivalent period last year. In Germany, card use also increased initially, but less than expected.

Cash for tickets and vending machines

- *Public transport ran smoothly, without long queues, especially where the public had been encouraged to buy season tickets in advance.*
- *Although vending machines were converted very gradually, this did not significantly delay the changeover.*
- *Use of electronic purses made the payment of small amounts easier and faster, and reduced the risk of coin shortages.*

49 *Tickets* Public transport ran smoothly during the cash changeover, though some transport authorities only avoided long queues initially by letting passengers travel free for a short period. In Ireland, with due prior warning, overpaying passengers on Dublin buses were not given change (the bus company donated an amount to charity in advance, to avoid accusations of profiteering). In many countries, passengers were encouraged to buy tickets before travelling, particularly season tickets. In Finland, where most people buy tickets in advance, ticket sales on trams were suspended for two months from 1 January in an attempt to avoid delays. Where there were problems (eg the Madrid Metro's IT system failed over the New Year period), these were quickly overcome.

50 *Vending machines* The Commission reported that, by 5 January, just over 50% of vending machines in the euro area had been adapted to euro; by 12 January, just under 75%; and by 31 January, 90% (though the European Vending Association was not able comprehensively to verify these data). The rate of change was above average in the Netherlands, Ireland, Italy, Greece, Austria and Luxembourg.

- In France, some vending machines were quickly converted (eg for stamps, by La Poste). Others carried notices that they would be converted on a fixed date later in January. In many cases, it was possible to accelerate the changeover of vending machines, to reflect the rapid adoption of euro cash, as part of the machines' regular maintenance. The public helpfully tended more than usual to use exact amounts, so less change was needed.
- In Germany, where a few ticket machines initially rejected some euro notes and coins, they were programmed to 'learn', and so the incidence of notes and coins being rejected fell.
- In Spain, there was a shortage of €1 coins, caused mainly by gaming companies changing the standard cost of a game to €1 from 50 cents.
- There were some cases in which euro coins from other euro-area countries were rejected by vending machines because they had not been calibrated properly.

51 *Other* There were initially reports of problems at some motorway tolls, because of the heavy use of high-denomination notes, requiring large amounts of change. It also took time in some countries to convert parking meters and telephone kiosks after the beginning of the cash exchange period. However, three cities in the Netherlands decided to abolish as from 1 January all cash payments for all parking meters out-of-doors, and to accept chip card payments only (using a bank card with electronic purse functionality). Although the use of chip cards in the Netherlands was very limited until this year, the initial figures so far this year indicate that chip card use and the number of users are increasing fast.

Withdrawal of legacy cash

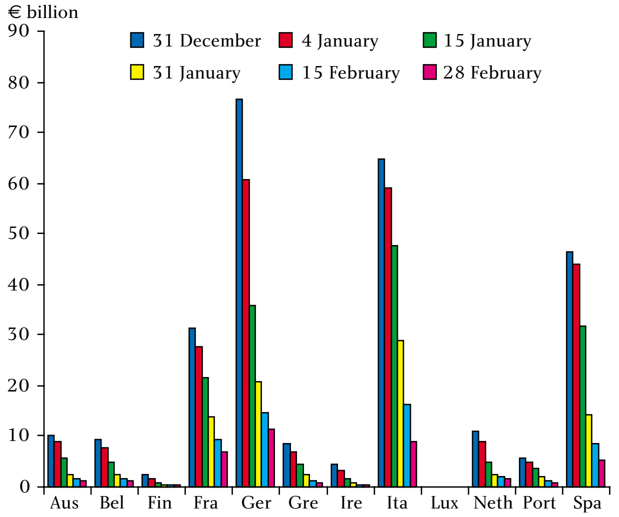
- *Planning the logistics of the withdrawal of legacy cash was as important as the distribution of euro cash, and a number of countries did not give this sufficient attention. There was clear benefit in those countries where all the key parties had access to the same data system, which readily allowed a clear and complete audit trail.*
- *More could have been done to withdraw legacy cash (especially coin) earlier, by giving this objective a higher profile in the information campaign, while taking care not to cause shortages of legacy coin.*
- *In some countries, there were bottlenecks at banks, intermediate storage depots and CIT companies, particularly where euro coin was flowing back and legacy coin was being collected at the same time.*
- *As CIT companies were working at full capacity, the transport arrangements for withdrawing legacy cash, and processes for checking and counting coin, were put under too much strain in some countries.*
- *Where the NCB insisted on legacy cash (particularly coin) being returned in standard (and robust) packaging and sorted by denomination in advance, this considerably eased the process of withdrawal, though imposed an additional burden on retailers.*

52 *Withdrawal of coin in advance* Most national authorities attempted to reduce the workload for the NCB, banks, retailers and CIT companies during the cash exchange period by encouraging the public to deposit hoarded legacy coin and high-denomination legacy notes in advance. National schemes for the return of hoarded notes and coin, many of which were organised by charities, did make a difference. In the Netherlands, for example, about 11% of guilder coins in circulation were returned early, but this represented 25% of the amount expected to be returned; and in Austria, the equivalent figures were 17% and 33% respectively. In Germany, the Schlafmünzen campaign to encourage de-hoarding of Deutsche mark coin was accompanied by a parallel campaign by retailers to encourage their customers to use an exact amount of change in payment at cash desks, so as to prevent the accumulation of a new coin hoard. By contrast, in Portugal, the authorities considered a national scheme, but decided against this because of concern that it would cause a shortage of legacy coin, though some individual banks ran their own schemes.

53 *Withdrawal of notes in advance* On average, approaching a third of the value of legacy notes outstanding (at end-2000) were returned to national central banks by end-2001. However, some people held back legacy notes as a contingency reserve in case the cash changeover did not go smoothly (eg because of fears that euro notes would not be available

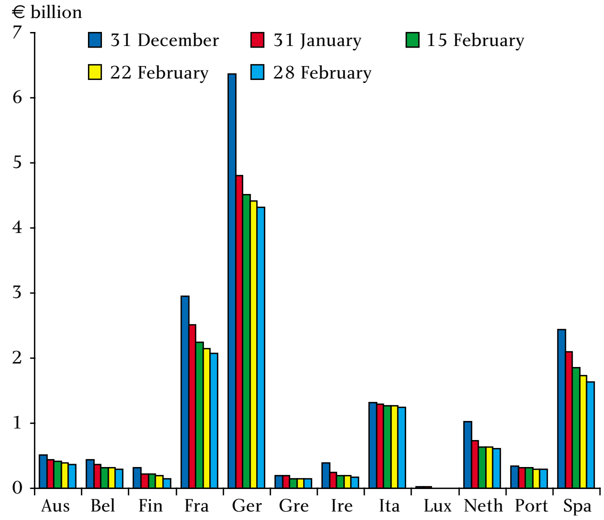
or that electronic payment systems would not work): in Italy, there was actually an increase in the lira circulation in the second half of December, as the public withdrew 10 trillion lire in cash as a precaution.

CHART 7: LEGACY NOTES OUTSTANDING



Source: ECB

CHART 8: LEGACY COIN OUTSTANDING



Source: ECB

54 *Withdrawal of notes and coin during the cash exchange period* (Charts 7 and 8) In most countries, the logistical arrangements for withdrawing legacy cash mirrored the arrangements for distributing euro cash, though they were harder to plan, because the speed and location of withdrawal depended on the public. Notes and coin returned by the public to the banks were stored there, until CIT companies were ready to collect them. CIT companies also collected cash from retailers. To speed up the collection process, retailers were encouraged to keep the legacy currency they received from the public separate from their euro cash, with legacy coin being packed into plastic clips in standard boxes. Where retailers did not comply, they suffered longer delays in receiving value (see Box).

CONTRASTING APPROACHES TO THE WITHDRAWAL OF LEGACY CASH

In some countries, the withdrawal of legacy cash was relatively quick. In Austria, this was due to: a high level of frontloading, sufficiently early to free CIT companies to concentrate on the withdrawal of legacy cash; effective campaigns for de-hoarding before the end of last year; the speed at which legacy cash was withdrawn early in the New Year, owing to an efficient system for transporting cash back to central bank branches; and an effective method of sorting, counting, and identifying the ownership of, returned coin.

In other countries, the withdrawal of legacy cash took longer than expected. Some legacy banknotes and coin will, of course, never be returned: perhaps 2.5% of the value of banknotes and 30-40% of the number of coin, particularly low denominations in both cases. But where the public did use, exchange or deposit legacy cash with banks, there were delays across the euro area in returning it to NCBs and mints. Notes were returned relatively quickly, because of their value. But coin took much longer to return.

- In the Netherlands, the volume of returning guilder coin was too large for CIT companies to sort and count, and they had to return them to Lelystad, which also had difficulty in processing the guilder coin quickly, and a large backlog of guilder coin accumulated, waiting to be counted. Banks were given value for coin, before returns had been verified.
- In France, some banks suggested that the delay in frontloading coin caused by the problem with starter kits meant that CIT companies did not have as much capacity as expected in January to deal with franc cash. This increased the delay in sorting and returning coin to the Banque de France.

Some national authorities provided financial incentives and special facilities to speed up the return of legacy cash. For example, in the Netherlands, guilder coins were collected free of charge. And retailers and banks received a bonus if they returned coins sorted and counted in special bags (€11 per bag). The Nederlandsche Bank paid for CIT companies to hire more vehicles and staff to cope with their extra workload. And the Nederlandsche Bank had a special facility built at Lelystad for handling coin, as normal arrangements did not provide sufficient capacity. The Oesterreichische Nationalbank also established a special coin 'factory' in Vienna to process the volume of schilling coin to be returned.

55 Five countries introduced, and three implemented, procedures under which banks were permitted to deface legacy banknotes before they were returned to the NCB, to act as a deterrent to thefts (see Box).

DEFACEMENT OF LEGACY BANKNOTES

In order to reduce the security risk during the period in which legacy banknotes were withdrawn, five countries (Belgium, Luxembourg, France, Spain and Italy) introduced schemes to 'mark' specified denominations of their banknotes from 1 January onwards, so that they would not be used by the public as follows.

- Belgian and Luxembourg francs: marking by punching a hole in the watermark. This was compulsory in Belgium for highest-denomination notes and voluntary for lower denominations.
- French francs: marking by punching one hole in the watermark and two half holes at the edges.
- Spanish pesetas: marking by cutting off any of the four corners of the banknotes.
- Italian lire: marking by punching a central hole outside the watermark and two non-aligned half holes at the edges. In the case of ITL1,000 and ITL2,000 notes, the marking consisted of a full hole on the left-hand side of the banknotes and a half hole on the upper edge of the long side of the banknotes.

These marking schemes are governed by national law. (In Italy, for example, a law was passed on 14 December permitting banks and Poste Italiane during the cash exchange period to deface lira banknotes with special hole punches.) In all countries, marking in this way does not affect the legal tender status of the note, but marked notes can only be exchanged by banks and post offices and only at the central bank. For consistency both inside and outside the national jurisdictions where the marking provisions apply, the ECB recommended the following practice.

- The general public should not accept, hold or use marked banknotes, and if receiving marked notes in good faith, should present them to an office of the issuing NCB.
- If marked notes are presented by a customer for exchange over a bank counter or at a bureau de change, the institution concerned should refuse to exchange them and refer the customer to the NCB.
- The relevant NCB should notify the local police and, depending on the outcome of the investigation, the issuing NCB will reimburse the customer who originally presented the marked banknotes concerned.

In practice, defacement schemes were implemented only in Belgium and France, and at a very few banks in Italy, but not in Luxembourg or Spain.

- In France, hole punching of notes worked well in general. 50,000 hole punching machines had been ordered a year in advance. However, some notes were punched in the wrong place, or twice. The sorting machines could not cope so easily with these.
- In Italy, only a very few banks implemented the hole-punching scheme proposed, though Poste Italiane would have done so if a simple hole punch could have been used, as security costs would have been saved.

Other countries did not adopt hole punching in the first place. In the Netherlands, for example, the option was discussed with banks but it was decided not to implement this, owing to difficulties with machine-counting punched notes.

D COSTS AND BENEFITS OF A QUICK CHANGEOVER

The timetable for the changeover

- *It was not possible to maintain the momentum of the euro preparations throughout the three-year transition period. The mass banking changeover did not take place until the final six months.*
- *In practice, a cash exchange period of one month would have sufficed, on the basis that banks subsequently continued voluntarily to exchange legacy cash.*
- *Introducing euro banknotes and coin on 1 January had the advantage of being a memorable date and a public holiday, with business activity lower than normal, factors which had been considerably underestimated in contributing to a smooth changeover.*

56 *Length of the transition period* As the final changeover worked so well, there have been suggestions that the transition period could have been shorter. The reasons for fixing a transition period of three years (until 31 December 2001) were mainly because of the time needed: first, to print euro notes and mint euro coin; second, to prepare the public sector for the changeover; and third, to allow the private sector to adapt to, and the public to become familiar with, the euro. If the authorities had been confident in advance that the

necessary work could have been done more quickly, they would have introduced a shorter transition period, but they were not.

57 In the event, it was not possible to maintain the momentum of the euro preparations throughout this three-year period: initially, preparations for Y2K were a higher priority; and the mass banking changeover did not in practice take place until the final six months. Even so, in the Banque de France's view, if the transition period in the first wave had been shortened to two years, this would not have been sufficient to complete all the necessary preparations. Deutsche Bank considers that two and a half years were needed to prepare and implement its own preparations for the changeover as a whole, from start to finish: this view was not unrepresentative of large and complex financial groups. And the Oesterreichische Nationalbank reckons that preparations for the logistical part of the cash changeover took over two years. In Greece, where the transition period lasted only one year, this was still sufficient to allow a smooth cash changeover, though some euro notes and coin had to be imported.

58 *Length of the cash exchange period* The cash exchange period was shortened by ECOFIN in 1999 from a maximum of six to two months, in order to help retailers avoid the costs of running dual tills, to reduce the costs to banks, and to minimise difficulties for the public. The two month maximum was shortened further in three countries: the Netherlands so that the cash exchange period ended on 28 January, in Ireland on 9 February and France on 17 February. In the event, in all euro-area countries – including the Netherlands, Ireland and France – cash transactions were converted into euro well within the time allotted for the cash changeover. In practice, a one-month cash exchange period would have sufficed, so long as banks subsequently continued voluntarily to exchange legacy cash.

59 However, in most euro-area countries, it proved much quicker to put euro cash into circulation than to withdraw legacy cash. In many countries, the withdrawal of legacy cash was not complete for several months after the end of the cash exchange period.

60 *Choice of E-day* Introducing euro banknotes and coin on a public holiday (1 January), at the end of a four day 'weekend' (as 31 December was a non-value day for payments throughout the euro area), proved to have several advantages. It was a memorable date, making the information campaign easier. It allowed the cash changeover to be launched when the public was in a festive mood, and when business activity was much lower than on a normal weekday.

61 On the other hand, it is not so obvious that it was helpful for companies with an end-December year-end to have this coincide with the date from which they were compelled to use the euro for all non-cash purposes and when the cash changeover began. And, as use of cash in early January is at a seasonal high point, the cash changeover involved a bigger logistical exercise, at a greater cost, than it would have done at some other times of the year (eg mid-February or October), when the cash changeover would have been less expensive for banks and retailers. However, it is sometimes argued that, when demand for cash is high (eg in the run-up to Christmas and during the New Year sales), this may be a good time of year in which to introduce a new currency in cash form, though not for withdrawing an old one.

