



The Euro in the Swedish Financial  
Sector – experiences of the  
cash changeover in the euro zone  
– Progress Report 8

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# Preface

The last step to completion of the monetary union was taken on 1 January 2002 with the changeover of banknotes and coins in national currencies to euro banknotes and coins. This was a great logistical challenge that involved practically the whole of society in the twelve euro countries. Experiences have largely been good and the changeover of banknotes and coins took place without major problems or disruption to the economy. This report describes how the changeover of banknotes and coins took place in practice. The intention is to provide a picture of the preparations required, as information for possible future Swedish participation in the monetary union.

For the financial markets, the introduction of the euro meant changes in many respects. As the currency risk has disappeared in the euro area, a single eurocapital market has been created for the twelve euro countries. This has led to a partly new situation for the Swedish financial markets. It is therefore important to monitor use of the euro in Sweden. This report updates the statistical review that was most recently made in progress report no. 6 in 2001.

This report has been produced within the framework of the co-operation on EMU preparations between the Riksbank and the financial sector which is known as SIFS (Consultation and Information with the Financial Sector). The authors of this report are Björn Hasselgren, Johan Pontén and Helena Sjögren. In addition, Göran Ahlberg (Finansinspektionen – the Swedish Financial Supervisory Authority), Tomas Tetzell and Agneta Brandimarti (Swedish Bankers' Association), Björn Flismark (SEB), Leif Vindevåg (Stockholmsbörsen, Stockholm stock exchange) and Mats Wallén (Bankgirocentralen, BGC) have contributed material and valuable points of view. We wish to express our gratitude to them and to all the others who have contributed valuable points of view and assisted in the production of this report in other ways.

Stockholm, June 2002



**Eva Srejber**

Deputy Governor of the Riksbank



# Experiences from the replacement of banknotes and coins in the euro zone

## The practical implementation of the cash changeover in the euro countries

On 1 January 2002, the twelve countries now participating in the third stage of EMU replaced their national banknotes and coins by euro banknotes and coins. This was an extensive operation that made great demands on planning and collaboration between different sectors of society. In retrospect, there is general agreement that the replacement of banknotes and coins went smoothly in all of the twelve countries concerned and, in particular, that the changeover took place very quickly. Already a couple of days into 2002, the euro was being used for most cash transactions, and only a few of all the problems that were anticipated in connection with the changeover actually occurred.

Since 28 February 2002, none of the national currencies is legal tender, and the logistical effort that the replacement of banknotes and coins meant for the financial institutions, authorities and citizens in the euro countries is largely over. For Sweden, a change-over of banknotes and coins lies ahead of us if there is a yes vote in a referendum on Swedish participation in the monetary union. It is therefore important for all appropriate parties to benefit from the experience of how the exchange took place in the twelve euro countries.

During March 2002, representatives of the Riksbank visited some of the countries that changed over to the euro. The purpose of the visits was to discuss how the exchange from the national banknotes and coins to the euro took place in the different countries. This part of the present report contains information provided to the Riksbank during visits to Finland's Bank, the Central Bank of Ireland, De Nederlandsche Bank and the European Central Bank (ECB). Examples have also been taken from the reporting made by the European Commission and Sweden's embassies in euro countries during the changeover of banknotes and coins.

## Organisation in society

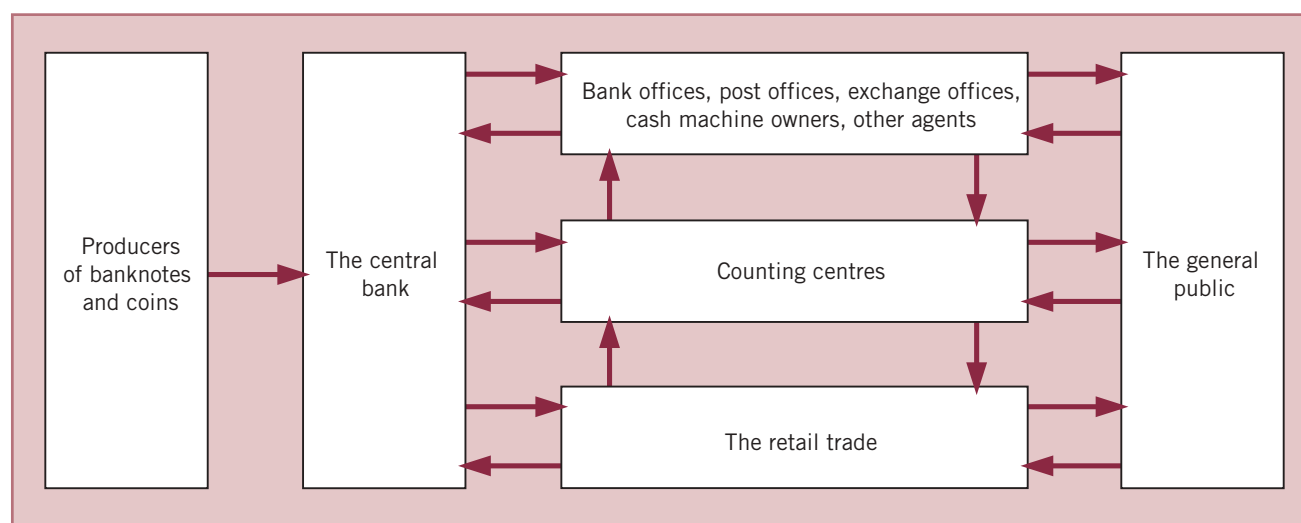
The organisation of the changeover has mainly been a national concern. The ECB has co-ordinated the exchange by establishing various common rules and guidelines, for instance, on frontloading and subfrontloading of euro banknotes and coins. These have then been adapted to the structure of society and the cash handling systems in the respective country. A number of the countries have had a similar organisation of their preparations, where the highest body has been a national steering group with an overview of society as a whole, which has had overall responsibility. These steering groups have been led by government, often by the Minister of Finance, and have served as the co-ordinating body and stood for the choices of direction and policy decisions required to drive the work forward. Various sub-groups to the steering groups have been set up with responsibility for the practical details for the introduction of the euro within the various sectors of society. This type of organisation corresponds to that introduced by Sweden in 1997 with a view to preparing possible Swedish participation in the third stage of EMU.

## Central bank planning and internal organisation

The central banks in the respective country were mainly responsible for the practical details of implementation of the changeover of banknotes and coins. This was natural since the central banks normally bear ultimate responsibility for distribution of cash and have the role of monitoring the cash system. The central banks also have access to the channels of distribution for banknotes and coins and have thereby been responsible for the practical co-ordination of the changeover of banknotes and coins.

In order to facilitate the introduction of the euro, a number of the European countries have refrained from making any major changes in the cash handling structure that they already have. See figure 1. Planning has thus been based on everyone in the cash cycle

Figure 1. The cash cycle – schematic structure



doing what they normally do even if the volumes handled are considerably greater.

This has worked well in many cases although in some cases extraordinary solutions were required for the changeover to proceed smoothly. In particular for changeover of coins, it has been necessary to depart from the usual routines because of the large volumes.