62 *End of the transition period* There was some confusion across the euro area – particularly among small businesses – about the significance of the end of the transition period. Many small businesses did not realise until a late stage that all their non-cash business had to be conducted in euro from 1 January, and not at some later date.

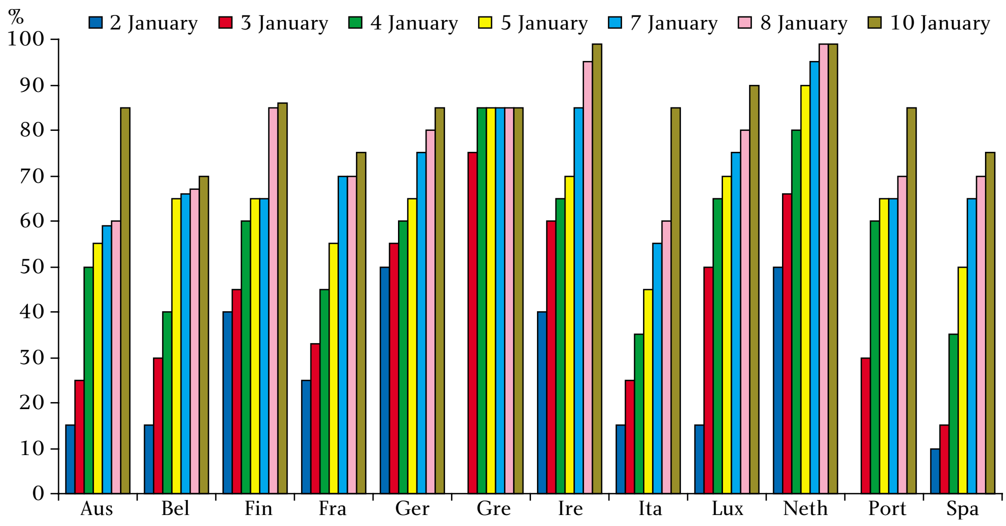
63 *End of national legal tender* Legacy currency ceased to be legal tender at the end of the cash exchange period in all euro-area countries, apart from Germany, where the Deutsche mark ceased to be legal tender on 31 December. The removal of legal tender status in Germany on this particular date was not intended to have any practical significance, because of the general agreement that Deutsche mark cash would continue to be accepted in payment until end-February. However, shops could in practice refuse Deutsche marks from 1 January, and some did.

The pace of the cash changeover

- *The main reasons why the cash changeover was faster in some countries than in others were: the high levels of frontloading of banks, and sub-frontloading of large retailers; the quick adaptation of ATMs; and the behaviour of the public.*
- *Sufficient low-denomination euro cash was made available overall through ATMs, bank counters and shops, despite some localised cash shortages in the critical early days.*

64 The declared objective of euro-area governments was that the bulk of cash would be in euro in just two weeks. This target was achieved in all euro-area countries. On the available evidence, the average number of cash transactions in euro was estimated at around 75% by the end of the first week. It had reached an average of around 90% by the end of the second week, and 95% by the end of the third (Chart 9). Almost all ATMs, which provide the route through which most banknotes normally enter general circulation, were converted by the end of the first week; and about half the number of vending machines. However, the pace of the changeover was quicker in some countries than others (see Box).

CHART 9: CASH TRANSACTIONS IN EURO



Source: European Commission

WHY WAS THE CASH CHANGEOVER QUICKER IN SOME COUNTRIES THAN OTHERS?

The six countries which effectively completed the cash changeover first, measured by more than 95% of cash transactions in euro by mid-January, were Austria, Finland, Germany, Ireland, the Netherlands and Luxembourg, though most other countries were not far behind. There are a number of reasons for the fastest group.

- Austria, Germany, Ireland, Luxembourg and the Netherlands all introduced extensive frontloading of banks, and especially sub-frontloading of the main retail chains.
- Austria, Ireland, Luxembourg and the Netherlands are all small countries, with no remote areas, so the logistics of the cash changeover were rather easier than in larger countries. Although Finland is a much larger country, its population is relatively small and fairly concentrated.
- Ireland and the Netherlands set short cash exchange periods, ending in the Netherlands on 28 January and Ireland on 9 February, with the effect of speeding up the changeover.
- Both Ireland and the Netherlands had relatively extensive information campaigns.
- In Finland, usage of cash is much lower as a proportion of GDP (2.3%) than the euro-area average (5.8%), so there was less cash to exchange; and velocity of circulation is high, with banknotes returning to Suomen Pankki six times a year (compared with just under once in the UK and Italy). As a result, the cash changeover in Finland took place quickly, despite: relatively low levels of frontloading and sub-frontloading; starter kits for only one in every ten people; no pre-loading of ATMs, which only dispensed relatively high-denomination (€20 and €50) notes; and no public pressure for banks to open on 1 January or longer than usual early in the New Year.
- Germany achieved a quick cash changeover, despite having much the largest population in the euro area, one of the higher cash ratios (6.6%), and widespread holdings of Deutsche marks in central and eastern Europe.
- The main reasons why the cash changeover was so quick in Austria and Germany were that there was extensive frontloading, particularly of low-denomination notes, and ATM conversion was effectively completed on 1 January. In fact, there was an excess of low-denomination notes, with up to 50% (a third of the total of notes frontloaded) being returned to the Oesterreichische Nationalbank and the Bundesbank early in the cash exchange period.

In Italy, the pace of the changeover was slightly slower than the euro-area average, though only in the first few days of January, as the difference was eliminated within a fortnight. There were three main reasons for this. First, the Euro Committee planned a gradual approach to the cash changeover. Second, unlike most other countries, in Italy nearly 10 trillion lire in cash was withdrawn by the public in the second half of December as a precautionary measure. This increased the amount of lira cash to change into euro. Third, there was very little sub-frontloading of retailers in Italy, mainly because the costs of participation, and in particular the risk of substantial penalties, if euro cash entered circulation early, were regarded as too high.

65 Although the cash changeover took place reasonably quickly in all euro-area countries, it did not take place entirely as planned. The pattern of bank, retailer and – especially – public behaviour was not fully anticipated.

- Banks had been encouraged by the authorities to provide low-denomination notes, in legacy currency in December and in euro in January, both in ATMs and over bank counters, so as to reduce the amounts that retailers had to provide in change. In general banks did so, but a larger number of high-denomination euro notes entered circulation at the outset than retailers would have liked.
- Retailers had been encouraged to provide change only in euro. While most large retailers did so from the outset, some small shopkeepers initially found it simpler and quicker to provide change in the denomination in which they were paid, especially where they were short of euro change and it proved impracticable to replenish supplies immediately.
- The public had been encouraged: to exchange high-denomination legacy notes in banks and spend normal legacy cash balances in shops, making cash payments as far as possible in exact amounts, and avoiding mixed payments; to spread out the exchange of legacy cash, rather than attempt to exchange it all at once at the outset; and to make more use of credit cards so as to economise on the use of cash. But in practice, many people spent their high-denomination legacy notes in shops and exchanged small legacy change at bank counters; they decided to exchange all their legacy cash for euro as quickly as possible so as to minimise the need to use two different denominations; and they wanted to try out the new euro cash rather than making more use of credit cards (or cheques).

66 The underlying reason why the unplanned pattern of customer behaviour did not make the changeover disorderly in the critical early days was that, though there were local cash shortages, sufficient low-denomination euro notes and coin were made available overall through ATMs, bank counters and shops (ie the main routes through which the public obtains cash).

Costs and benefits of a quick cash changeover

- *The judgments on the benefits of a very quick changeover, and the trade-off between centrally-borne costs and wider, but unmeasurable, economic benefits, inevitably varied between countries. Likewise, judgments varied on which risks were the most significant, and how they were best avoided.*
- *To a large extent, the pace of the changeover was in the event determined as much by public behaviour – which was difficult to predict – as by cash changeover plans.*

67 The ECOFIN target for the bulk of cash transactions to be in euro by mid-January was consistent with normal consumer behaviour: most people only hold cash transactions balances sufficient for a week or two. As legacy cash was used up, it would naturally be replaced with euro, whether from ATMs or over bank counters.

68 For the authorities in all countries, the primary concern was to ensure that the changeover was orderly, and to minimise the risks of confusion and inconvenience. However,

no-one could know what was needed to achieve this: there was no precedent for this type of operation. A variety of approaches was taken. Some countries took the view that, for them, the overall cost and inconvenience of the cash changeover would be reduced if cash transactions were conducted in euro very quickly. This was most obviously the case in Austria, Germany, Ireland and the Netherlands. Others preferred to allow consumer behaviour to drive the pace of the changeover, expecting the ECOFIN mid-January target to be met, but considering it unnecessary to be more ambitious. This better describes the approach taken in Finland, Italy and Portugal.

69 In those countries where the authorities took the view that a very quick changeover was optimal, substantial and widespread frontloading and sub-frontloading were key. This in turn typically required some form of incentive – particularly for sub-frontloading to small retailers. The general approach was that costs should be borne where they fell, but incentives were provided to encourage involvement in the process. These ranged from central co-ordination of the logistical process, to save costs by increasing efficiency (Austria), through the free increase in insurance cover for cash held by small retailers (Ireland), to passing on the benefits of the ECB's debiting model (Belgium), and to public subsidies for some of the additional transport costs (Ireland and the Netherlands). However, while the authorities could facilitate a very quick changeover, they could not determine the public's response.

70 There are no comprehensive data on the cost of public sector subsidies to promote a smooth changeover. But even if such data were available, their use would be very limited. One of the main problems, faced by all countries, was that while the direct costs of particular schemes might be reasonably clear – such as those of the Dutch 'fijndistributie' or the Bundesbank's discount incentive for early frontloading – the indirect benefits of these schemes (eg in shortening the changeover and minimising retailers' costs) could not be measured accurately. It is not possible to come to any general conclusion. The authorities had to make a judgment in advance as to whether the costs involved in a particular scheme were reasonable, set against the expected wider benefits to the economy and the overwhelming objective of avoiding risks to a smooth changeover. Some of the different choices made included the following.

- The Bundesbank increased production of low-denomination notes to reduce the risk that retailers might otherwise have insufficient euro change. The printing costs were relatively low, and the notes will be used later (low-denomination notes have a relatively short life span). While there were additional costs associated with the transport of the notes, and their return (some 50% of the €5 notes distributed were returned by mid-February, some unused), these costs were judged by the Bundesbank as fully justified.
- In Italy and Spain, there was very little sub-frontloading, for a variety of reasons. But this was not seen as a major problem, since pre-distribution to the extensive branch networks of the NCBs, and use of regional cash centres for coin, as well as frontloading to the banks, meant that euro cash could be quickly distributed to or collected by retailers early in January. Such distribution in the early days of January rather than in December delayed the changeover process by a few days compared with some other countries; but had no long-term significance.

- Starter kits for individuals were relatively expensive to produce and distribute; and if unsold, were expensive to break up and re-use. In some countries, the authorities saw them as an important way to raise public awareness that euro cash was about to be launched, and to familiarise the population with the new coin, as well as to distribute widely a substantial amount of coin overall. As a result, they were prepared to bear the costs of producing the kits. In others, whether because these functions were seen as less important, or because of budgetary constraints, less money was spent on starter kits. But it is effectively impossible, even with the benefit of hindsight, to evaluate accurately the costs and benefits of these kits.
- Suomen Pankki did not fund or otherwise promote a high level of sub-frontloading in Finland; but it put an extra effort into the information campaign to ensure that the changeover was accepted and well understood. By contrast, many other countries placed as much or more importance on facilitating the distribution of euro and the return of legacy cash, as on their information campaigns.
- Some countries put significant resources into developing and maintaining euro websites, to ease the changeover by providing information in a readily accessible and attractive way, whether targeted at residents (the Banque de France) or at eastern Europe (the Bundesbank). Others took a minimalist approach, relying largely on information provided centrally by the ECB.

71 One influence which no country allowed for fully was that of overwhelming popular enthusiasm to use the euro as soon as possible, and to exchange as much legacy currency as quickly as possible. In this respect, countries with a higher level of frontloading and sub-frontloading may have benefited by freeing up transport and storage capacity for the return of legacy cash in January (this was, for example, true in Austria). The campaigns last year to encourage the early withdrawal of legacy cash, and particularly coin, may have played an equally significant role in reducing subsequent pressures on cash handling and storage.

E OTHER ISSUES

The prevention of criminal activity

- *Extra security arrangements, which involved more policing, discouraged attacks on cash in transit and storage, and helped to create a climate of confidence about the changeover.*
- *Very few euro counterfeits have come to light so far. But it would be complacent to assume that they will never do so.*

72 One of the euro-area authorities' biggest concerns about the cash changeover was the greater than normal risk of criminal activity, whether in the form of thefts, particularly during frontloading, or in the form of counterfeiting and money laundering, given the public's initial unfamiliarity with euro banknotes and the large amount of cash to be exchanged over a short period.

73 *Thefts* Immediately before and during the cash exchange period, there were a few thefts of legacy and euro notes (mainly in the form of burglaries rather than robberies). But these were relatively minor in size and no more numerous than usual, and less than usual in some

countries. Overall, extra security for transport and storage, involving more policing and (in some countries) the army, was widely held to be responsible for discouraging attacks, particularly during the critical period of frontloading, and helping to create a climate of confidence about the changeover.

74 *Euro counterfeits* To prevent counterfeits, the euro is one of the best protected banknotes because it has a wide and complete range of traditional and modern security features. Its design and security features have been widely publicised by the ECB, the NCBs and the Commission. For any counterfeits that do arise, detailed information is collated by the ECB from each Member State. The Counterfeit Analysis Centre (CAC) at the ECB analyses counterfeits, so as to identify patterns and help trace the source. And the ECB may publish the number and face value of counterfeits found in circulation inside and outside the euro area, and include a section dealing with counterfeit banknotes on its website. There is also an agreement between the ECB and Europol to co-operate on the exchange of anti-counterfeiting information.

75 Very few euro counterfeits have come to light so far. There have been a number of attempts to pass off poor-quality reproductions of euro notes (in the form of photocopies, prints of scanned notes, cut-out notes etc), but no high-quality forgery of euro notes or coins has so far been discovered. However, it is early days and it would be wrong to be complacent. It may take counterfeiters some time to produce high quality counterfeits of the new euro notes, but that does not mean that they will never be able to do so. The ECB is encouraging professional cash-handlers to continue to check the authenticity of euro banknotes, and the public to remain vigilant.

76 *Legacy counterfeits* As expected, the number of counterfeit legacy notes discovered in many euro-area countries during the cash changeover was higher than usual, owing to the return of legacy notes, especially Deutsche marks. For example, last year the Bundesbank recorded an increase of 42% in the detection of forged Deutsche mark notes and 34% in the case of coin. With the replacement of legacy by euro cash, the incidence of counterfeiting across the euro area should in principle fall, because of the additional security features on euro banknotes.