Within the central banks, project groups were set up, mainly with personnel from the cashiers' departments.

Close collaboration was initiated with other agents in the cash cycle, such as banks, post offices, trade, bureaux de change, cash transporters, and others. In one country, the central bank decided to use external project manager expertise to run the work in the project group while other countries found the required competence at the central bank. The work of the project groups was then linked to the overarching organisations at government level. The central banks also had ECB's committees and their sub-groups as fora to discuss the changeover and find solutions to certain issues. Committee work also played an important role for countries for the practical implementation of the legal documents produced by the ECB for the changeover of banknotes and coins. The central banks have generally underlined that it has been important in their work to focus on the practical aspects and leave policy issues to the national organisation.

### Production of euro banknotes and coins

Production of euro banknotes was based on an ECB decision adopted in June 1998<sup>1</sup>. It was stated there that the ECB decides on the design of the euro banknotes but that production would be decentralised. Accordingly, each country was responsible for producing its own requirements of banknotes and coins for the introduction of the euro. Thus, the ECB did not organise any pooling procedure at this stage but only a few bilateral agreements were entered into for this purpose. It was up to the national central banks to decide on the quantities to be produced both for the introduction and for logistic stocks, although this was subject to subsequent approval by the ECB<sup>2</sup>. During the years up to the actual changeover, these quantities were revised a number of times and, particularly during the final year, production of low-value banknotes was increased markedly. In addition, the ECB decided in March 2001 to build up a reserve stock to use if a deficiency occurred anywhere in the Eurosystem during the introduction phase. This stock was used in a few cases. The residue of the reserve stock will be merged with the more long-term strategic stock that is being built up within the euro area.

Unlike the banknotes, the design of the euro coin is agreed by the ECOFIN council – while the quantities produced are determined by the ECB. This is taken

<sup>1</sup> ECB/1998/6.

<sup>2</sup> ECB/1999/10, ECB/2000/17.



care of on the same principle as the banknotes – the countries estimate the volumes required and these are then approved by the ECB<sup>3</sup>. Since the coins have a national side, it was more difficult to collaborate between mints as regards production of different denominations than in the case of banknotes.

As all participating countries with the exception of Greece had a changeover period of three years before the changeover of banknotes and coins took place, there was time to produce new banknotes and coins. This time was necessary since manufacture of new banknotes and coins always involves some time-consuming testing procedures. Greece had a shorter period of time for production of banknotes and coins since it only joined the monetary union in 2001. However, production had already been prepared in good time there before entry and it could start as soon as the country had joined the monetary union. The Greek central bank was also assisted by other printing presses and mints in the EU in production of certain denominations. In this way, Greece also had its need of banknotes and coins met in time for the changeover to euro.

### **Estimated and required volumes**

The total volumes of euro banknotes and coins that had to be produced were approximately 14.5 billion banknotes and over 51 billion coins<sup>4</sup>. This includes both the banknotes and coins that were put into circulation and the countries' more short-term logistical stock. Retrospectively, these quantities proved to be somewhat too large, which will reduce production requirements in the coming year. In particular, the low-denomination banknotes were needed to a great extent during the actual introduction in order for the euro to start to circulate freely. After the introduction, the need has declined and a large part of the banknotes have been returned to the central banks. In some countries, the same has applied to coins. Since the need for large volumes of low-denomination banknotes and coins during the first weeks of the year could be anticipated, large stocks of these were built up for the changeover. It should be emphasised that a deficit situation would have meant

considerable economic disruption and that production of banknotes and coins was important to maintain a high level of readiness.

When production was planned in the respective country, it was largely based on the banknote and coin denominations of the national currency used, which were then converted into euro. For Sweden, this would mean that a lot of ten and fifty euro banknotes would be needed since 100 and 500-kronor banknotes are extensively used. This quite simple rule of thumb has, however, been seen to result in inappropriate division of banknotes and coins in euro in many countries, and the distribution in denominations being somewhat distorted. It seems quite simply as if the general public demand a different composition of currencies in euro than in the old national currencies. It is conceivable that it is the denominations distributed in cash machines that control demand for cash rather than force of habit. A somewhat distorted distribution of production can be corrected to comply with demand in coming orders of banknotes and coins, so that this need not be a major issue.

In Finland, rounding-off rules were introduced to the nearest five euro cent as was previously the case for Finnish marks. This meant that the need for one and two cent coins in Finland is small, and Finland's Bank therefore only produced a negligible quantity of these coins to start with. The coin is, of course, legal tender in Finland although it was not thought that extensive production would be required. However, this had the effect that the Finnish one and two-cent coins became a rarity for coin collectors and the prices of these rose above their nominal values. Finland's Bank therefore had to increase production with a view to reducing prices again. This experience has a bearing on the Swedish situation if the euro were to be introduced here since similar rounding-off rules would apply in Sweden. The Finnish experiences are relevant as to the production volumes that are required to keep down the prices of low-denomination coins in the second-hand market.

### **Difficulties in production**

The greatest difficulty in production of both euro banknotes and coins was that they were all to have the same technical characteristics regardless of where they were produced. This is extremely important for the

<sup>3</sup> EC/975/98, EC/423/99.

<sup>4</sup> Press release from the European Commission (IP/02/368) for the European Council meeting in Barcelona, 14-15 March 2002.

banknotes and coins to function in all vending machines throughout the euro area. Exact technical specifications were adopted by the ECB at an early stage. The countries then had to make investments in quality control equipment so that no banknotes and coins were issued that deviated from the specifications. Many countries reported difficulties in keeping manufacture within the technical specifications, in particular with regard to coins. The reason for this is that the national front sides have different patterns which give rise to different conductivity, which the machine can be sensitive to and thus reject the coin. The coins had to undergo a lot of careful tests before production could start and it was of the utmost importance that the coin did not deviate in the least from the specifications. This seems to have been successful.

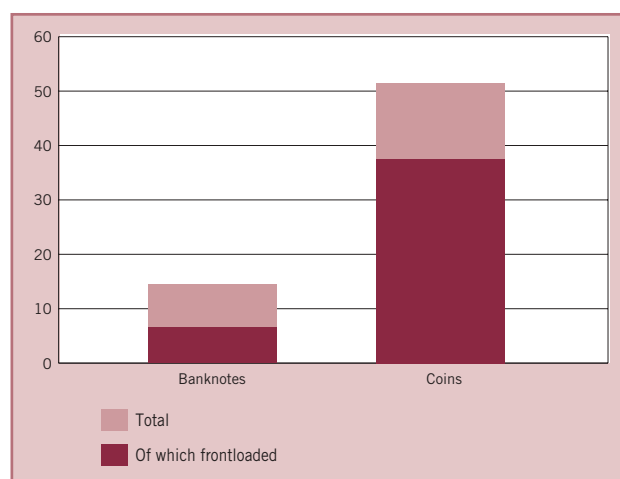
While there have been reports in the media on incorrect banknotes and coins in circulation, these are isolated instances that represent negligible volumes overall. There have been some problems with deliveries of material for banknotes and coins but on the whole production has worked well. Banknotes and coins were made available to the vending machine industry for testing a long time before the introduction, and this simplified the manufacturing process.