77 *Money laundering* During the completion of the changeover, surveillance across the euro area's internal and external borders was increased, and no euro-area country relaxed its anti-money laundering regulations, which have the effect of limiting the amount of cash that individuals can exchange at banks at any one time without checks being undertaken. The extra workload during the cash exchange period nevertheless meant that banks needed to be extra vigilant, to avoid money laundering being detected less than normal. Banking supervisors recommended that banks should, as far as possible: avoid the exchange of legacy cash into euro cash; encourage legacy cash to be deposited into bank accounts; pay particular attention to 'smurfing' operations (under which large legacy amounts are broken down into small amounts and deposited at different times or in different locations); and report suspicious transactions as soon as possible. Some national authorities (eg in France) prohibited the exchange of cash through bureaux de change. We have no information on the extent to which anti-money laundering measures worked. However, there is evidence that high-denomination legacy notes were spent in shops, in part because of the anti-money laundering regulations at banks.

The information campaign

- *It was essential that there should be a clear and comprehensive information campaign about the completion of the changeover, not only for the benefit of the public, so as to minimise the risk of public confusion, but also to inform staff in banks and businesses about the changeover, and to encourage all sectors of the economy to be ready in time.*
- *Although the information campaign emphasised that the public could exchange legacy cash throughout the cash exchange period, in the event banks and retailers had to respond as best they could to a very quick cash changeover.*

78 *Information for the public* Alongside the information campaign organised by national governments, the campaign organised by the ECB and NCBs in the Eurosystem was designed to familiarise the public in the euro area with euro notes and coin in advance of their introduction. The campaign reached a peak of intensity in the run-up to the launch of euro notes and coin, but continued during the cash exchange period. A wide range of media (including TV, radio, press, billboards and videos, as well as the mailing of 200 million leaflets in 34 languages) were used to convey messages to the public, retailers and small businesses, and also to a limited extent to countries outside the euro area. Public awareness of the changeover increased sharply as a result.

- The main messages in the Eurosystem campaign, which were uniform across the euro area, were designed to make the general public in the euro area familiar with: the visual appearance of the euro banknotes and coin, including their colour and dimensions; how to recognise their security features (using the catchphrase 'feel, look, tilt'), so as to enable a cash handler to check the authenticity of a euro banknote in a matter of seconds; the denominations of individual euro notes and coin; and the stages and timetable of the changeover. (See the December 2001 *Practical Issues*, pages 74-75).
- NCB campaigns reflected the Eurosystem campaign, but with local features. For example, in the Netherlands, the national campaign focused on the details of the national changeover. And it went through a series of phases. In the run-up to E-day, the information campaign on TV and radio aimed to persuade the public to pay only in euro as soon as possible, and/or make payments electronically rather than in cash, where possible. In the last week of January, in an attempt to prevent last minute queues at banks before the guilder ceased to be legal tender on 28 January, the information campaign in the Netherlands stressed that guilder notes and coin could still be exchanged for euro free of charge at banks until 1 April.

79 Once the public understood that the changeover was inevitable, and that there was no going back, they were keen to complete the changeover quickly. Indeed, one of the problems was that many people wanted to change their remaining legacy cash into euro so quickly that there were considerable queues early in the cash exchange period. Queues would have been shorter, had the public used the full period available for exchanging legacy cash into euro. It was made clear to the public through the information campaign that they had between four weeks (in the Netherlands) and two months (in most of the other euro-area countries) to spend their remaining holdings of legacy cash, and longer to exchange or deposit it. But even so, the public wanted to exchange their legacy cash as soon as possible. While more might have been done to encourage the public to spread out the

process, in the event banks and retailers had to respond as best they could to a very quick changeover.

80 *Other measures to help the public* A wide range of other steps were taken at national level to familiarise the public with the euro: mnemonics; help lines; Q&As; practical examples; euro roadshows by bus, truck and train; training for cash handlers; using schools and colleges as a transmission channel; translation of leaflets into foreign languages for tourists and foreign workers. Converters were distributed free to the public in some countries. For example, in Italy, the Government distributed 18.7 million packages consisting of a small credit card-sized converter, though some arrived after the beginning of January. And in Ireland, every household was given an electronic currency converter and a changeover handbook last autumn. In both countries, converters were generally intended as a means of checking the accuracy of price conversions, though they were often not needed in practice.

81 *Information for business* The main objective of the information campaign was to inform the public about, and secure public acceptance of, the cash changeover. Inevitably, less attention was given by national authorities in the euro area to the non-cash changeover by small businesses, though this was not the case in every country. In Ireland, for example, the Forfas training kit was particularly useful for retailers. To encourage businesses to be ready in France, the Banque de France held bilateral talks with 25,000 businesses, and organised sessions with 70,000. And in the private sector, banks played a significant role in educating their business customers. But arguably, more should have been done in some countries: to distinguish more clearly between the changeover in bank accounts, which took place first, and the cash changeover afterwards; to clarify the significance of 31 December as the end-date for the transition period; and to explain how legacy payments outstanding at that point would be handled afterwards.

The attitude of the public

- *Swift public acceptance of the euro was critical to the success of the cash changeover.*

82 In general, the public in the euro area accepted readily the completion of the changeover. One of the biggest surprises was that the euro seemed to have captured people's imagination. A good sign that the changeover had gone smoothly was the change in the amount of media coverage, from saturation coverage in the run-up to the launch of euro notes and coin and the period immediately afterwards to virtually no coverage at all, within two weeks.

83 For the most part, the cash changeover was completed without long queues or confusion among the public, though there were – naturally and inevitably – some exceptions in the first couple of weeks, after which everything returned to normal. Where there were queues, particularly in banks, but also in post offices, shops and on public transport, the public was generally calm and good-humoured, though inevitably there were some isolated incidents. Some members of the public were under the impression that they had to exchange their legacy cash for euro immediately, even though the authorities advertised that this was not the case. But most wanted to avoid having two different denominations of cash

in their wallets and pockets, though this does not explain why they did not wait until later to change cash left at home.

84 Opinion polls indicated that the public regarded the changeover as a success. In France, for example, a Ministry of Finance survey on 5 January indicated that 89% of people thought that the changeover was going well, and 94% on 12 January, and an IPSOS poll on 29 January indicated that 94% of people were satisfied with the changeover. And in Germany, surveys showed that 93% of people thought that the changeover there had been successful.

85 Swift public acceptance of the cash changeover certainly contributed to its success. The inevitable teething problems would have been much more serious if the public had not reacted generally in a good-humoured way. Among the public at large, the main concern was that the changeover would lead to a rise in prices.

The impact on prices

- *The authorities understood the public perception that the changeover would lead to a rise in prices, and did all they could to prevent it. But the perception persisted in many cases after the cash changeover had begun, just as it did in the case of UK decimalisation.*
- *While there is convincing anecdotal evidence that the completion of the changeover was accompanied by increases in some individual prices, particularly of everyday items, the overall impact of the changeover on prices appears to have been very small.*
- *One of the most difficult problems for many members of the public has been adjusting to euro values. Voluntary agreements to use dual price displays proved equally effective as, and less cumbersome than, legal requirements.*

86 *Impact on prices* During the changeover, opinion polls across the euro area showed that public concern that the changeover would lead to a rise in prices actually increased. The Eurosystem did everything it could to allay public concern and, with the appropriate statistical agencies, to monitor the situation closely. Evidence both from the Eurosystem and from statistical agencies in the euro area is still preliminary. It suggests that, while there is anecdotal evidence that the completion of the changeover has been accompanied by some individual price increases – particularly prices in bars, cafés and restaurants and for some other everyday items (like newspapers) – and there may be temporary upward pressure on prices, in the longer term there should be downward pressure on prices, owing to price transparency and increased competition (see Box).

87 *Dual pricing* One of the most difficult problems for many members of the public has been to adjust to euro values. The purpose of dual displays showing prices in both euro and legacy currency (eg on payslips, bank statements, utility bills and postage stamps, and in shops, hotels, restaurants and petrol stations) was to help the public to adjust, and to give confidence that the euro would not be used as an opportunity to raise prices. Although dual displays were a legal requirement for a period in Austria, Greece and Portugal, the voluntary agreements to use them in other countries in general proved equally effective in practice. Checks undertaken by the authorities suggest that over 95% of dual prices were displayed accurately, and most of the mistakes were accidental. In many countries, dual displays

EURO-AREA HICP: EVIDENCE OF EURO CHANGEOVER EFFECTS

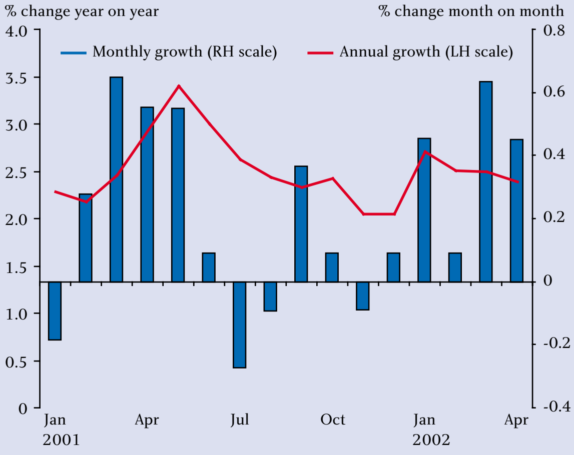
There are a number reasons why the changeover might result in one-off price changes: retailers increasing prices to recoup some of the changeover costs; rounding to 'psychological' prices; or taking the opportunity to increase margins. However, these changeover effects did not take place only in January. Some will have taken place beforehand, and others will take place over a period of time.

Eurostat identified a number of elements in January inflation. These include: bad weather; tariffs and taxes; the treatment of sales prices; and new weights. The total monthly increase in HICP in January was 0.5% (Chart 10). Of this, Eurostat estimates that the euro changeover may have accounted for 0.0-0.16%. Insee and the Bundesbank published similar figures. In January, the categories most likely to reflect euro changeover effects were 'recreation and culture', and 'hotels, cafés and restaurants' – in part because goods in these categories were more likely to be subject to 'psychological' pricing.

The Bundesbank noted there were far more price increases in January than usual: as prices had to be changed then (from legacy currency to euro), some changes were either delayed from last year or brought forward from later this year. But there are also reasons why changeover effects may be spread out over a number of months. Some industries, eager to avoid accusations of using the changeover to increase prices, implemented a price freeze over the year-end. When changeover price increases are less of a concern, there may then be some rounding to 'psychological' prices; this will be easier once dual pricing ends.

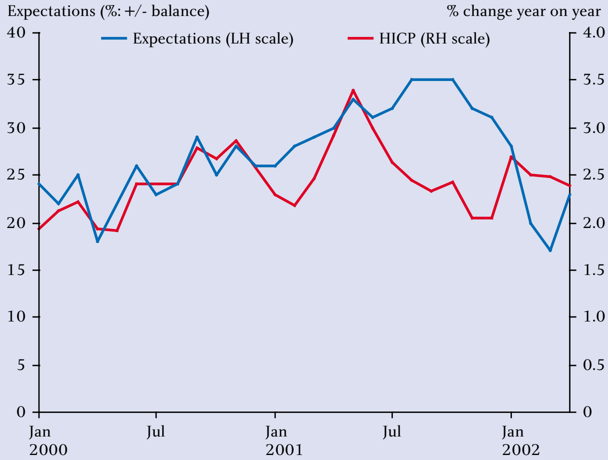
The data confirm that the changeover did indeed lead to increases in prices of some goods. These increases seem to have had an impact on perceptions because the categories subject to the largest price increases tended to be goods purchased frequently, such as coffee from cafés, or newspapers. As a result, consumers were more aware of the increases, even though these items make up only a small part of the total consumption basket. There could be a problem if expectations of future inflation were affected. Available survey evidence (Chart 11) does not yet provide a clear picture on this.

CHART 10: EURO AREA HICP



Source: Eurostat

CHART 11: INFLATION EXPECTATIONS



Source: European Commission and Eurostat continued for a time after the end of the cash exchange period (eg until the end of June). However, while use of dual pricing helped to ease the transition, it did not necessarily help the public to adjust to the new scale of values by starting to think in euro.

88 *Impact on the Single Market* Apart from the immediate impact of the completion of the changeover on prices, there is a separate question about whether the introduction of the euro in physical form will encourage greater uniformity of prices (eg of consumer goods) across the euro area in the longer term. The Commission estimated that the deviation around the average EU price was 14.4% in 1998 and 14.6% in 1999. The completion of the euro changeover should lead to a reduction in price deviations, and there is already some evidence of this (eg the decision by BMW and some other car manufacturers to set uniform prices across the euro area). But some price differentials are likely to remain, owing to local competition, transport costs, different VAT rates and different national tastes.

89 *Euro coin denominations* Since the launch of euro notes and coin, there has been some public criticism (eg in France, Italy and the Netherlands) of the large number of different euro coins (eight), their similarity of design, and the small size and value of one and two cent euro coins. But the Italian Economy Minister responded by saying that a decision to abolish one and two cent coins could not be taken unilaterally, and the French Minister of Finance argued that abolition in the short term could be inflationary. In Finland, retailers are already allowed to round cash transactions to the nearest five euro cents. A decision in the long run about whether or not to use one and two cent coins would also matter because, in the euro area as a whole, these two coins account for around one-third of the volume of euro coin production.

Changeover costs and charges

- *There is unlikely to be any reliable evidence about the costs of the changeover.*
- *Where banks imposed relatively low limits on the amounts of legacy cash that they would exchange without charge, this tended to lengthen queues.*
- *Some banks were criticised for not announcing further in advance that they would continue to exchange their legacy cash after the end of the formal cash exchange period. But they did not want to take steps that might have prevented a concentrated changeover.*

90 *Costs* Although some general estimates of the costs of the changeover have been published, there is unlikely to be any reliable evidence about costs and their breakdown. A variety of rough estimates have been made. In May last year, the ECB referred to an estimate of the total cost of the changeover at between 0.3% and 0.8% of euro-area GDP (ie €20-50 billion). Deutsche Bank subsequently gave its own estimate within this range.

91 Despite some complaints, banks and retailers generally accepted the ECOFIN decision that costs should be borne where they arose, though in some countries certain costs were defrayed.

92 *Conversion free of charge* For the most part, the completion of the changeover took place free of charge for bank customers.

I SWALLOW MINE!

- In accordance with the euro Regulations, there was agreement that banks should not charge customers for the conversion of their bank accounts from legacy currency to euro.
- Until the end of March, some 500 NCB branches throughout the euro area were involved in the exchange of legacy banknotes from other euro-area countries, as agreed by the Governing Council, and in accordance with Article 52 of the ESCB Statute. The arrangements for repatriating the legacy banknotes of other countries worked smoothly.
- During the cash exchange period, most commercial banks in the euro area exchanged national legacy cash into euro free of charge in unlimited amounts for their customers, whether customers chose to credit the proceeds to their bank accounts or to exchange them for euro cash. When a bank in Portugal was found to be charging 0.5% for exchanging amounts over €200, the commission was refunded on presentation of a receipt.
- In exchanging national legacy cash into euro during the cash exchange period, some commercial banks drew a distinction between customers and non-customers, and imposed limits (eg in Austria) and notice periods (eg in Italy) on larger amounts. In countries in which limits were low, this tended to lengthen queues, as people tried to change legacy cash on a number of occasions instead of once.
- Many commercial banks agreed to continue to exchange national legacy cash after the end of the cash exchange period for a limited time, some without charge. Some banks were criticised for not announcing this until towards the end of the cash exchange period, on the grounds that, had they done so earlier, queues at bank counters might have been shorter early in the New Year. However, the banks did not know this in advance, and wanted to ensure a quick changeover.
- NCBs agreed to continue to exchange national legacy notes and coin without charge, in some cases for a prolonged but finite period, and in other cases indefinitely.