## Frontloading of banknotes and coins – extent and difficulties

Distribution of euro banknotes and coins was well prepared in all countries in the euro area already prior to 1 January 2002. Euro banknotes – in particular in small denominations – had been distributed in advance on large scale to both banks and the retail trade since September 2001. Coins were distributed during December, primarily to the retail trade and the general public. Without frontloading and subfront-loading, the changeover would have been considerably more logistically complicated, so that it can be regarded as having been crucial for successful introduction. In all, 6.5 billion notes were distributed in advance of the approximately 14.5 billion that were produced before the changeover. 37.5 billion coins were also distributed before 1 January 2002, that is 73 per cent of the total volume produced or 97 per cent of the coins that were in use at the end of January 2002. See figure 2.

This made it possible to get the euro into circulation quickly, which would otherwise have been complicated by the lack of transport capacity. Information from Finland's Bank on frontloading is similar; at the end of last year almost 60 per cent of the estimated issue requirement for banknotes and over 70 per cent of the coins were at the **banks**.

**Figure 2. Total number of distributed banknotes and coins in the euro area, billion**



Source: ECB

In order to be considered for frontloading, the banks had to sign an agreement with the respective national central bank in accordance with ECB's guidelines. The banks must also provide collateral for the value distributed in advance, and insure it against damage and theft. Value dating of the euro distributed in advance took place in accordance with a model produced at ECB<sup>5</sup>. This means that euro banknotes and coins frontloaded to credit institutions would be debited to their accounts at the central bank at a third of the sum on three occasions: 2 January, 23 January and 30 January 2002. Distribution to the banks started in most countries in September 2001.

In order to further facilitate distribution of the euro, the banks could sub-frontload the euro to the **retail trade and other service undertakings** such as restaurants, hotels and taxis. This took place mainly in December and primarily concerned coins and low-denomination banknotes for change. In this case as well, an agreement was required between the

<sup>5</sup> The guidelines of the European Central Bank of 10 January 2001 adopting certain provisions on the 2002 cash changeover (ECB/2001/1).

undertaking and its bank in accordance with the ECB's guidelines on changeover of banknotes and coins and insurance had to have been taken out. The banks provided collateral not only for the value of cash they had in stock but also for the cash that had been subfrontloaded. Businesses had to pay interest on the subfrontloaded cash from the date of delivery and there was therefore an interest in having as late a delivery as possible, which made demands on transport at the end of December.

It was mainly low-denomination banknotes that were frontloaded and subfrontloaded to banks and the retail trade respectively. This was necessary to avoid there being a shortage of change during the first days. In addition, the banks in some countries had loaded cash machines with five-euro banknotes to reduce the retail trade's need for change. In the Netherlands, estimates were made at the central bank of how many banknotes and coins would be required as change by the retail trade, and on the basis of these estimates, the central bank issued recommendations to other agents in the cash cycle as to how much should be ordered in advance. This worked well and only a few stores encountered problems due to shortage of change. This deficiency primarily arose due to overdistribution of 50-euro banknotes in some cash machines, see below. Some shortage of change was also reported in France, where requirements seem to have been slightly underestimated.

It was important to ensure that no euro appeared in the market before 1 January 2002 and thus no euro were distributed to the **general public** before mid-December. The procedure for distribution of coins prior to the introduction date differed from country to country. In the Netherlands, for instance, coins were distributed free of charge to all citizens over six years of age while coin sets in other countries were sold at their nominal value. These contained coins to a value of between 3.88 and 15.24 euro. In this way, the general public quickly became familiar with the euro coins and advance sales created interest in the new currency. In a number of countries (for instance, Finland and Ireland) the central bank exchanged some larger "business packets" that contained both banknotes and coins intended to prepare small enterprises for the changeover.

A few months after the introduction of the euro, it has been seen that large quantities of euro banknotes

and coins are flowing back to the central banks. The reason for this is that the quantity of banknotes and coins needed for the euro to circulate during the first days was far greater than the long-term requirement. In Finland, for instance, almost 13 per cent of the frontloaded coins were returned by the end of February as well as a large proportion of the low-denomination banknotes.

### **Provision of change in euro**

An important factor in the changeover of banknotes and coins proved to be cash machines since a large proportion of euro banknotes were distributed through them. Many banks were closed on 1 January 2002 while an enthusiastic general public wanted to quickly get hold of the new banknotes and coins, preferably already on New Year's Eve. There was thus great pressure for the cash machines to be changed over to euro as quickly as possible at the year-end, which was done successfully. Already by 2 January, 91 per cent of the cash machines in the euro area had changed over, and only a couple of days later they all supplied euro banknotes. The importance of the fast changeover should not be underestimated, in particular for countries such as Finland, where normally approximately 85 per cent of the banknotes are distributed via cash machines.

As mentioned above, the denominations used in cash machines varied from country to country. Many opted to distribute low-denomination banknotes this way, and where there was access to cash machines with four cash cassettes, it was easy to cover the denominations EUR 5 to 50. Despite good estimates of the *total* demand for banknotes and coins in the Netherlands, there was no agreement on the denominations that amounts should consist of in withdrawals. For instance, it would have been advantageous if cash machines had distributed a number of five and ten euro banknotes for EUR 50 withdrawals to increase the circulation of these. However, as it was many people who withdrew EUR 50 in a cash machine simply received a 50-euro banknote. This meant that the retail trade had to change more high-value banknotes than planned. As for other types of cash machines, it has been reported, for instance, that vending machines for petrol did not initially accept euro banknotes. However, this was a temporary problem.

Giving change in euro took place in different ways in different countries. Of course, help was needed from everyone handling cash. Despite this, long queues formed in some places. However, customers seem to have been prepared to accept this relatively patiently perhaps because many were on holiday at the time. The situation in the retail trade improved quickly although it took somewhat longer at the banks. In a number of countries, the banks were open longer than usual to cope with the onrush of customers which was viewed positively. However, it has been reported that some banks did not want to just to give change but wanted the cash to be deposited in an account first before being made available. This created some discontent which could probably have been avoided with better advance information to customers. However, it was also the case that banks charged fees for giving change despite their having agreed in advance not to do so.

In many countries, the pressure was heaviest on the banks. In Finland, where use of cash resembles Sweden's<sup>6</sup>, the retail trade had to handle a large part of the provision of change since the banks engage in cash handling to a quite small extent. In general, turnover in trade seems to have increased before the changeover, which coincides in time with an increased use of cash in the same period. During late autumn 2001, many consumers quite simply opted to consume more than usual, or to use a credit card when shopping to get rid of or avoid retaining national currencies and coins. This example shows the importance of the central bank, banks, post office, and the retail trade and other undertakings that handle cash working together in order to carry out a banknote and coin changeover of this magnitude.