93 *Charges for euro cheques* Although cheques in the euro area are now all denominated in euro, cheque clearing continues to use separate national infrastructure, standards and jurisdictions.

- *Cross-border cheques* Where cheques have to cross borders to be cleared, the delay and cost is higher than for those clearing within a single system. Following the replacement of legacy cheques by euro cheques, cheques appear to take 2-4 days' longer to clear than before. Banks need to ensure that cheques clearly identify their country of origin. The European banking guidelines on cross-border cheques include a recommendation that banks should specify their country or ISO country code on any euro-denominated cheque form.
- *Travellers cheques* Unlike travellers cheques in legacy currency, which have different formats and are cleared nationally, euro travellers cheques have a common (French) standard and are cleared in Paris. This may have implications for customer charges for travellers cheques from countries other than France.
- *Bankers drafts* In order to avoid payee charges, bankers drafts in euro may need to be drawn on a bank in the country in which they are to be presented.

94 *Cross-border euro payment charges* Under the new EU Regulation on cross-border euro payments, banks have been given a time limit to reduce specified cross-border charges to domestic charges. From 1 July, the price to the consumer of all euro cross-border card payments and euro ATM withdrawals, up to an amount of €12,500, must be no greater than the cost of 'corresponding' euro domestic transactions. From 1 July 2003, all euro cross-border credit transfers, up to €12,500, must cost no more than 'corresponding' domestic euro transfers. These thresholds are due to rise from €12,500 to €50,000 in January 2006. From now on, banks are also obliged to provide, to any customer who so requests, international bank account numbers (IBANs) and bank identifier codes (BICs) to assist straight-through processing. From 1 July, banks must include IBANs and BICs with the statements of every customer, whether the customer requests this information or not.

TABLE 1: AGREED DATES FOR EXCHANGING NATIONAL LEGACY CASH

	End-date of legal tender	Exchange at banks (a)	Exchange at the central bank free of charge
Austria	28 February 2002	28 February 2002 and later for customers	Indefinitely
Belgium	28 February 2002	28 February 2002, and by deposit onto a customer's account until 31 December 2002	Notes: indefinitely Coin: end-2004
Finland	28 February 2002	28 February 2002, and later for customers	10 years
France	17 February 2002	For customers until 30 June 2002	Notes: 10 years Coin: 3 years
Germany	31 December 2001 (b)	For decision by individual banks	Indefinitely
Greece	28 February 2002	28 February 2002	Notes: 10 years Coin: 2 years
Ireland	9 February 2002	28 February 2002. Coin by deposit: 28 March 2002 Notes by deposit: 31 December 2002	Indefinitely
Italy	28 February 2002	30 June 2002	10 years
Luxembourg	28 February 2002	30 June 2002	Notes: indefinitely Coin: until end-2004
Netherlands	28 January 2002	1 April 2002	Notes: 30 years Coin: 5 years
Portugal	28 February 2002	30 June 2002	Notes: 20 years Coin: until end-2002
Spain	28 February 2002	30 June 2002	Indefinitely

Notes: (a) mostly free of charge, but some banks impose a small charge, particularly when serving non-customers; (b) there was agreement in Germany that Deutsche mark banknotes and coin would be accepted by banks and retailers at least until 28 February 2002

Source: relevant Member State authorities, ECB and European Commission

PART III: LESSONS FOR THE UK

1 The lessons identified in Part II would not necessarily have implications for a UK changeover, if the UK were to join EMU, since the UK position would differ from first-wave countries in a number of respects. In Part III, the similarities and differences between the first wave and the UK (as a subsequent potential entrant) are considered, before setting out some of the important areas where lessons might be drawn. These can only be indicative, as decisions are for Government.

The whole of Part III is conditional upon a Government decision to recommend entry, Parliamentary approval and a positive Referendum result.

A SIMILARITIES AND DIFFERENCES BETWEEN THE UK AND THE FIRST WAVE

Similarities between the UK and the first wave

2 There would be many similarities between any UK changeover to the euro and the changeover in the first wave.

- The UK changeover would be a major event, which would be hugely complex – a much larger and more complex operation than Y2K.
- There would be a timetable for the changeover fixed in advance. It would be important to stick to the timetable, once it was agreed, notwithstanding any pressures to change.
- The changeover would be underpinned by legislation. The existing euro Regulations would be amended so as to apply in the UK, where they do not do so already. Domestic legislation to facilitate the changeover would be required.
- The changeover would take place in stages: entry; a transition period; and a cash exchange period. It would be important for everyone to understand how the changeover was going to work, and play the full role expected of them.
- From entry, the Bank of England would become a member of the Eurosystem, and conduct monetary operations in euro; NewCHAPS would operate only in euro; and sterling financial markets would change over to euro.
- Individual banks would be responsible for converting the accounts of their customers, and companies and public sector bodies would be responsible for the conversion of their own operations, before the end of the transition period.
- E-day, when euro notes and coin would officially be issued in the UK, would have as much significance as in the first wave.
- To encourage a smooth cash changeover starting on E-day, notes and coin would need to be distributed to banks and some retailers in advance.
- The logistics of the cash changeover would require meticulous preparations from an early stage, the allocation of clear responsibilities between the parties, and frequent communication between them.

- The behaviour of the public would be critical to the success of the changeover, but would be unpredictable.
- The information campaign would make clear that the public would not need to exchange all their sterling cash to euro immediately on E-day.

Differences between the UK and the first wave

3 The main differences between any UK changeover in the foreseeable future and the changeover in the first wave would relate to:

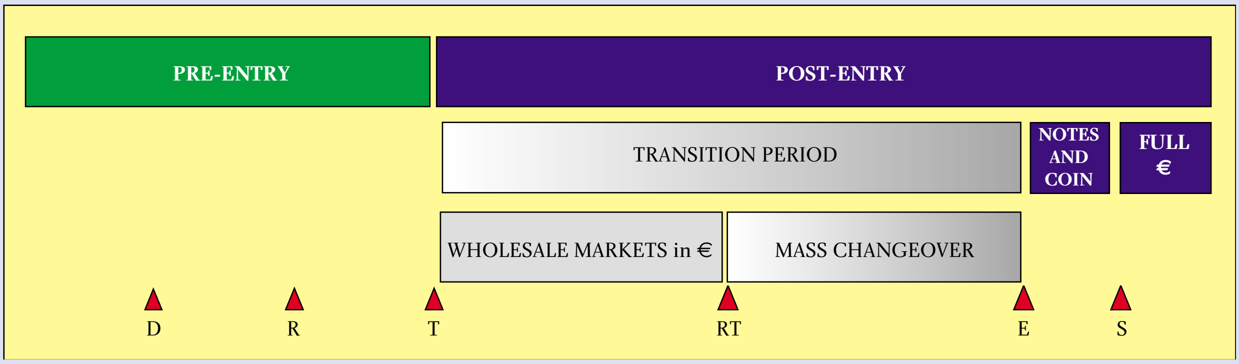
- the period of notice before entry;
- the length of the transition period;
- the phased approach to the mass changeover of bank accounts; and
- the prior existence of euro notes and coin.

4 In addition, the conversion of sterling financial markets to euro should be rather more straightforward, because the euro has been used in financial markets in London since its launch in 1999. As a later entrant, the UK would also be able to draw on the experience of first-wave countries, and the precedents they provide; determine the main features of the UK changeover on their own merits, rather than as a result of compromises with 11 other countries; and in particular, allow the cash changeover to take place at its own pace, rather than in competition with other countries. The steps in a UK changeover are set out in the Box.

STEPS IN A UK CHANGEOVER

The key steps in a UK changeover, and the intervals between them, are described in the outline *National Changeover Plan* (NCP), published in its second edition in March 2000, and subsequent work on a phased approach to the changeover, as set out in HM Treasury's *Reports on Euro Preparations*, our *Practical Issues*, and work by the BBA and APACS. The key steps can be summarised as follows.

A PHASED APPROACH TO A UK CHANGEOVER



Notes: D = Government decision to join; R = Referendum; T = UK entry: fixed conversion rate; RT = full-scale retail payment and transaction processing infrastructure and services available; E = end-of-transition period; euro notes and coin introduced as legal tender in the UK; S = end of legal tender for sterling notes and coin

- Following a Government decision, around four months would be needed to put in place the practical arrangements for a Referendum.

- Following a positive Referendum result, euro notes and coin would officially be issued in the UK between 24 and 30 months later. (The NCP does not specify the interval between a Referendum and the date of UK entry, nor therefore between the entry date and the date for the issue of UK euro notes and coin.)
- During the transition period after entry, there would be a phased approach to the changeover: sterling financial markets would change over to euro on entry; but mass financial services in euro would become available only from a later date ('the start of the mass changeover').
- From entry until the start of the mass changeover, the vast majority of banks' personal and small business customers would continue to keep their bank accounts, and make and receive payments, in sterling.
- From the start of the mass changeover, the full range of financial services in euro would become available for all personal and small business customers who wanted to use them; at the end of the transition, use of the euro would become compulsory.
- At the end of the transition, euro notes and coin would officially be issued in the UK (on E-day), and sterling notes and coin would subsequently be withdrawn during a specified short period.

A definitive and complete NCP would clearly be required at the appropriate time as a key planning document.

The period of notice before entry would probably be shorter in the UK than the first wave

5 Potential first-wave entrants were politically committed to EMU entry from an early stage, before the practical details of the changeover were all agreed. The main uncertainties were: whether EMU would go ahead; at what date; and whether they would qualify to join by meeting sufficiently the Maastricht convergence criteria. For most countries, these uncertainties were resolved at least two years in advance of the eventual start date (on 1 January 1999), so that banks could plan with a reasonable degree of certainty, subject only to the final decision eight months in advance (in May 1998) about which countries met the Maastricht convergence criteria.

6 The Government is committed to ensuring that the UK has a genuine option to join the euro, if that is what Government, Parliament and the people, in a Referendum, decide. Preparations, including the publication of two outline NCPs, have ensured that the UK retains the option to make a decision to join a successful single currency. As the Chancellor said in his October 1997 statement, the Five Economic Tests will define whether a clear and unambiguous case can be made. The Government has said that it will complete an assessment of the Five Tests within two years of the start of this Parliament. The Government will then make a decision on UK membership of EMU. If the Government recommends UK entry, it will be put to a vote in Parliament and then to a Referendum of the British people. Government, Parliament and the people must all agree.

7 Most UK banks currently assume for planning purposes that there would be around one year between any Government decision to recommend UK entry and the entry date. While banks have for some time been planning for possible UK entry, they have not yet begun to

invest in the implementation of those plans, on the grounds that it is not yet clear whether the UK will join.

The transition period would also be shorter in the UK

8 The first-wave transition (from entry to the end of the changeover in legacy currency in scriptural form) lasted three years (from 1 January 1999 to 31 December 2001), except for Greece, which had one year (from 1 January to 31 December 2001). The UK's current outline NCP specifies a period of between 24 and 30 months between a positive Referendum result and the introduction of UK euro notes and coin. The period of time between a positive Referendum result and the locking of rates (UK entry), when wholesale markets would operate in euro, would determine the overall transition period.

The cash exchange period in the UK would need to be reconsidered in the light of the decision to shorten it in the first wave

9 The NCP has an illustrative period of six months from the issue of euro notes and coin in the UK on E-day until sterling would cease to be legal tender, based on the original ECOFIN agreement for the first wave. But ECOFIN subsequently decided, in November 1999, to shorten the length of this cash exchange period to a maximum of two months, and some countries chose to apply an even shorter period. The periods chosen proved adequate in all first-wave countries. Indeed, a one-month cash exchange period would have sufficed in practice, but extending to two months may not be costly and would need to be weighed against the psychological impact of a very short period (although this worked well for the Netherlands, the UK is clearly a much bigger country).

Preparations for the mass changeover in the UK would be completed later in the transition

10 In the first wave, the preparations for adapting the payment infrastructure for mass euro use were largely complete from entry, whereas in the UK they would not be complete until the start of the mass changeover. That is because, if preparations were to begin to be implemented in earnest only after the Government's decision to recommend entry, and this were around a year in advance of UK entry, financial market preparations could be completed by entry, but preparations for the mass bank account changeover could not be completed within the same timescale. That would not matter, so long as banks' personal and small business customers were content to continue using sterling rather than euro until rather late in the transition period, as in the first wave. It is possible that the mass changeover would be concentrated in a relatively short period.

The number of dividend payments in euro would have to be limited, before banks' preparations for the mass changeover were complete

11 The Bank's Registrar's Department would plan to make all payments on gilt-edged securities in euro from entry, and they would be converted by banks to sterling for those with sterling bank accounts. But it would be impossible for the banks to do the same for company dividend payments, which are much more numerous. For the phased approach to work, these would need to be paid by company registrars in sterling until banks' preparations

for the mass changeover were complete, with the banks converting them to euro for their institutional customers (who would already have euro bank accounts).

Euro notes would be available in the UK before E-day

12 Euro notes and coin would not be issued officially in the UK until E-day. But euro notes and coin are now in circulation in the euro area, and already available in the UK. That is different from the first wave, where euro notes and coin were not available until three years after entry. However, this difference should not be exaggerated. In all probability, there would be very little use of euro cash in the high street before E-day, assuming that euro notes were not dispensed by the banks through ATMs or over the counter until then.

B LESSONS FROM THE FIRST WAVE

13 Taking these differences into account, there are a number of lessons which can nevertheless be learned in the UK from the first-wave changeover. For completeness, the practical issues involved in preparing the Bank of England for possible UK entry, which were considered in the June 2001 *Practical Issues*, pages 103-104, are summarised in Annex A; and the changeover in sterling financial markets, which was considered in detail in the November 2000 *Practical Issues*, pages 90-101, is summarised in Annex B. The Box below summarises lessons from UK decimalisation.

LESSONS FROM DECIMALISATION

UK decimalisation took place on 15 February 1971. This was very different from a possible changeover from sterling to the euro: decimalisation affected only the UK coinage; the denomination of the pound sterling remained unchanged; and UK monetary policy did not become part of a wider system, as it would if the UK joined EMU. Even so, there may be practical lessons to be learned.

The timetable for decimalisation was as follows. The Government's decision to decimalise was announced on 1 March 1966, with the pound divided into 100 units, no general compensation and the appointment of a Decimalisation Currency Board. There was a White Paper in December 1966. Two Decimal Currency Acts were passed, in July 1967 and May 1969. In February 1968, D-day was fixed for 15 February 1971, to be preceded by a four-day closed period for the banks. 5p and 10p coins came into circulation in April 1968 and the seven-sided 50p coin in October 1969. On D-day, the ½p, 1p and 2p coins became legal tender, followed by a very rapid decline in the circulation of the old penny and threepenny piece, and a rather less rapid decline in the sixpence. The changeover period ended on 30 August 1971, and the Board was dissolved on 30 September.

The main reasons for the success of the changeover, given in the official history, *The Decimalisation of Britain's Currency* (1973), were as follows.

- The basic policy decisions on system and on coinage were announced by the Government either at the start of, or early in, the preparatory period, and the important decisions were fairly quickly confirmed by Parliament in legislation.

- Once the basic decisions had been taken, the operation itself was conducted more smoothly and with fewer problems for either the business community or the general public than was thought likely by most commentators before the event; and the practical benefits of the changeover were speedily acknowledged.
- Although opinion had originally been divided over the choice of decimal system and many organisations would have preferred a ten-shilling system to one based on the pound, once the decision for the pound had been taken by Parliament in July 1967 – 3½ years before D-day – the basis of the system and coinage was firm.
- Decimalisation was largely a matter of studying problems of detail and finding detailed solutions; this took time and most managers – in the public and private sectors – found the time, using the long preparatory period to the full, planning ahead with a sense of priorities and with a firm grasp of detail.
- The basic Decimal Currency Board strategy appears to have been vindicated by events – concentrating in the early months on the removal of remaining areas of doubt; phasing changes in the coinage; and directing the publicity campaign, first at management, then at retailers, and only in the last weeks before the event at the general public.
- The changeover came at a time when informed opinion assumed that it was inevitable. Although there was certainly no strong desire for it, rather more people were for than against.
- The timing of the UK changeover benefited from the practical experience of other Commonwealth countries which had changed first, particularly Australia and New Zealand.
- If there were a decimal effect on prices, it was a comparatively small part of the whole 1971 increase and impossible to quantify, though the public perception was that the changeover had in fact raised prices.

The overall framework for a UK changeover

14 The main lesson from the first wave is that a UK changeover would need to be meticulously planned, implemented and tested against a precise timetable agreed well in advance.

How should a UK changeover be organised?

15 Almost all the countries in the first wave set up national changeover committees to co-ordinate their preparations for the euro, generally at the earliest possible point. In the UK, the Government has already established a committee structure to oversee UK euro preparations. This structure would need to evolve and develop, if the UK decided to join. For example, the Government would need to decide whether or not to set up a changeover board to implement the UK changeover, as in the case of decimalisation, and if so when and with what precise remit.

16 In several first-wave countries, some delays in the distribution and withdrawal of coin drew attention to the importance of central project management of the cash changeover, with a clear allocation of responsibilities between the different parties involved. It would be

important for the UK to learn from this experience, and in particular to decide in advance about the allocation of responsibilities, in the cash changeover, between the key players: HM Treasury, the Bank, the Mint, the banks, large retailers and CIT companies.

What would the Bank of England's role be?

17 In each first-wave country, the national central bank played a major role in organising the cash changeover and monitoring or assisting the non-cash changeover. In the UK, within the Government's committee structure for overseeing UK preparations, the Bank of England would:

- prepare before entry to become a full member of the Eurosystem, and carry out this role subsequently;
- continue to contribute to the overall changeover planning exercise under HM Treasury leadership;
- continue to co-ordinate the preparations for a changeover in financial markets and institutions, a responsibility already given to the Bank by Government;
- play a significant, but still to be defined, role in relation to the cash changeover; and
- contribute to the information campaign.

What legislation would be required to facilitate a UK changeover?

18 The existing euro Regulations (1103/97 and 974/98) would need to be amended (as they were for Greece's entry) to reflect the UK's prospective membership: the amended Regulations would, probably, take effect at the UK entry date. Simultaneously, draft domestic legislation would need to be introduced on the necessary aspects of the transition scenario, to the extent that they were not covered in the euro Regulations; and to ensure that the myriad references to sterling in the body of UK national legislation would be converted satisfactorily.

What degree of prescription would be needed during a UK changeover?

19 In some countries in the first wave, the national changeover committee or equivalent closely co-ordinated preparations for the changeover according to a common plan. In others, the approach was less prescriptive, leaving more to the initiative of individual institutions. Both of these approaches were based on the traditions for managing large projects in the countries concerned. They each worked well in their own context.

20 In the UK it is right and inevitable that, with a project to change the national currency, there would be strong Government leadership: in establishing the broad principles, or framework, for the changeover and promulgating this through the NCP; in ensuring the necessary legal basis (including to establish the Bank of England as an independent entity in the sense of the Maastricht Treaty); and in drawing up and overseeing the information campaign, which would be vital. However, it would be consistent with a typical UK approach to leave as much as possible to be determined by the private sector.

How long should a UK transition period be?

21 It is frequently stated that the three-year transition period in the first wave could have been significantly shorter, though this is not universally agreed. The three-year first-wave transition was required to produce euro coin and notes and to prepare for the public sector changeover, often regarded as 'the slowest ship in the convoy'. But it was too long to sustain momentum; many businesses and citizens lost sight of the euro for a long period after it was introduced in 1999 (eg while preparing for Y2K); and this meant the information campaign last year was both more difficult, and assumed greater significance, than if a more continuous changeover had been possible. It would generally be accepted that the shorter the transition could be in practice, the better. Reflecting this view, the ECB has suggested that later entrants should aim to complete the changeover in less than three years.

22 The NCP already indicates that a UK changeover would be shorter than the first wave. It is not obvious that it could be further shortened, even if this were desired, without running risks with the changeover. The printing and minting of sufficient euro notes and coin would be quicker in the UK than in the euro area, given the first-wave precedent and the preliminary work already undertaken in the UK; and lead-times in the UK public sector are being reduced by making systems euro-compliant when they are updated. But the sheer logistics and complexity of the cash changeover and the amount of work required to prepare the banks' accounting systems for the euro, together with the present uncertainties about UK entry, will be the determining influences.

On what date in the calendar year should E-day be?

23 The political decision to fix E-day for the first wave on 1 January was taken, even though banks and retailers preferred a different date on cost grounds, as banknote circulation is at a seasonal high-point at the beginning of the year. In the event, some of the advantages of fixing E-day on 1 January were underestimated: it was a memorable date, which helped the information campaign; the public was in a festive mood; and retail activity was lower than normal, as 1 January was a public holiday. However, some of the supposed advantages of 1 January were equally exaggerated: fixing E-day to coincide with the end of the accounting year for many banks and other companies meant that the end of the transition coincided with their end-year processing – separate dates might have been preferable.

24 Banks and retailers in the UK feel the same about the choice of date for E-day as banks and retailers in the first wave before a decision was taken. UK banks and retailers have for some time argued that a UK E-day should be in mid-February, as this is the seasonal low point for the use of banknotes, and a cash changeover starting at that time would therefore involve lower costs for them than 1 January. 15 February was chosen as the date for decimalisation, though this only involved coin. The key question is whether, for these reasons, 1 January should be ruled out. The success of the first-wave changeover indicates that, while 1 January might prove somewhat more expensive for the private sector than alternative dates, fixing E-day in the UK on that date would be feasible. This is helpful because it would give the Government more room for manoeuvre.

How long a cash exchange period would be required?

25 The length of the cash exchange period in the first wave was shortened from a maximum of six to two months, and in the Netherlands, Ireland and France to an even shorter period, in order to reduce the costs of the changeover for banks and retailers, and the risk of confusion among the public. All the first-wave countries succeeded in converting the bulk of cash transactions to euro well within their target of the first two weeks. In the first wave, in practice one month would have sufficed, on the basis that banks were willing subsequently to continue exchanging legacy cash.

26 The key to a quick cash changeover in the first wave was the behaviour of the public. There can be no guarantee that the public in the UK would behave in the same way. Nevertheless, it is hard to identify circumstances that would warrant a cash exchange period any longer than the first wave required. Of course, in the UK, as in the first wave, the end of the cash exchange period would simply mean that, from that point onwards sterling cash would almost certainly be refused in payment in most shops. But sterling notes would still be exchangeable for some time at the banks, and indefinitely at the Bank of England. Arrangements would also be needed in the UK to continue exchanging sterling coin, though – unlike most NCBs in the first wave – the Bank is not involved in the distribution and collection of coin.

27 Whatever the length of the cash exchange period, the presumption in the NCP is that E-day would take place coincident with the end of the transition period, as in the first wave, with euro notes and coin being introduced immediately after the completion of the euro non-cash changeover.

At what point should sterling cease to be legal tender?

28 In all first-wave countries, the euro and legacy currency were both legal tender throughout their respective cash exchange periods, except in Germany, where the Deutsche mark ceased to be legal tender on 31 December. It would be better in the UK to adopt the same practice as the other countries in the first wave, with sterling continuing to be legal tender, alongside the euro, until the end of the cash exchange period. This is the outcome assumed in the NCP.

The mass changeover in the UK

How would the mass changeover work for bank customers?

29 Throughout the first wave, the pace of the banking changeover from legacy currency to euro for personal and small business customers was very slow until towards the end of the transition period, though the payment infrastructure in the first wave had largely been adapted to mass euro use from the outset. If personal and small business demand for euro in the UK after entry followed a similar pattern to the first wave, a phased approach would be feasible in the UK: sterling financial markets would change over to euro on entry, but preparations for the mass changeover would not be complete until some time after entry. UK banks and other financial institutions expect that, as in the first wave, the vast majority of their personal and small business customers would wish to continue using sterling rather

than euro until late in the transition period, and so would not need to use euro accounts or euro services on a substantial scale until after banks' preparations for the mass changeover were complete.

30 As the euro is already in use, there is a risk under a phased approach that corporate and personal demand in the UK would be higher at an earlier stage of the changeover than in the first wave. This would be likely to be the case, for example, with UK companies which have close trading links with the euro area. However, if the UK were to join in the foreseeable future, it is most unlikely that use of the euro among the public and small businesses would spread – before entry, and after entry before E-day – beyond the tourist areas, ports and airports, and the Irish border (there is certainly no evidence of this to date). The level of personal demand for euro would be influenced, among other factors, by banks continuing to dispense sterling notes through ATMs until E-day, and by communications between banks and their customers on the changeover.

31 Under a phased approach to the changeover, the banking services in euro that would be expected to be available from UK banks on entry, and those that would become available from the start of the mass changeover, are described in the Box.

BANKING SERVICES IN EURO UNDER A PHASED APPROACH

Banking services expected to be available in euro on entry

In describing the banking services in euro that would be available for personal and small business customers on entry under a phased approach, there is a distinction between the payment infrastructure and individual bank services. This is because the provision of payment services is dependent on the largest members of the relevant payment system all being able to receive payments, whereas the availability of services, such as offering euro accounts and originating euro payments for customers, is a matter for individual banks to decide.

Payment infrastructure

- *NewCHAPS* has (since August last year) settled same-day, high-value euro payments without any practical capacity constraint. From entry, settlement in CHAPS would take place only in euro, but bank customers would still be able to send and receive payments in sterling. Banks would need, and would have the capacity, to convert sterling to euro, and vice versa, on their customers' behalf.
- *BACS* (electronic payments) There would be limited capacity available for euro direct credits, and no euro direct debits.
- *Cheque and Credit Clearing* (paper-based payments) There would, as now, be limited capacity for euro cheque clearing (some 5% of typical sterling volumes); but no euro interbank paper credit clearing services would be available.
- Euro and sterling payments in BACS and Cheque and Credit Clearing would be processed and cleared in separate streams in parallel. Consequently, banks would not have to perform conversions when sending payments. Conversions in banks' internal systems would only be necessary at the end of the process when, for example, a euro

payment was made to a customer with a sterling account. As the process would not involve any reconversions, rounding differences would be kept to a minimum.

Individual bank services

- Some banks would not offer euro accounts. Others would, but these euro accounts would have limited functionality. Euro cheque books would be available, though from some banks only on request. They would be physically distinct from sterling cheque books. Banks offering them would continue to hold their customers' euro accounts in their (limited-capacity) foreign currency account suites.
- Euro payments could also be accepted on sterling accounts (eg when a customer with a sterling account received a euro cheque or credit transfer), though each bank's capacity to make the necessary conversions would be limited.
- Customers would not be able to make other kinds of euro transactions using standard sterling accounts. In particular, it would not be possible to write euro cheques from them.
- Banks would not be able to convert the base currency (the currency used internally for bank accounting purposes) of their personal and small business customers' accounts from sterling to euro. These customers could open a separate euro account, but this would have a separate account number, and its functionality would be limited compared to their sterling accounts.

The infrastructure available to support banking services for personal and small business customers on entry, including the parallel clearing process, would be assumed to be the same as now, except that settlement would take place only in euro at the Bank of England. And, as now, the services in euro provided by individual banks for personal and small business customers in the early post-entry period would be limited, though there would be minor changes from the services currently available.

Banking services available in euro from the start of the mass changeover

Once banks' preparations for the start of the mass changeover were complete, the banking services they would be able to provide their personal and small business customers would be as follows, separating again the payment services infrastructure from other individual bank services.

Payment infrastructure

- *BACS* It would become possible to make direct debits and standing orders in euro from both sterling and euro accounts, and direct credits in euro to both sterling and euro accounts, in volume without practical limit.
- *Cheque and Credit Clearing* The capacity for clearing euro cheques would have increased to a level comparable to that currently for sterling volumes; and an interbank paper credit service in euro would become available.

Individual bank services

- Euro accounts would become widely available for customers.

- Banks would be able to convert large volumes of payments between euro and sterling, as these would be automated.
- The euro functionality of sterling accounts would no longer be limited. Euro direct credits, direct debits and standing orders could be drawn on them. Some banks might also offer euro cheques on sterling accounts, which would mean customers would no longer need separate euro and sterling accounts, but others might postpone this until shortly before the end of the transition period.
- The timing and method of the conversion from sterling to euro accounts would be determined by each individual bank. On conversion, account numbers would remain unchanged.

32 A common feature of the mass changeover of bank accounts in first-wave countries was that the initiative for the changeover lay with the banks rather than the authorities. In some countries, the authorities played a role in co-ordinating early conversion, in agreement with the banks. A fully decentralised approach, leaving each bank to decide on the timing of its own changeover before the end of the transition period, would have most in common with normal UK practice. Prescription would not be necessary, if – as expected – banks recognised that a staged account changeover before the end of the transition would be in their best interests.

33 Assuming that a phased approach to a UK changeover were implemented in a decentralised way, customer accounts, insurance contracts, utility bills, salary payments, tax and social security payments would migrate from sterling to euro during the period between the completion of bank preparations for the mass changeover and E-day. Each individual bank would determine the timing and method of its own conversion from sterling to euro. It would be necessary to be clear in advance what the legal position on 'implicit consent' would allow. Assuming 'implicit consent' were possible, in accordance with the procedure in most first-wave countries, banks in the UK would inform their customers in advance about when their accounts would be converted. They would need to explain what this would involve, and would then proceed to convert them on the due dates, unless customers objected.

34 There are a number of lessons to learn from the first wave about the changeover of personal and corporate accounts, the adaptation of POS terminals and the changeover in cheques.