### **Handling banknotes at the central banks**

Handling of banknotes at the central banks in conjunction with the changeover seems largely to have taken place as planned. The euro countries cash handling system has without exception coped with the large volumes of banknotes by upgrading counting capacity and storage space. The distribution of euro banknotes has not made any demands on equipment

to start with since they came fresh from the printing press. However, the national banknotes had to be counted and checked for authenticity before they could be destroyed. The central banks therefore needed additional staff to count the national banknotes and in certain cases it was also necessary to invest in new banknote sorting machines.

There were some difficulties in upgrading sensors in the banknote sorting machines for checking authenticity. When the first euro banknotes started to come back for counting at the central banks, it had to be possible to deal with parallel currencies, which required both a number of machines in euro and some for the old currency. This was not a problem per se although since every country had to upgrade the sensors in the machines at the same time, delivery times became extended for the necessary software, and installation in some countries was ready at the last moment.

When the old national currencies had come in to the central banks, they were counted, checked for authenticity and then cancelled as they arrived. Ireland and the Netherlands had cancelled practically the whole stock of banknotes already at the beginning of March while other countries required a longer time in certain cases. The extent to which countries manage to cancel banknotes depends naturally on the rate at which the banknotes flow in. It is not per se a problem to have invalid banknotes in stock at the central bank other than it requires storage space so that there is no reason to force the pace unnecessarily.

### **Handling of coins at the central bank**

Since coins are both heavy and bulky, handling these has as mentioned required the greatest preparations before the changeover. The normal channels of distribution were insufficient to deal with the large quantities and special solutions had to be designed for the introduction of the euro. At the same time, it was endeavoured to make changes in ordering procedures and transport routes at an early stage so that banks, post offices and the retail trade would be used to the new procedures when the actual changeover took place.

The countries that do not have such a dense network of branches throughout the country as France and Germany, for instance, have in many cases opted to

<sup>6</sup> As regards structure, while rate of circulation and quantities differ from the Swedish.

separate handling banknotes from coins and have designed special solutions to deal with coins. The Netherlands, for instance, removed coins from the normal cash cycle and created a coin centre in the centre of the country. This coin centre carried out all packaging of orders, manufacture of starter packets, counting, checking authenticity and distribution of coin. The building contained both the activities of the Dutch central bank and the counting centres for coins operated by security companies, all with a view to co-ordinating orders, coin transport and staff requirements to the greatest extent. This organisation worked well although it involved changed ordering procedures.

A similar organisation was used in Ireland where two coin depots were set up in the country for both distribution and cancellation of coins. These were supervised by a cash transit company which was responsible for both distribution of euro and withdrawal of Irish punt. However, an exception was the large retail chains which received deliveries directly from the Irish central bank, after instructions from the depots, with a view to minimising the amount of transportation. In both Ireland and the Netherlands, the depots were rented premises, although the central banks were responsible for inspecting activities and security and made the necessary checks of handling.

In Finland, the five branch offices at the disposal of Finlands Bank were used for distribution. However, a large part of the coins never needed to pass through the branch offices, which would have had a shortage of space to store the coins. The coins were instead transported directly from the mint to the customer who placed the order.

### **Withdrawal of the national currencies**

In a number of countries, the central banks endeavoured to withdraw some of the national currencies and coins during autumn 2001 to reduce the workload in January 2002 if possible. In this way, the central banks aimed to avoid issuing national coins in 2001 and to avoid unnecessary expense. The result varied from country to country. Finlands Bank launched a withdrawal campaign during the second half of 2001, although it produced fairly small results. Even after the introduction of the euro, some months into the year a considerably smaller quantity of Finnish marks

had been received by the central bank than expected, and this pattern was repeated in a number of euro countries. It should be added that the fact that there are still unreturned national coins is not a problem since they are not legal tender and can only be redeemed at the central bank within a certain period. The period for redemption differs between euro countries, see progress report 7.

In Ireland, a reactivation campaign for coins was organised in 2001 with the message that the general public should use the coins they had at home. This led to the quantity of coins in circulation increasing very little during the year and the starting position of the coin changeover was improved. The central bank also had good assistance from charity organisations which were active and accepted coins in all currencies which they then sorted. Without the aid of these organisations, the handling of the national coins could have been more complicated. However, no special measures were undertaken to withdraw banknotes in advance but this took place very quickly during the changeover period without special measures. In early March 2002, almost the whole expected quantity of banknotes had been received by the central bank and counting and authenticity checks of these had almost been completed.

In the Netherlands, the central bank launched "savings weeks" together with the banks from mid-October when the general public were urged to deposit their banknotes and coins at the bank. This went better than expected and the quantity of banknotes circulating was reduced markedly. A positive effect was also that the general public at the same time took the opportunity of depositing their surplus coins which created an inflow of 680 million coins. This is equivalent to approximately a quarter of the coins expected to be received in total during the changeover. As in Ireland, the central bank had succeeded in processing the national banknotes in the first two months of 2002 and in coming years only a marginal additional flow is expected.

A number of countries have experienced that transport was inadequate during withdrawal of the national banknotes. Priority was given to the distribution of euro in these situations and the national currencies therefore continued to be held by the banks, the cash transporters and the retail trade. This created

problems for the latter as regards storage capacity and insurance ceilings that were exceeded. In many countries, this also led to the central bank not managing to account for banknotes and coins and since, their value dating was delayed, the banks lost interest income. Discussions have taken place during spring 2002 as to the extent to which this can motivate financial compensation to the banks.

## Transportation and security

It was feared in the run-up to the changeover of banknotes and coin that transport capacity would be inadequate and that it would be difficult to maintain the level of security for the large number of transports. These fears were proven correct to the extent that there was a shortage of transport capacity during the first weeks of the changeover. However, the normal level of security could be maintained and only a few incidents took place in connection with transportation.

Transportation was overall very well prepared although despite this some disruptions occurred. Naturally, all available cash transit undertakings were involved in the changeover and, for instance, in Ireland the two major actors increased the number of vehicles to be able to cope with the large volumes.

In many cases, the central banks delivered coins and low-denomination banknotes directly to the retail trade to ease the burden on the cash transit firms. As the changeover took place much more quickly than expected, even greater demands were placed on the transport organisation in countries than had been anticipated. The distribution of euro banknotes and coins was given priority to get circulation started quickly and only thereafter could transport of the national currencies back to the central banks be attended to. As has been pointed out above, this led to the retail trade and banks in some countries having large sums of the national currencies on their premises. This problem was quickly alleviated, however, as soon as the whole changeover was finished after about a week, and when this peak was over, work could continue as planned.

As for the security risks, the cash transit undertakings were concerned and at least in one country demanded that substantial measures be taken to

guarantee their security. This was solved by a well-prepared plan for guarding transports with the aid of both police and the military. The guarding efforts were also published in the media to deter attempted robbery and this seems to have succeeded.

## Money laundering

Prior to the introduction of the euro, it was anticipated that there would be an increase in attempts at money laundering, since large quantities of black money would have to be exchanged before the national currencies became invalid. To reduce the extent of money laundering, the contacts of the supervisory authorities in the euro countries with the financial institutions were intensified and recommendations were addressed to them on how they should act with regard to this issue during the introduction of the euro. Examples of recommendations were that existing rules should be strictly applied and that suspected cases of money laundering should be reported without delay. Moreover, a number of countries issued information to the general public on the rules for changeover of the national currency.

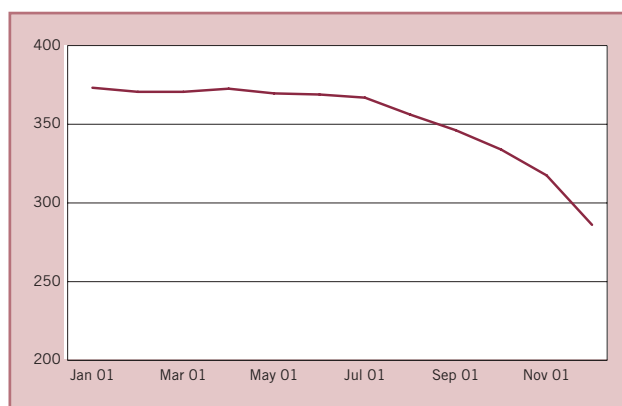
In a number of countries, there seems to have been an increase in the number of reported cases of money laundering in connection with changeover of banknotes and coin. In some cases, investigation of this type of crime has not been given priority. Instead, the centre of gravity of the initiatives has been placed on carrying out the changeover in a smooth way. Moreover, as previously been mentioned, there was an increase in trade with capital goods, which indicates that a quantity of black money can have passed through the retail trade.

However, some countries such as Ireland and the Netherlands have not noticed any marked increase in attempted money laundering prior to the introduction of the euro. In Finland, money laundering is not normally considered to be a big problem since the country has a low amount of money and a high share of card payments. During the transition to the euro, a slight increase in the number of reported cases was noted, but this may be due to the banks taking the initiative to lower the threshold for reporting prior to the changeover.

### Development of the quantity of money prior to the introduction of the euro

In most European countries, the value of the banknotes and coins in circulation (M0) fell during the months prior to the cash changeover, which complied with the usual pattern. Normally, cash increases in circulation greatly in December due to Christmas shopping and the year's peak value is usually just before Christmas. In 2001, M0 fell instead throughout the autumn, probably because the general public started to dispose of their cash before the changeover of banknotes and coins on 1 January 2002. See figure 3.

Figure 3. The value of banknotes and coins in circulation in the euro area in 2001 in billion euro.



Source: ECB, Evaluation of the 2002 Cash Changeover, April 2002

This pattern was clearly seen in the Netherlands where M0 fell by almost 40 per cent in the course of the second half of 2001. In particular, it was the high-denomination banknotes that accounted for this reduction. In Finland as well M0 fell by almost 15 per cent between August and December 2001 while in Ireland only a marginal reduction of the quantity of banknotes was noted. The inflow of banknotes and coins to the national central banks took place both through consumption and through deposits in bank accounts. The latter led in Finland to an increase of around 12 per cent of the quantity of money-supply definition M1, which includes both cash in circulation and the general public's cheque accounts at banks.

In some countries, there was no effect on M0. This applies above all to those countries where large parts

of the outstanding quantity of banknotes and coins were thought to consist of money "stuffed in mattresses" and black money. A large part of these are naturally in high-denomination banknotes. Since these had to be exchanged on introduction of the euro, they came back into circulation mainly by consumption of capital goods and antiques, which led to the retail trade having large quantities of high-value banknotes just before and after the turn of the year. In some cases, the banks were also able to note an increase in deposits of over 10 per cent at the beginning of the year compared with January 2001.

Overall, the changeover was simplified by the amount of banknotes and coins outstanding continually being reduced from mid-2001 to the introduction of the euro, which is shown in the figure above. The usual upswing in the quantity of cash during Christmas did not take place in most countries.

### Impact on inflation

In the Eurostat's indicator for January 2002<sup>7</sup>, it was noted that the price level in the euro countries, measured in harmonised consumer prices increased by 0.5 per cent between December 2001 and January 2002. However, the largest part of this is not thought to have been caused by the cash changeover but was due to large increases in prices of vegetables due to poor weather, and also to tax increases on tobacco. The effect of the changeover to euro is expected to be somewhere in the interval 0.0-0.16 per cent.

It often came up in discussions prior to the cash changeover that prices could creep up in connection with conversion of prices, leading to higher inflation. This issue has attracted particular attention in Finland since it was decided to round off cash payments to the nearest five cent there.

From other countries, it has been reported that small daily expenses have become more expensive, in particular in the hotel and restaurant sector. Whether this is a psychological effect due to increased price awareness or a real inflation-driving effect will undoubtedly be subject to further discussions and investigations.

From the Netherlands, it has been reported that price increases at the year-end have been greater than normal, which can partly be derived from the

<sup>7</sup> STAT/02/23.

introduction of the euro. However, it is not expected to lead to a durable increase of inflation but to return to normal levels relatively quickly. Prices have also increased slightly since December 2001 in Finland. Finland's Bank has still not made any complete analysis of how large an effect the cash changeover has had on the price level but nothing has been found initially to indicate any great inflationary pressure due to the rounding-off rule.

In France, voluntary sector agreements were encouraged on a price freeze during the period November 2001-March 2002 which seem to have been effective.

## Summary

Already a couple of months after the changeover of banknotes and coins to euro in the countries which are now participating in EMU's third stage, there is almost no trace of the big project. In retrospect, the individual initiatives taken appear as an exceptional operation carried out at all levels.

In all twelve countries, steering groups and working groups led by the Government were formed, in which all different sectors of society were later involved. The central banks were responsible for production of euro banknotes and coins, and the practical changeover of banknotes and coins. One difficulty was to estimate the volumes of banknotes and coins needed prior to introduction and some countries overdimensioned production. However, the only effect of this will be that production in the coming year will be less than estimated.

An important factor in the changeover was the frontloading and sub-frontloading to banks, the retail trade and the general public. In all, approximately 40 per cent of the banknotes were distributed in the euro area, and almost 75 per cent of the coins. This led to the whole of society being well prepared for 1 January which in turn reduced the pressure on cash

transportation. The fast changeover of cash machines in the euro area also contributed to a great extent to the changeover going so swiftly. As expected, there were long queues at banks and in the retail trade to exchange the national currencies in the first week of the year but this seems to have alleviated quite quickly.

Naturally, there has been great pressure on the central banks to process the old national banknotes and coin. In particular, coins were a problem since they are heavy and therefore difficult to handle. A number of the euro countries opted to deal with coins at special premises with a different chain of distribution than that for banknotes. The central banks also tried to withdraw some of the coins during autumn 2001 to spread the inflow to some extent although the results were not so substantial as anticipated. However, this meant that the quantity of money circulating in some countries did not increase during the year, as it usually did but remained constant.