- *Personal customers* The largest UK banks have so many personal customers that they would need to convert these accounts in stages rather than in a 'big bang' immediately prior to the end of the transition. Even banks in Ireland, which successfully managed a complete mass changeover over the final weekend of last year, agree that this would be unduly risky in the UK, given the much greater size of their UK counterparts, in terms of numbers of customers, numbers of accounts and contracts per customer, computer systems per bank and banking products per system.
- *Corporate customers* As in the first wave, conversion of corporate bank accounts would be more complex than personal accounts. Although the conversion of most corporate accounts could be standardised, some would need to be treated

individually. If corporate customers' own internal operations and accounting systems were not converted at the same time as the bank account conversion, reconciliation problems could arise when companies received information electronically from their banks, though there were fewer reconciliation problems in the first wave in practice than feared. UK banks could usefully learn from the experience of banks in the first wave about how they overcame these reconciliation problems (eg by increasing 'tolerances').

- *POS terminals* In the first wave, POS terminals were adapted for euro use either late in, or at the end of, the transition period. In the UK, where half the terminals are owned by banks and the other half by retailers, a degree of co-ordination would be needed to convert them all in time and ensure that UK card processing networks were robust, as APACS has pointed out. Banks and retailers could also consider making POS terminals euro-compatible while introducing other systems changes in the meantime. In some countries in the first wave, POS payments could only be made in legacy currency until end-year, while in others, once terminals had been adapted, customers had a choice between paying in legacy currency or euro. In the UK, such a dual-currency option would not be proposed nor recommended by APACS, because this could give rise to mistakes, cause confusion on account of the similarity between sterling and euro values, and would offer no obvious benefits.
- *Cheques* Particular attention would need to be paid to the change from sterling to euro cheques, for two reasons. First, usage of cheques in the UK is proportionately greater than countries in the first wave (apart from France and Ireland), and so the change in the use of cheques from sterling to euro would need meticulous preparation. Second, there would be a significant risk in the UK of confusion between euro amounts and sterling amounts, as the euro and sterling are closer to unity than any legacy currency in the first wave, apart from the Irish pound.

35 To encourage banks and other financial institutions to complete the mass changeover in time, BBA/APACS guidelines would be useful, covering some or all of the following: the timing of the conversion of bank accounts; the procedure for obtaining customer consent for the conversion of accounts; dual displays on bank statements; the handling of reconciliation issues, in particular for corporate customers; the handling of legacy cheques and any other payments outstanding at the end of the transition period; and standard settlement instructions. Guidelines for UK banks covering the relevant issues, and based on common EBF guidelines for banks in the first wave, were recommended in the UK by the BBA and APACS during the completion of the first-wave changeover.

How would the mass changeover work for small investors?

36 The implications for small investors of a phased approach to any UK changeover are summarised in the Box.

THE SECURITIES CHANGEOVER FOR SMALL INVESTORS IN THE UK

Under the phased approach to a UK changeover, gilt-edged securities would be redenominated during the conversion weekend on UK entry, and would thereafter be quoted, traded and settled in the wholesale markets in euro; and UK equities would also be quoted, traded and settled in euro from entry. However, small investors would in general continue to expect to receive financial prices, and settle gilt and equity transactions, in sterling until towards the end of the transition period. Gilts and equities are the securities held most widely by small investors.

In the period between entry and the start of the mass changeover, UK market makers would be expected each to have only one euro cash memorandum account (CMA). In the case of each broker, the broker's bank would need to link a CMA-related account in euro to a client money account in sterling. This would enable the broker to use the sterling account to make payments to and from small investor clients, whereas the broker's bank would need only to convert the total value of sterling payments between the broker's euro and sterling accounts, thus reducing to a manageable level the number of conversions banks would need to perform before the start of the mass changeover.

Gilt coupons Once gilts were redenominated on entry, the Bank of England Registrar's Department plans to pay gilt coupons and redemptions in euro. Institutional investors would hold euro accounts and expect to receive payments in euro, while small investors would continue to hold sterling accounts and generally expect to receive payments in sterling. Banks would therefore need to convert gilt-edged payments in euro and credit their small investor client accounts in sterling. The banks consider that there would be sufficient capacity from entry to cope with the current level of 1 million BACS payments and 600,000 cheques in euro each year, including both interest and redemption payments.

Company dividends However, registrars currently make over 60 million share dividend payments on behalf of UK companies each year (one-third via BACS and two-thirds by cheque), and normally expect to pay all shareholders in any company in only one currency (the only exception being where a company pays shareholders abroad in their local currency). The UK banks would not have the capacity, until the start of the mass changeover, to convert from euro to sterling a large volume of share dividend payments to small customers, though banks would be able to convert from sterling to euro the limited volume of dividend payments for their institutional customers. So preliminary guidelines have been prepared by the City Euro Group for UK companies.

- Until the start of the mass changeover, UK companies would need to continue instructing their registrars to make dividend payments to their shareholders in sterling. After the start of the mass changeover, and until the end of the transition period, UK companies could choose to instruct their registrars to pay in either sterling or euro. UK companies would be advised to consult their registrars in advance about the timing, during the transition period, of the conversion to euro of their dividend payments.
- Many UK small investors subscribe to flotations or rights issues by cheque, and euro cheque books would not be widely available between entry and the start of the mass changeover. In the event of flotations or rights issues during the transition period, UK companies would need to allow an investor to subscribe in sterling (or in euro, if the investor wished). And UK companies would need to instruct registrars to pay refunds on subscriptions for new issues, and settle the 'on-sold' rights not taken up by small investors, in sterling, at least until the start of the mass changeover.

Share capital redenomination In addition, and irrespective of a phased approach, companies would need to use a method for redenominating their share capital which left unchanged the number of shares held by each shareholder, in order to avoid corporate actions for all shareholders. UK legislation would be necessary to facilitate the voluntary redenomination of share capital and rounding of par values, and to give companies a choice of paying dividends in sterling or euro during the transition period.

Interest day-count conventions While interest on money market instruments denominated in euro is conventionally quoted and calculated using a day-count convention of actual/360, the day-count convention used by banks for both money market and small transactions in sterling is actual/365. For periods shorter than one year, the resulting amounts of interest payable differ for the same nominal rate. Day-count conventions determine how a quoted interest rate is to be interpreted where the fraction is not explicitly stated. The banks' current presumption is that, from entry, UK interest rates would be quoted using actual/360 for market-linked rates, and actual/365 for products that were not explicitly market-linked, with appropriate annotation where the presumption did not apply.

The UK cash changeover

What lessons can the UK learn from the first wave about the pace of the cash changeover?

37 In the first wave, the general rule agreed by ECOFIN was that the costs of the changeover should be borne where they arose. It is not surprising that the rule proved impracticable to apply universally, as beforehand it was impossible for any first-wave country to know what would be essential to deliver the changeover. The national authorities in the first wave had no precedent to guide them; the only guidance available was from each other. Their main imperative was to avoid any risk to the changeover, even if this involved a public cost. Drawing on their experience, it would be possible for the UK – as a later entrant – to consider how quick a cash changeover it wanted to achieve. Some first-wave countries achieved a very quick changeover by providing financial incentives (eg for sub-frontloading) out of public funds, while other countries achieved an acceptably smooth changeover without such financial incentives. In the latter case, the changeover was not completed so quickly, and the costs to banks and retailers of a longer period of dual cash circulation may have been greater, though not by much, as the cash changeover was extended by only a few days or weeks.

What lessons can the UK learn from the first wave about the production of euro notes and coin?

38 The UK would plan to produce sufficient euro notes and coin to meet its needs, if lead-times were sufficient – as they should be. There are a number of lessons to learn from the first wave.

- Lead-times would be shorter for the UK than for the first wave, as designs are already available and the quality control process is now settled.
- The dividing line between euro notes and coin would be likely to be broadly similar in the UK as now, unlike some first-wave countries (like Italy and Spain), where some legacy notes had to be replaced with euro coin.
- In the first-wave, demand for low-denomination euro notes – and in some countries, euro coin – from banks and retailers was much higher than originally expected, and it was important for the authorities to meet demand to ease the changeover, even though this led to a flowback early in the cash exchange period.

- Some NCBs in the first wave benefited by modelling and forecasting potential cash usage in detail in advance.

What lessons can the UK learn from the first wave about the prior distribution of euro notes and coin?

39 Unlike NCBs in the larger countries in the first wave, the Bank no longer has a branch network, and it has reduced its involvement in note distribution to two cash centres, at Debden (where banknotes are printed) and Leeds; and unlike some NCBs in the first wave, the Bank has no involvement in the distribution of coin, which is handled on behalf of HM Treasury by the Mint (see Box).

CASH DISTRIBUTION IN THE UK

In the UK the Bank of England, like the central bank in many but not all EU countries, is responsible for notes and the Mint for coin; but, in contrast to many euro-area countries, the Bank has no role at all in the distribution of coin, which is handled entirely by the Mint, on behalf of HM Treasury. Both the Bank of England and the Mint deal directly only with a small number of counterparties, which in turn distribute the notes and coin to their customers – both banks and retailers – across the country. Variations in seasonal demand can result in month-on-month changes in notes in circulation of £2.5 billion (around 7%). The frontloading exercise would clearly involve much larger amounts.

Notes

The Bank of England deals directly with nine companies, under the Note Circulation Scheme (NCS): most are large banks, but the group also includes cash management companies and Consignia (the Post Office). NCS members send orders to the Bank for next day collection. The orders include the demand for new notes (in standard units), and the planned return of used notes. Notes are collected by NCS members' CIT companies (there are four main companies in the UK), at their own cost, from the Bank's two cash centres: about 55% from the cash centre at Debden, Essex, and the remainder from Leeds.

The CIT companies take the notes to NCS members' cash centres around the country (there are 70-80); these must meet Bank security standards. New notes held by these centres (under the Bond Facility) remain the property of the Bank, and so payment is not required from the NCS members. About half the cash centres have note-sorting capability (this is used inter alia to provide a service to retailer clients for used notes). An IT system is being developed which will give the Bank and NCS members access to on-line information on notes held in the centres. This could be useful in any UK changeover to the euro.

From the cash centres, notes are distributed to NCS banks' own branches; to their ATMs; to other banks; and to large retailers. The Bank has no role in this part of the process, nor in the secondary market for used banknotes.

- *ATMs:* banks are increasingly outsourcing the stocking of ATMs. There is a mix of two and four cassette machines in the UK: newer ones are four-cassette. Simpler, single cassette machines, placed in retail outlets, are also growing in number.

- *Second-tier banks and larger retailers:* charges made by NCS members vary, and may form part of the overall client relationship.

Coin

The Mint produces an annual forecast for new coin requirements in conjunction with APACS. There is an active secondary market in coin involving a small number of counterparties – mostly banks, but also including cash management companies and Consignia – with which the Mint deals. The Mint provides coin to cover any net deficit in this market (which mostly arises in the last 2-3 months of the year). Specific orders are made once a week, for delivery the following week; the coin must be paid for ahead of delivery. In normal times, the Mint does not take coin back from the market.

The Mint delivers the coin, on behalf of HM Treasury and at its expense, from its factory in South Wales to its counterparties' regional cash centres (there are around 30). Some of these cash centres also handle notes. Coin are delivered in single-denomination pallets of around one tonne, in large bags. The recipients process and re-package the coin into smaller sachets in accordance with agreed industry standards for distribution to their branches, second-tier banks and retailers. The cash centres have counting and sorting facilities, as most banks provide this service to their retailer clients.

40 The Bank, the Mint and their counterparties would need to consider carefully, in the light of first-wave experience, how far the UK's normal arrangements could meet the extraordinary demands of a euro changeover – an operation many times the scale. In particular, would transport, sorting and storage capacities be sufficient, not only for frontloading but also for a potentially very quick return of legacy cash? Would the existing narrow range of counterparties be appropriate for a frontloading and legacy withdrawal programme; and if different arrangements were to be used, could reliable procedures be put in place quickly? And would there be a requirement for a 'single pilot' for the whole process, from producer to retailer? The main lessons for the UK from the first wave are as follows.

- The relationship between the key parties (HM Treasury, the Bank, the Mint, the main banks, large retailers and CIT companies) would need to be appropriate and understood by all, making use of the existing arrangements, where these were considered adequate, as there would be an advantage in sticking to arrangements that are known to work, where possible.
- The key parties would need to meet in the right fora, with the right frequency, covering all relevant issues; and a way would need to be found for key parties to be contacted immediately in order to iron out problems as they arose. Obviously, this would be more complicated for a large country, like the UK.
- Arrangements for transport and secure storage would need to be checked to ensure that they were sufficient, and in the right locations, for country-wide distribution.
- Arrangements for withdrawing sterling notes and coin would be as important as arrangements for distributing euro notes and coin.

- An adequate data system would be needed that ideally was accessible by all the key parties to both the frontloading of euro, and the withdrawal of sterling, notes and coin, and that included an audit trail.
- Insurance companies would need to extend the cover they provide to banks and retailers on reasonable terms, before and during the cash exchange period.
- There would need to be sufficient competition among CIT companies to ensure that they would provide a good service, while keeping charges down.
- And additional security would need to be provided for cash in transit and storage.

What lessons can the UK learn from the first wave about frontloading?

41 In the first wave, frontloading was key to ensuring that the banks could: supply their retail customers with sufficient quantities of euro notes and coin by the first trading day of the year; fill and keep stocked their ATMs; and meet customers' demands for euro over the counter. Without frontloading, the pace of the changeover would have been slower, and would have risked being more disorderly, as those who wanted to receive euro in change may not have been able to do so.

42 E-day would be of much the same importance to a UK changeover as in the first wave, as it would mark the point at which euro notes and coin would become available for widespread use. The main lessons from the first wave are as follows.

- UK banks would need to be supplied with massive stocks in advance. Neither the fact that some members of the public would have kept euro notes and coin left over from holidays, nor the possibility that banks could supply themselves from the market, would be likely to change this conclusion, given the scale of the cash needed to replace the bulk of the sterling stock outstanding.
- The banks would need to play a central role in the frontloading process. A payment model along the lines of the ECB debiting model, to defray some of the costs involved, would be helpful.
- As in the first wave, coin would need to be frontloaded first, because of its bulk, while notes would need to be frontloaded later, for security reasons.
- The UK would be unlikely to need longer for frontloading than the 3-4 month period in the first wave.

What lessons can the UK learn from the first wave about sub-frontloading?

43 Sub-frontloading to retailers and other cash users in the first wave was on average only just over 10% of the amount frontloaded. The low level of sub-frontloading is not surprising because, for retailers to take euro cash before they needed to use it simply involved costs – of storage, security, insurance, and – sometimes – payment on receipt (or the provision of collateral); it also required them to sign contracts and take on the risk of incurring penalties for premature circulation of euro cash. Yet sub-frontloading large retailers ensured that they had adequate euro change in advance. For the most part, they were willing to accept sub-frontloading, as they knew they could not obtain all the supplies they needed at the last minute, and that they would be at a competitive disadvantage if they were not ready when

their competitors were. Some banks also provided financial incentives for sub-frontloading by delaying payment until early January. By contrast, smaller shopkeepers did not in general need to be sub-frontloaded, as they were able to obtain all the supplies they needed early in January, through pre-arranged orders with their banks.