As a rule, the countries have not experienced bottlenecks in sorting banknotes and coins but it has been the transportation capacity that has experienced capacity problems in the changeover. The banks and the retail trade had to keep national banknotes and coins before they could be transported to the central banks, which has led to problems with storage capacity and the insurance ceiling for those concerned. Moreover, in certain countries, value dating of cash deposited has been delayed for some days. What is positive in this context is that it has been possible to maintain the security of transport and storage and only a few incidents took place in connection with the changeover.

Overall, the outstanding quantity of banknotes and coins reduced greatly during the second half of 2001 instead of as usual increasing primarily in December, which contributed to simplifying the changeover. The initial price increases on introduction of the euro seem to be limited. The more long-term effects remain to be investigated, however.



# Use of the euro in Sweden

## The euro in the Swedish financial market

With the introduction of euro banknotes and coin in the twelve euro countries, there is reason to once more shed light on the use of the euro in Sweden and the extent to which this has changed. There were expectations already in 1999 that the irrevocable fixing of the exchange rates of the national currencies to one another and the introduction of the euro as an electronic currency would lead to a spontaneous changeover to the euro in Sweden, or rather in parts of the Swedish financial system. As the SIFS Group noted in progress report 6, this was not the case. Use of the euro remained a relatively marginal phenomenon in Sweden.

Even at the beginning of 2002, this picture is still largely valid: activity by Swedish financial agents in the euro market is relatively limited. Some increased use of the euro can be noted although this mostly involved marginal changes. There are a number of conceivable causes for the limited Swedish use of the euro but one of the foremost is probably the exchange-rate risk. In addition, there is the fact that the financing cost for Swedish agents in the euro market compared to other alternatives did not become lower; the interest-rate difference between Sweden and the euro area was less than expected. Probably, the delay in the decision whether Swedish should participate in the monetary union or not has also had an impact on the use of the euro in Sweden, among other things, to the extent that certain opportunities for handling transactions in euro (opening accounts in euro, listing shares in euro on the Stockholm stock exchange, keeping accounts in euro, etc.) have been used to a lesser extent than expected. However, the Swedish financial market is also affected by the structural changes in the market place, payment systems and products that the

introduction of the euro and the increased financial integration have driven forward, a development that has intensified in the recent period.

## The euro in the Swedish monetary financial institutions

The Riksbank collects financial market statistics every month from Swedish monetary financial institutions (MFI)<sup>8</sup>. A review of these statistics show that the euro accounts for a relatively small share of MFI's balance-sheet total.

The **Swedish krona** accounts for the largest share of the balance-sheet total, see table 1 and figure 4. In December 2000, the krona accounted for 74 per cent on the assets side and 60 per cent of the liabilities side although this proportion has fallen since January 1999, when the corresponding shares were 78 and 70 per cent respectively. Among the Swedish monetary financial institutions, banks are the wholly dominant actors. Of a total of SEK 331 billion in euro on the assets side (December 2001), SEK 285 billion appeared in the banks' balance-sheet totals. On the liabilities side, the banks are equally dominant. Of a total of 347 billion kronor in euro, they account for 276 billion. See table 2.

The reduced proportion of kronor only corresponds to a small share of an increased share of euro in the balance-sheet total. Instead, it is the proportion of **foreign currencies other than euro and other EU currencies**<sup>9</sup>, i.e. including the US dollar, which has increased most compared to 1999. During 2001, the tendency has been clear on the liabilities side, where the proportion of other currencies has increased from 26.1 to 28.5 per cent. Compared to January 1999, this is an increase by 8 percentage points. It is conceivable that an underlying reason is increased import income which big companies retain in, for instance, US dollar accounts for future coming needs. On the assets side, the trend has slackened. Between January 1999 and January 2001, the share of other foreign currency has increased from 13.5 to

<sup>8</sup> There are approximately 180 monetary financial institutions in Sweden. These are all banks, credit market undertakings not including finance companies, certain credit institutions that are regulated by special legislation and money market funds.

<sup>9</sup> Other EU currencies are the British pound and the Danish krona, and before 2001, the Greek drachma.

17.1 per cent to fall back somewhat to 15.4 per cent in 2001. During the same period (the whole year 2001) the euro's share of the assets has increased by 0.5 percentage points.

The share of euro in MFI's balance-sheet total, as shown in table 1, increased slightly between 1999 and 2001 even though the increase varies for different types of institutions and items in the balance sheet. At the beginning of 1999, the euro accounted for 5 per cent of the balance-sheet total which was equivalent to over SEK 200 billion. At the end of 2001, the share of the euro was 7 per cent of the balance-sheet total or approximately SEK 350 billion.

### Lending in euro

It is primarily banks and the group other credit market undertakings<sup>10</sup> which have activities in euro in their own balance sheet. As shown in table 2, the banks were responsible in December 2001 for the major part of the quantity of euro in absolute figures, while the

Figure 4. Assets and liabilities in foreign currency in Swedish monetary financial institutions balance-sheet totals. The percentage share of the different currencies of the balance-sheet total in December 2001

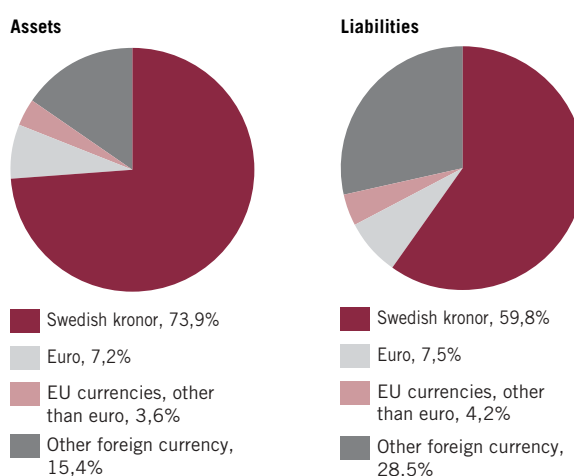


Table 1. Swedish monetary financial institutions balance-sheet totals, billion kronor

ASSETS										
	Total balance-sheet total	Swedish kronor	Euro	EU currencies other than euro	Other foreign currency (other than euro and other EU currencies)	Share of Swedish kronor, per cent	Share of, euro, per cent	Share of EU currencies, per cent	Share of other foreign currency, per cent	
Jan 1999	3 978	3 099	205	137	537	77,9	5,1	3,4	13,5	
Dec 1999	3 906	3 037	222	96	550	77,8	5,7	2,5	14,1	
Jan 2000	4 176	3 137	282	110	647	75,1	6,8	2,6	15,5	
Dec 2000	4 398	3 218	289	126	764	73,2	6,6	2,9	17,4	
Jan 2001	4 583	3 336	307	156	783	72,8	6,7	3,4	17,1	
Dec 2001	4 603	3 400	331	164	708	73,9	7,2	3,6	15,4	
LIABILITIES										
	Total balance-sheet total	Swedish kronor	Euro	EU currencies other than euro	Other foreign currency (other than euro and other EU currencies)	Share of Swedish kronor, per cent	Share of, euro, per cent	Share of EU currencies, per cent	Share of other foreign currency, per cent	
Jan 1999	3 978	2 763	227	168	820	69,5	5,7	4,2	20,6	
Dec 1999	3 906	2 693	254	129	830	69,0	6,5	3,3	21,2	
Jan 2000	4 176	2 763	300	135	977	66,2	7,2	3,2	23,4	
Dec 2000	4 398	2 817	263	132	1 185	64,1	6,0	3,0	26,9	
Jan 2001	4 583	2 891	318	178	1 195	63,1	6,9	3,9	26,1	
Dec 2001	4 603	2 752	347	192	1 312	59,8	7,5	4,2	28,5	