44 The main lessons from the first wave are as follows.

- It would be important to consider how far to extend sub-frontloading in the UK. Large retailers would need to be sub-frontloaded, so that they had adequate euro change in advance. But it might not be necessary to sub-frontload all small retailers early, as they could collect their supplies from their bank branches on or shortly after E-day. 'Fijndistributie' on the Dutch model would be unlikely to be required.
- UK banks and retailers would need to work out a way of ensuring that retailers received their supplies in time, and that the financial burden was fairly shared between them.
- This should be less difficult to arrange in the UK than in the first wave, as one of the main obstacles to sub-frontloading in a number of first-wave countries – the penalty regime against putting euro into circulation in advance of E-day – would not apply in the UK, given that the euro would already be in circulation.

What lessons can the UK learn from the first wave about the need for starter kits?

45 Starter kits of euro coin were in great demand from the public in the first wave, and supplies ran out in some countries before E-day. They served well two main purposes: helping to ease the initial shortage of euro change; and helping to familiarise the public with euro coin.

46 In the UK, many members of the public will soon be familiar with euro notes and coin, given the number of visits made by UK citizens to euro-area countries each year. And some will keep small amounts of euro notes and coin on their return. But a significant proportion of the population will not be in this position; and, with the UK 'out', it is highly unlikely that use of the euro will spread in the foreseeable future onto the UK high street, beyond the obvious tourist areas. In addition, the public would not be familiar with UK euro coins. So starter kits of euro coin would be helpful to familiarise those who have not used them; to familiarise the public with the UK face; and to provide change immediately after E-day.

47 It would also be possible in the UK to consider the sale of starter kits of low-denomination euro notes to the public before E-day, without infringing the Maastricht Treaty, since euro notes are now already in circulation. This might be one of a number of ways of distributing low-denomination notes to ease the changeover, particularly for shops, if they were not dispensed through ATMs. The main routes would be through sub-frontloading; over bank counters; and possibly in welfare payments at post offices.

What lessons can the UK learn from the first wave about a smooth cash changeover?

48 The most important lesson from the first wave is that a smooth cash changeover depends on swift acceptance of the euro by the public. In the first wave, this could not be

taken for granted. But, despite some antipathy to the euro before E-day, the public showed that they wanted to exchange all their holdings of legacy cash immediately after E-day, rather than spreading this out over the cash exchange period as a whole; their main route for doing so was exchange over bank counters; more high-denomination legacy notes than expected were spent in shops; and many people wanted to use up their legacy cash and try out the new euro cash rather than make more use of credit cards.

49 There can be no guarantee that the public response in the UK would be the same as in the first wave. But if it were, the lesson to draw would be the importance of explaining, through the information campaign, that there would be plenty of time for the public to change sterling into euro cash, and that it was not necessary to undertake the change immediately after E-day. There are a number of other lessons from the first wave about best practice that banks and retailers – along with the authorities – would need to consider in order to ensure that a UK cash changeover would take place as smoothly as possible.

- The public would need to be encouraged to return hoarded sterling cash before E-day, and particularly coin, through charity and other schemes. It might be possible to withdraw proportionately more sterling cash before E-day than legacy cash in the first wave, as euro notes would already be available in exchange; but care would need to be taken not to leave a shortage of sterling cash before the cash changeover. However, it would be prudent to assume that, as in the first wave, the bulk of sterling cash would only be returned after E-day.
- Banks and retailers in the UK would need to be equipped to handle a very much larger number of customers than normal: by increasing staff numbers for the cash changeover, appropriate staff training, the provision of information to customers, and effective management of queues (eg by having sufficient staff on hand, introducing numbered tickets, providing additional seating for elderly customers, and by forming different queues for different kinds of transaction, making clear at the start of each queue what service was being provided).
- A higher proportion of low-denomination notes than normal would need to be dispensed in sterling before, and in euro from, E-day through all available channels: ATMs; in change provided by retailers; at bank counters; and in social security payments, where relevant.
- Sufficient ATMs would need to be ready for immediate conversion to euro on E-day, as in the first wave, including 'off-site' as well as 'on-site' machines. The UK could learn from the first wave by: using first-wave models of best practice for modifying ATMs; and testing ATMs in advance, in as close to live conditions as possible, so as to pick up errors in the software and identify difficulties in the machines' ability to handle euro notes.
- The UK authorities would need to make it clear to the public, and banks to remind their customers, that they would not have to exchange all their remaining sterling cash immediately after E-day, but could exchange it at any time during the cash exchange period (and, most probably, for a defined period thereafter in banks, and indefinitely at the Bank of England). This would be a major feature of the UK information campaign.

- Banks would need to encourage their customers to return sterling cash by deposit in their bank accounts, and to withdraw euro from ATMs, so as to speed up each transaction. But banks would also need to be prepared to exchange sterling cash for euro cash, as many members of the public would be likely to insist on this.
- Large retailers would need to provide change only in euro from E-day. However, small shopkeepers, pub and restaurant owners might find it quicker and less complicated to provide change initially in the denomination in which they received payment from the customer.
- Large retailers would need to consider setting up temporary counters (to exchange euro for sterling cash) and installing machines (which provide a euro credit note when they receive sterling coin), while small shopkeepers, pub and restaurant owners might wish to operate separate tills for those with large amounts of coin to exchange or pay in.
- The public would need to be encouraged to spend small residual sterling cash balances in shops, and return high-denomination sterling notes to banks, while banks and retailers would plan for the possibility that, as in the first wave, many members of the public would do the opposite.
- The public would need to be encouraged to make more use of electronic payments (eg debit and credit cards) rather than euro cash, while recognising that this would be unlikely to have more than a marginal impact on public behaviour during the cash changeover.
- Banks would need to consider opening for their retail customers on E-day, if a public holiday, and extending opening hours in the period immediately after E-day.
- Vending machine operators would need to test and trial their machines with euro notes and all the euro-area national coins at an early stage before E-day. Early testing should be easier than the first wave, as vending machine operators would have changed over to euro notes and coin well ahead of E-day.

What lessons can the UK learn from the first wave about the withdrawal of sterling cash?

50 In addition, there are a number of lessons, both for the authorities but also in particular for the private sector in the UK, from the first wave about how to withdraw sterling cash, and obtain value for sterling cash returned, as quickly as practicable.

- The logistics of the withdrawal of sterling cash would need to be as carefully planned as for the introduction of euro cash, taking into account the experience of the first wave.
- In particular, the Bank would need to determine when it would give value for returned sterling notes.
- A reliable, quick and secure CIT company service would be needed on a sufficiently large scale, taking into account that the bulk of sterling cash would be unlikely to be returned by the public until after E-day.
- Sufficient secure storage would be needed at banks and retailers, not just to hold euro cash in course of distribution, but to hold legacy cash pending its withdrawal.

- Procedures for checking the return of coin (eg ensuring that it was returned in standard and robust packaging, and that sufficient machines were available to count it) would need to be agreed in advance so that they did not hold up the withdrawal process.
- The arrangements implemented in three first-wave countries for defacing legacy banknotes were regarded as potentially helpful in reducing the security risk, and might be worth considering in the UK.

Other aspects of a UK changeover

What lessons can the UK learn from the first wave about preventing criminal activity?

51 Like other countries, the UK already implements rigorously EU anti-counterfeiting and anti-money laundering regimes. These arrangements would be expected to remain in place, in the event of UK entry.

- *Money laundering* A UK cash changeover would provide both an opportunity for the authorities, through the banks, to enforce the anti-money laundering regulations, and for criminals to circumvent them. The experience of the first wave is that many high-denomination banknotes were spent in shops to avoid exchanging them in banks.
- *Counterfeiting* As UK bank staff, retailers and the public would already be more familiar with the euro in the run-up to UK E-day than was possible before E-day for the first wave, any counterfeits should be less difficult to spot. However, bank staff, retailers and the public would need to be made aware of the security features of euro banknotes and coin, and remain vigilant.

What lessons can the UK learn from the first wave about an information campaign?

52 First-wave experience suggests that it would be helpful in the UK clearly to distinguish the information campaign on completing the non-cash changeover, which would take place first, from the campaign on the cash changeover. In order to ensure a smooth UK cash changeover, a campaign with clear messages, wide coverage and for a sufficient period of time would still be required, even though many members of the UK public would be familiar with the euro from foreign travel. The messages that were most important during the changeover in the first wave were designed to convey: the visual appearance of euro notes and coin, including their colour and dimensions; their security features; their denominations; and the changeover stages and timetable. Any UK campaign would not, of course, be conducted only by the authorities. Banks and retailers would need to be at the heart of any campaign to explain the changeover to their customers. One of the lessons from the first wave is that the campaign should reach all members of the public, including vulnerable groups, those in remote areas and those without bank accounts. (Only about 5% of the adult population do not have some form of bank or building society account, although a higher proportion do not have an account capable of making or receiving electronic payments.)

What lessons can the UK learn from the first wave about dual price displays?

53 In general, the use of dual displays for pricing goods and services helped the public in the first wave quickly to adjust to the change from legacy to euro prices (though many people still do not 'think in euro' when they make large purchases). Apart from Austria, where legislation was introduced, and Greece and Portugal, where dual displays were also compulsory, voluntary agreements were sufficient to ensure that dual displays were used for a period before and after E-day. A voluntary arrangement should be sufficient in the UK. Care would also need to be taken in the UK, as in Ireland, to ensure that the public were not confused by the relatively close relationship between numbers in sterling and in euro, nor by the comparative similarity of the £ and € symbols.

What lessons can the UK learn from the use of odd conversion rates in the first wave?

54 Conversion rates (expressed to six significant figures) were unavoidable in the first wave, as eleven countries joined EMU initially at once, and their conversion rates against the euro were determined by their immediately preceding exchange rates against the ECU, which included some non-participating currencies (like sterling). However, odd conversion rates were confusing to the public, as they were difficult to remember. For the UK, there might be advantage in agreeing a more convenient conversion rate for sterling against the euro, if the broader economic circumstances allowed.

What lessons can the UK learn from the first wave about the impact of the changeover on prices?

55 Decimalisation in the UK in 1971 is still remembered as an event which caused price rises, even though there is little evidence to support this perception. The euro changeover is likely to leave a similar perception with the public in the euro area, despite the evidence of the official price indices, the efforts of the ECB and NCBs to allay public concern, the use of observatories across the euro area to monitor prices and the agreement among national authorities to round prices down in favour of the public. The UK authorities would need to pay particular attention to this issue.

What lessons can the UK learn from the first wave about changeover costs?

56 There is no reliable evidence on the costs of the changeover in the first wave. The costs varied considerably, depending on the country and institution concerned. Some first-wave banks spent twice or three times as much on preparing for the launch of the euro at the beginning of 1999 as they spent on preparing for the completion of the changeover at the beginning of 2002, partly because some of their preparations for the mass changeover were made before entry. However, the proportions should be more even in the UK, as under a phased approach preparations for the mass changeover would not be completed by entry.

What lessons can the UK learn from the first wave about conversion charges?

57 In accordance with the euro Regulations, banks would not be permitted to charge customers for the conversion of their bank accounts from sterling to euro at the conversion rate. Experience from the first wave suggests that best practice among banks was to convert unlimited amounts of legacy cash at bank counters, and to continue to do so, at least for

customers, during and for a time beyond the end of the cash exchange period. The Bank would plan to continue to exchange sterling notes into euro without charge indefinitely.

58 With euro notes and coin already in circulation in the euro area, there is a question whether UK banks would (or should be permitted to) charge for the conversion of sterling notes and coin into euro during the UK transition period after entry, but before the euro became legal tender in the UK.

What would the implications be for cross-border transfer charges?

59 If the UK joined EMU, the EU Regulation on cross-border transfers introduced at the end of last year would apply fully in the UK, though some of the requirements of the Regulation – transparency in charging, and provision of details of IBANS and BICs on all bank statements – will apply in the UK anyway, whether the UK joins EMU or not. From UK entry, charges for cross-border transfers (up to €12,500 from July 2003 and €50,000 from January 2006), and cross-border use of ATMs, could not be higher than for equivalent domestic transactions. Any penalties for infringing the Regulation would be set by the Government.

ANNEX A: PREPARING THE BANK OF ENGLAND FOR POSSIBLE UK ENTRY

As well as amendments to the Bank's finances, balance sheet and Statute, the following changes would be needed.

Monetary policy operations The Bank would need to change the way in which it would conduct monetary policy operations, in order to comply with the operational framework of the Eurosystem. This would also involve significant changes to the Bank's front, middle and back-offices.

- All credit institutions in the UK (ie some 450 banks and building societies) would be required to hold reserves, either directly at the Bank on a reserve account, or indirectly through another bank. The Bank would pay interest on minimum reserves at the ECB MRO rate. Each bank or building society would need to meet its reserve requirement on average over a (monthly) maintenance period, and the balance on its reserve account must never become negative. To implement reserve requirements, new Bank systems would be required; and banks and building societies would also need a real-time enquiry link, in order to identify their account balances during the day, and to make the necessary adjustments to meet the average level required.
- Banks and building societies would be eligible to have access to the Eurosystem marginal lending facility and deposit facility to be established at the Bank, at rates determined by the ECB Governing Council, provided that they fulfilled certain prudential and operational criteria; and, subject to the same criteria, they would also be eligible to apply to the Bank to become counterparties in Eurosystem open market operations. The Bank would receive bids for liquidity at the weekly and monthly ECB tenders, send the results in a timely way to the ECB and allocate the relevant amounts to the successful counterparties. By set times each day, the Bank would also provide to the ECB estimates of the Bank's own balance sheet, and a forecast of the liquidity position of the UK money market for the rest of the maintenance period (up to 25 business days ahead).

If the UK decided to join, one of the questions that would need to be considered is whether or not to introduce the main elements of the Eurosystem operational framework in the UK in advance of entry, so as to familiarise UK banks with the new system.

Payment infrastructure In addition, the payment infrastructure would need to change, and so would the Bank's interface with it. Implementing the changes required in monetary policy operations would be facilitated by the delivery of NewCHAPS and DvP.

- *NewCHAPS* A high volume wholesale domestic system for making euro payments would be needed, if the UK were to join EMU. The NewCHAPS project, which was completed last August, would provide this. The project was designed to replace outdated technology for making sterling payments with the more modern platform used now for CHAPS euro, allowing enhanced functionality. But it would also have the incidental benefit of enabling a single high-volume euro payment system to be readily established if the UK were to join EMU.
- *DvP* Similarly, a project to enhance DvP, by introducing settlement of securities in CREST against payment of central bank funds in real time in CHAPS, went live at the end of November, and therefore meets the ECB requirement that, by 2002, only systems of this kind are eligible for use in extending intraday credit in TARGET, as well as for Eurosystem monetary operations.
- *Enquiry Link* The upgrading of the Enquiry Link platform for settlement banks was completed last July, removing the capacity constraint on the number of banks that could have access to a real-time enquiry link, if the UK joined EMU, though further work is needed on new terminals.

Other changes EMU entry would require a number of other changes to the Bank.

- *Accounting systems* On entry, the Bank would need to adopt Eurosystem accounting conventions, which differ in some respects from accounting conventions under UK GAAP. The Bank would also need to ensure that it could meet ECB reporting requirements on time and in the format required.
- *Statistical requirements* The ECB requires monthly balance of payments figures. The UK has been supplying estimated data to the ECB since December 1999, but some additional work would be needed for UK entry. The ECB would also require monthly and quarterly returns on the balance sheet of the 'monetary and financial institution' (MFI) sector and statistics for MFI interest rates. The Bank would need to design new statistical forms to provide all the data required by the ECB for monetary policy purposes (and MFIs would need to adapt their own reporting systems accordingly).
- *Registrar's Department* The main tasks of the Bank's Registrar's Department would be: on entry, to handle the redenomination of gilts, using the method determined by the Government; and from entry, to handle the registration of euro-denominated gilts (and other registered stock), and generate dividend and redemption payments for them.
- *Banknotes* Finally, the Bank would also have to plan for the introduction, at the appropriate time, of UK euro banknotes in place of sterling banknotes.

ANNEX B: CHANGEOVER IN STERLING FINANCIAL MARKETS

Financial instruments issued before, and outstanding at, entry

(a) Nominal values

- *Treasury bills* If dematerialised, Treasury bills would be redenominated over the conversion weekend, using the same method as for gilts. The market would be consulted before a decision was taken.
- *Other money market securities (including CDs)* If dematerialised, there would be three main options: run off in sterling; redenomination on entry; or at a later date. The choice would be for the market. Any remaining bearer instruments would not be redenominated.
- *Bank deposits* The principal amounts outstanding on entry would not be converted (until the end of the transition period).
- *Syndicated bank loans* Except where the loan documentation makes specific provision for UK entry, the principal amounts outstanding and the total commitment would not be converted until the end of the transition period.
- *Gilts in registered form* would, under UK legislation, be redenominated on entry by individual holding (by each stock account), and rounded to the nearest euro cent. Index-linked gilts would continue to be linked to the UK retail price index.
- *Gilts in bearer form*, of which there are 13 issues, would be deemed to be redenominated on entry, but without requiring an actual exchange of paper instruments or physical 'stamping over'. The UK legislation covering gilt redenomination might need specifically to provide for this.
- *Gilts strips and other debt securities (including CP)* A convenient round minimum denomination in euro would be needed.
- *ISINs* on gilts and other sterling debt instruments should not change on redenomination.
- *Bonds by other issuers (sovereigns, supranationals and corporates)* Under UK legislation, sterling bonds by other issuers under English law could be redenominated, using the same method as for gilts; if corporate issuers wished to redenominate their sterling bonds, they would be encouraged to do so after the conversion weekend, to minimise the market's workload. If issuers did redenominate, the IPAA would prefer them to do so on a coupon date. Bearer bonds (eg sterling Eurobonds) would not be redenominated.
- *Share capital* Subject to any UK legislation, it would be up to companies whether, and if so when after entry, to redenominate their sterling share capital into euro, preferably using a method which left unchanged the number of shares held by each shareholder, in order to avoid corporate actions.
- *Over-the-counter derivatives* contracts outstanding in sterling at UK entry would be expected to run off in sterling rather than be converted into euro.
- *Exchange-traded derivatives* Open positions on *Short Sterling* contracts expiring after entry would be converted on a mandatory basis using a ratio set by the LIFFE Board. In the case of *gilt contracts*, all delivery months listed after a decision on UK entry would have a

notional value denominated in euro. The contract size would be determined after market consultation. In the case of *equity index contracts*, individual equity options would reflect the denomination in which the underlying share was quoted. On indices, a standard euro-denominated multiplier would be used for all newly introduced contract months.

(b) Cash-flow payments

- After UK entry, the Bank of England's Registrar's Department would make cash-flow payments (ie interest and repayment of principal) on *gilt-edged* in euro, and *issuers of other sterling debt* would make cash-flow payments in euro, whether or not the financial instruments concerned had been redenominated. Banks would need to convert euro payments into sterling for their personal and small business customers.
- In the case of *equities*, from UK entry, institutional investors would generally want payment in euro, but small investors in sterling. Company registrars would continue paying dividends in sterling, subject to the guidelines drawn up by banks, registrars and representatives of issuing companies. Banks would convert sterling payments into euro for institutional investors.
- *Euro/sterling swaps* would give rise to cash flows in both directions during the transition period. Market participants could choose for their payments to be made net or gross. If the latter, they could adhere to a Protocol to be published by ISDA similar to that for the first wave.

(c) Market conventions

- Short-term sterling-denominated *money market* instruments and interbank deposits would keep existing conventions, except in the case of LIFFE's Short Sterling contract, which already allows for the possible adoption of euro market conventions, in the event of UK entry.
- *Gilts* already use euro market day-count conventions (ie actual/actual). However, payment dates on gilts would probably change to TARGET business days, when gilts were redenominated. It is expected that gilts would continue to be issued with semi-annual rather than annual coupons.
- *Other issues of sterling bonds* currently use a day-count of actual/365 in the case of domestic issues, and 30/360 in the case of international issues. If redenominated, market participants would prefer market conventions (ie the interest day-count and payment dates) on these bonds not to change.

New financial instruments issued after entry

- *New financial instruments* issued after UK entry would be denominated in euro rather than sterling, as would the associated cash-flow payments. Possible exceptions might be: new issues within an existing class of share by companies which had not redenominated but were reopened.
- *Market conventions* New financial instruments issued in euro after UK entry would use the then prevailing euro market conventions, which differ from the currently used sterling market conventions in a number of ways (as described in the November 2000 *Practical Issues*, pages 96-97).

- *Day-count conventions* From UK entry, interest rates would be quoted with actual/365 for products that were not explicitly market-linked and actual/360 for market-linked rates, with appropriate annotation where the presumption did not apply. In the event of UK entry, all financial institutions would have to consider the day-count basis to be used for products and services for their personal and small business customers and the implications for their treasury management of any differences with the wholesale markets (see the June 2001 *Practical Issues*, page 112).
- *Settlement periods* If normal settlement periods in the sterling market were to conform to those in the euro market, this would mean changing to longer settlement periods, and increasing settlement risk, in some cases.
- *Business days* NewCHAPS and CREST, which would settle only in euro from UK entry, would have to be open on all TARGET business days. BACS and the Cheque Clearing could open only on days on which NewCHAPS was open, but would remain closed on UK Bank Holidays. Payments of interest and repayments of principal initiated on those days would only be settled on the following business day (but individual banks would be free to give value to customers on the actual day). If 1 May was a UK settlement day (ie where not a Monday), BACS and the Cheque Clearing would be open on that day. Exchanges, like the London Stock Exchange and LIFFE, might continue to be closed on UK Bank Holidays, even when these are TARGET business days, as is currently the case with many exchanges in the euro area.

Financial transactions undertaken before entry but settled afterwards

- *Over-the-counter transactions* It is not yet clear whether market practitioners would prefer them to run off or be converted, except for OTC derivatives, which would run off, though a limited number of market practitioners might agree to convert them on a bilateral basis.
- Transactions involving sterling *price sources* would be replaced with euro price sources. The WMBA has already decided that SONIA would be replaced by EURONIA. The BBA has not yet decided how it would replace sterling LIBOR and would consult the market before doing so. If sterling LIBOR (which is fixed on a t+0 basis) were replaced by euro LIBOR or EURIBOR (which are fixed on a t+2 basis), there would be a mismatch between the value date and the corresponding period starting date; as in the first wave, the market is expected to accept the distortions involved, but for sterling syndicated loans the treatment of fixings would depend on the provisions in the loan documentation (the available choices were described in the November 2000 *Practical Issues*, page 99, para 35).
- In the case of *gilts and any other debt instruments redenominated* on entry, financial transactions undertaken in sterling before entry but settled afterwards would, subject to market consultation, be settled in euro. Market firms would not reconfirm trades following redenomination, unless bilaterally agreed otherwise. In the case of *repo* transactions, market participants would be encouraged to change over to euro in a particular way (as in the November 2000 *Practical Issues*, page 99, para 37).
- In the case of *debt instruments* not redenominated on entry and *equities*, CREST proposes that transactions outstanding at entry should settle in sterling for a period of 25 business days after entry, when it would either convert to euro or request market firms to delete and reinput in euro.

Financial transactions undertaken after entry

- *Cash and derivatives* transactions undertaken after entry would be settled in euro, unless bilaterally agreed to settle in sterling.
- In the case of *debt* instruments, the consideration (including accrued interest) would be calculated in euro and settled in euro after entry.
- In the case of *equities*, the London Stock Exchange has proposed that all shares not already priced in euro (rather than sterling) before entry would be priced in euro from entry, and all equity transactions after entry should be priced and settled in euro (rather than sterling).

C USE OF THE EURO IN THE UK OUTSIDE FINANCIAL MARKETS

60 The euro has been extensively used in financial markets in the UK since its launch at the beginning of 1999. This section considers how much the euro has been used in the UK outside financial markets, by businesses and on the high street.

Use of the euro by businesses

61 The volume of retail payments made in euro within the UK remains very small, compared with sterling, and the vast majority of these payments are made by businesses. While the volume of euro retail payments rose at the start of this year, when legacy currencies were replaced by euro, the increase in retail payments denominated in euro has otherwise been slow (Table 2).

TABLE 2: UK RETAIL PAYMENTS IN APRIL 2002

	Euro		Sterling	
	Value	**Number**	**Value**	**Number**
Cheques	€421 million	63,000	£126 billion	158 million
BACS (direct credits)	€167 million	3,500	£144 billion	95 million

Source: APACS

62 APACS monitored the use of the euro by UK businesses and their future intentions through a monthly survey, until March. The results show continuing growth in the number of cross-border payments in euro, boosted by the elimination of legacy payments. By the end of the first quarter this year, around 750,000 cross-border euro payments were made and received by UK businesses per month.

63 The March survey suggests that 90,000 businesses have euro accounts. Nearly half of these businesses do not have accounts denominated in any other foreign currency. The euro has overtaken the US dollar as the most commonly held foreign currency account. At end-March, there were over 145,000 euro-denominated accounts at UK banks held by business and personal customers.

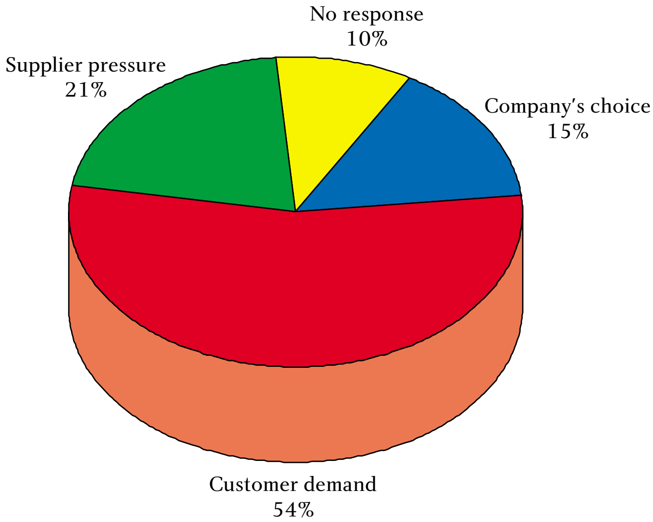
64 The Bank's Agents have continued to monitor UK corporate use of the euro (for external trade as well as domestic transactions) through their regular contacts. The results give an indication of usage of the euro by UK businesses and whether this is likely to increase. It would be misleading to draw firm conclusions from the results (they are based on a relatively small sample of companies and may not evenly represent all geographical regions or sectors of the UK economy). However, the exercise is useful since there are little other statistical data available.

65 The broad implications are as follows.

- The proportion of respondents' purchases from suppliers and sales to customers invoiced in euro has risen since the start of 1999, whilst the level of business conducted with euro-area suppliers and customers by respondents is little changed.

- Throughout the transition period, about 60% of companies predicted that the proportion of sales and purchases invoiced in euro would increase over time. But, by the first half of 2002, fewer companies (less than 45%) did so. Responses indicate that any switch towards invoicing and pricing goods and services in euro is driven mainly by customer demand (Chart 1).

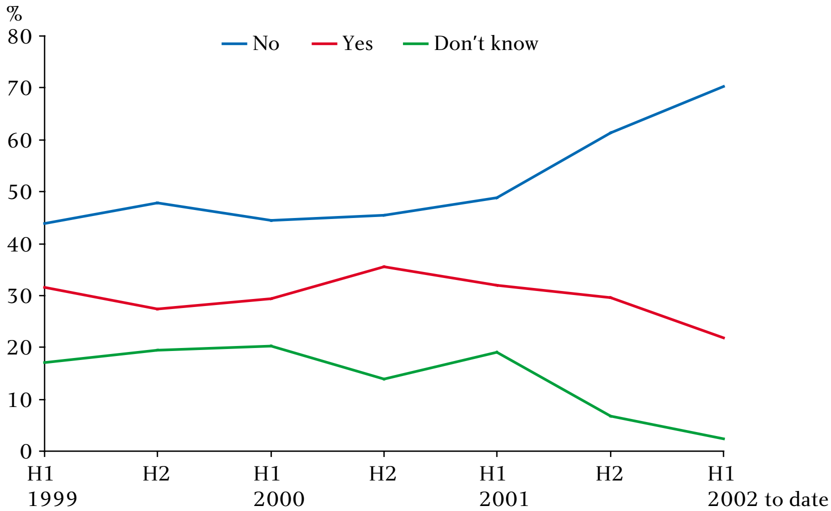
CHART 1: REASONS FOR SWITCHING TO EURO PRICING AND INVOICING



Source: Bank of England survey

- The majority of respondents said that the euro would not cause them to set common prices across the euro area, mainly because: markets were segmented nationally, allowing them to maintain price differentials; and the costs of sales and the regulatory environment varied in different markets (Chart 2).

CHART 2: WILL THE EURO CAUSE YOU TO SET COMMON PRICES ACROSS THE EURO AREA?



Source: Bank of England survey

Use of the euro on the high street

66 Only a very small proportion of UK businesses accept euro cash for payments and, where they do (often only in main tourist areas, such as Oxford Street), it is very rare that customers use it. Two of the major UK retailers that do accept euro banknotes for purchases both report that such payments accounted for only a tiny proportion of their turnover during the early months of this year. Euro cash transactions exceeded US dollar cash payments at Marks & Spencer, whereas at Selfridges the position was the other way round (Table 3).

TABLE 3: CASH PAYMENTS AT MARKS & SPENCER AND SELFRIDGES

	Euro usage in 2002	Legacy currency usage in 2001
Marks & Spencer	Less than 0.01% of turnover from clothing/homeware business, by volume during January and February	Similar levels
Selfridges	0.07% of turnover, equivalent to 0.37% of total cash payments, during the period from February to April	Only four currencies accepted (pesetas, lire, Deutsche marks and French francs). Usage represented a negligible proportion of turnover, or 0.02% of total cash payments, during the period from February to April 2001.

Source: relevant companies

Northern Ireland

67 By far the largest use of euro cash in the UK is in Northern Ireland. However, to date, it does not appear that the euro is being used more than the Irish pound previously. As with Irish pounds until the end of last year, retailers in border areas such as Newry and Londonderry do accept euro notes, but are reluctant to accept coin unless they have an easy means of recycling it. Some anecdote suggests that retailers in Belfast, and hoteliers throughout Northern Ireland, might be more receptive to euro than to Irish pounds, but the amounts involved remain a very low proportion of total sales, and it is too early to have a clear view.