Source: Riksbank's Financial Markets Statistics

<sup>10</sup> Credit market undertakings are specially focused financial intermediaries. Each group of institutions has its defined area for the provision of credit, which is shown by its articles of association. The group credit market undertakings consists of housing credit institutions

and other credit market undertakings. Other credit market undertakings consists of the earlier intermediary institutions and finance companies. Their activities are focused on lending to, for instance, municipalities, agricultural undertakings, and/or special finance such as export finance.

group other credit market undertakings, due to a rapid increase in euro borrowing, had the highest share of euro in the balance-sheet total. Banks and other credit market undertakings have their assets primarily in euro while housing credit institutions mainly have liabilities in euro. In the group banks, it is substantially (over 90 per cent), the four major banks<sup>11</sup> that account for the holdings of euro, while among the other credit market undertakings, companies with export and other international operations account for the major part of the exposure in euro.

Of the *banks'* total lending in December 2001, loans in euro accounted for approximately 8 per cent or SEK 180 billion, see table 3. Of the banks different lending items, loans to the foreign general public (mostly non-financial undertakings), in other EU Member States accounts for the largest share in euro, 22 per cent or the equivalent of SEK 75 billion. This is an increase since the euro was introduced when loans in euro to the foreign general public accounted for 19 per cent of lending or SEK 45 billion. Lending to foreign financial institutions also, mainly banks in other EU Member States, showed relatively large volumes in euro, SEK 63 billion kronor or a 17 per cent share of this item at the end of December 2001.

As for domestic lending by the banks, lending to non-financial undertakings is the item that contains

somewhat greater volumes of euro, equivalent to SEK 27 billion in December 2001 or slightly more than four per cent of the total lending to undertakings by banks. The volume of euro has on the whole been unchanged since January 1999 while the proportion of euro in corporate lending has fallen. Household demand for euro loans in banks is insignificant, SEK 1 billion, or almost a half a per cent of household lending in December 2001 and the item has only changed marginally since January 1999.

For *housing credit institutions*, there seems to be scant demand for housing loans in euro and lending in euro is thus negligible. As for *other credit market undertakings*, lending in euro totalled SEK 3 billion in December 2001 or approximately 2 per cent of their total lending.

### Interest-bearing securities in euro

Of the banks' total holdings in securities, slightly more than 11 per cent or the equivalent of SEK 47 billion were invested in euro-denominated treasury paper, bonds and other interest-bearing securities in December 2001, as shown in Table 3.

The group *other credit market undertakings* had in December 2001 invested SEK 41 billion or just over 39 per cent of its securities assets in euro-denominated interest-bearing securities. This is a reduction from 55 billion in December 2000 but is still a higher propor-

**Table 2. Different groups (MFI) balance-sheet totals and share in euro, in billion kronor and per cent.**

Institution group	Date	Assets			Liabilities		
		Total balance-sheet total	Euro	Euro share %	Total balance-sheet total	Euro	Euro share %
Banks	Jan -99	2 462	196	8,0	2 462	184	7,5
	Dec -00	2 948	227	7,7	2 948	207	7,0
	Dec -01	3 131	285	9,1	3 131	276	8,8
Housing credit institutions	Jan -99	1 187	1	0,1	1 187	52	4,4
	Dec -00	1 170	0	0,0	1 170	30	2,6
	Dec -01	1 210	0	0,0	1 210	43	3,5
Other credit market undertakings	Jan -99	258	26	9,9	258	18	7,0
	Dec -00	280	61	21,9	280	26	9,3
	Dec -01	261	46	17,5	261	28	10,6
Total MFI	Jan -99	3 907	222	5,7	3 907	254	6,5
	Dec -00	4 399	289	6,6	4 399	263	6,0
	Dec -01	4 603	331	7,2	4 603	347	7,5

Source: Riksbank's Financial Markets Statistics

**Table 3. A selection of asset items for different institutional groups (MFI), in billion kronor and per cent**

Institution group	Date	Lending			Interest-bearing securities		
		Balance-sheet total	Euro	Euro share %	Balance-sheet total	Euro	Euro-share %
Banks	Jan -99	1 653	130	7,9	382	37	9,7
	Dec -00	2 016	146	7,2	384	35	9,0
	Dec -01	3 228	180	8,1	425	47	11,1
Housing credit institutions	Jan -99	1 142	0	0	15	0,5	3,3
	Dec -00	1 134	0	0	10	0	0
	Dec -01	1 185	0	0	4	0	0
Other credit market undertakings	Jan -99	146	2	1,5	92	23	24,5
	Dec -00	150	5	3,1	116	55	48,0
	Dec -01	143	3	1,9	104	41	39,6
Total MFI	Jan -99	2 941	132	4,5	489	60	12,3
	Dec -00	3 299	150	4,6	510	90	17,6
	Dec -01	3 556	183	5,1	533	88	16,6

Source: Riksbank's Financial Markets Statistics

<sup>11</sup> Swedbank, Nordea, SEB and Svenska Handelsbanken.

tion than in December 1999 when SEK 23 billion were invested in interest-bearing securities in euro. A probable cause for these fluctuations can be the interest-rate relationship between the Swedish krona and the euro.

### Deposits and borrowing in euro

As shown by table 4, the *banks'* total deposits/borrowing in euro in December 2001 were SEK 154 billion, which is over 7 per cent of the total deposits/borrowing. This is a continued increase from December 2000 when deposits/borrowing were equivalent to SEK 125 billion or 6.5 per cent. On the banks' liabilities side, transactions between banks, primarily deposits and borrowing from banks in other EU Member States that show the greatest volume in euro, SEK 86 billion in December 2001. SEK 38 billion in euro is included in deposits/borrowing from other counterparts in other EU member states, probably mostly businesses. Deposits/borrowing from Swedish non-financial undertakings are among the items that have slightly large amounts in euro, equivalent to SEK 20 billion, which is more than five per cent of Swedish companies' bank deposits.

In December 2001, *Housing credit institutions* had borrowing in euro corresponding to SEK 2 billion or 0.5 per cent of their total balance-sheet total

The group *other credit market undertakings* had SEK 2 billion in borrowing in euro in December 2001, which is 7.5 per cent of their total borrowing. Borrowing

mainly takes place from banks in other EU Member States and the euro is 43 per cent of their total bank borrowing.

### Issued interest-earning securities

In December 2001, the *banks'* stock of interest-bearing securities in euro totalled SEK 45 billion which is just under 12 per cent of the total stock of securities issued, see table 4. Of the different instruments issued in euro, certificates have the largest volume, SEK 31 billion.

The outstanding stock of securities in euro of the *housing credit institutions* is rather less than the banks, equivalent to SEK 40 billion in December 2001, or over 5 per cent of the total stock. In the housing credit institutions, it is as expected bonds that are the wholly dominating instrument (equivalent to SEK 37 billion).

In December 2001, the *other credit market undertakings'* stock of issued securities in euro totalled SEK 24 billion, which is just over a 12 per cent share of the total stock of issued securities. Even here bonds are the instrument that is almost exclusively issued in euro – SEK 23 billion.

In December 2001, the item *other assets* had a euro share of 8.3 per cent, equivalent to SEK 22 billion, while the share of euro of *other liabilities* accounted for 11 per cent or SEK 38 billion. In both these items, the market value of outstanding derivative instruments accounts for between 35 and 60 per cent of the amount.

### Use of the euro by Swedish bank customers

According to information from the Swedish Bankers' Association, there are now just under 18 000 euro accounts in Swedish banks compared to approximately 16 000 in April 2000 and approximately 15 000 the year before. This represents a fairly even rate of increase of about 1 000 additional accounts a year. The distribution of euro accounts is approximately 1 500 for business customers and just under 3 000 for private persons. See also table 5. Thus, it can be noted that only very few private customers have found a reason to acquire a euro account. Euro accounts are also uncommon among dealers.

### The euro in the Swedish foreign exchange market

The major agents in the Swedish foreign exchange market are the Riksbank's exchange policy counterparties, the primary dealers (PD), which consist of the

**Table 4. A selection of liabilities items for different institutional groups (MFI), in billion kronor and per cent**

Institution group	Date	Deposits/borrowing			Issued securities		
		Balance-sheet total	Euro	Euro-share %	Balance-sheet total	Euro	Euro-share %
Banks	Jan -99	1 619	93	5,7	301	54	18,0
	Dec -00	1 923	125	6,5	329	41	12,5
	Dec -01	2 128	154	7,3	389	45	11,7
Housing credit institutions	Jan -99	231	0	0	812	51	6,2
	Dec -00	294	0	0	758	29	3,8
	Dec -01	368	2	0,5	731	40	5,4
Other credit market undertakings	Jan -99	46	0,9	1,9	175	16	9,4
	Dec -00	45	4	9,2	194	17	8,9
	Dec -01	32	2	7,5	193	24	12,2
Total MFI	Jan -99	1 896	94	4,9	1 287	121	9,4
	Dec -00	2 261	130	5,7	1 282	88	6,8
	Dec -01	2 528	159	6,3	1 314	109	8,3

Source: Riksbank's Financial Markets Statistics

**Table 5. Euro accounts in Swedish banks**

	Sept 1999	April 2000	March 2002
Number of euro accounts	15 000	16 000	18 000
Number of business customers with euro accounts	1,5-2%	2%	2-2,5%
Number of privat customers with euro accounts	0,02%	0,03%	0,03%

Source: Swedish Bankers' Association

four big Swedish banks and six foreign banks. These ten primary dealers deal as a group mainly with foreign banks who are not a counterparty to the Riksbank but also within the PD circuit and with Swedish banks which are not primary dealers. Altogether, this interbank trade constitutes around 65 per cent of all spot transactions in the Swedish foreign exchange market while the other spot transactions are concluded directly with the customer. On the interbank market, practically all transactions take place spot in kronor for euro, while forward and swap transactions are made in krona for US dollars.

Figure 5 below shows how the spot turnover interbank in the Swedish foreign exchange market has developed since the euro was introduced compared to the period prior to 1 January 1999 (when the krona

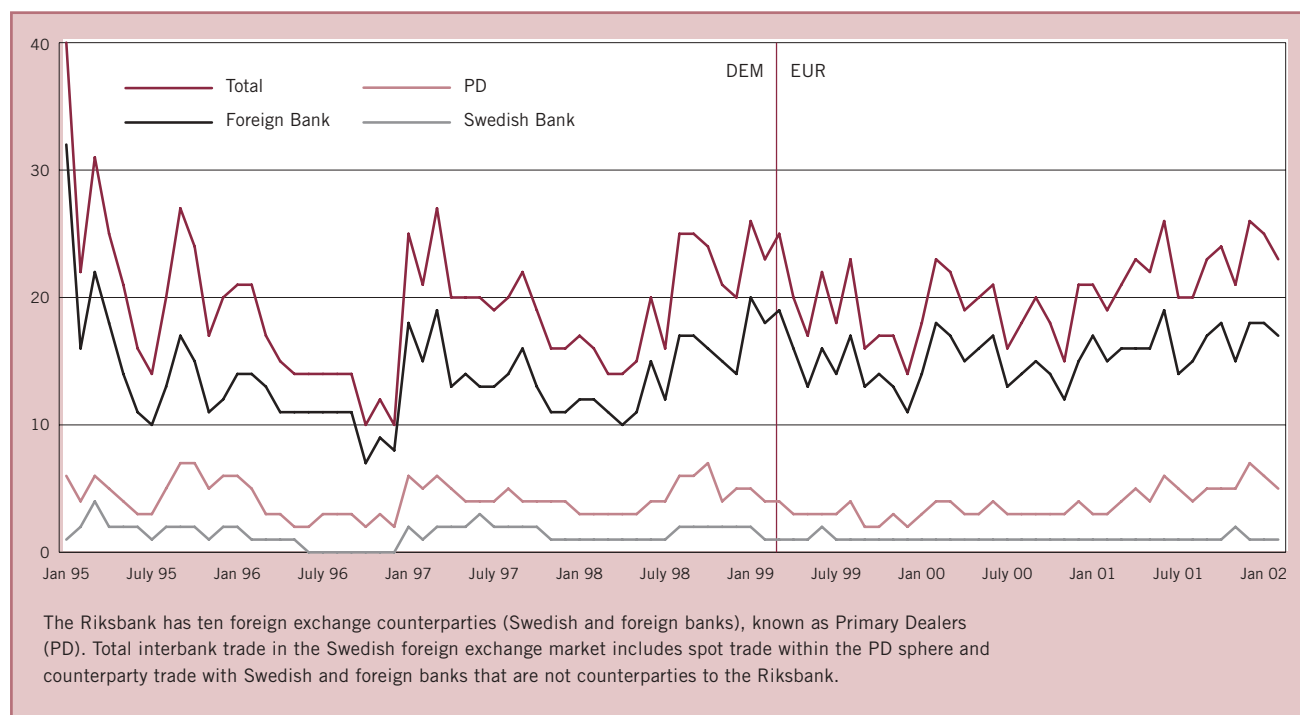
### In brief on the euro in the Swedish monetary financial institutions

Since introduction in 1999, the euro has confirmed its position as an important foreign currency in the financial institutions. At the end of 2001, other foreign currencies, mainly the US dollar, were still larger than the euro. There is limited domestic demand for credits in euro. Housing credit institutions and other credit market undertakings encounter a very low demand for euro credits. Banks which have somewhat larger amounts in euro in their balance sheets, have primarily non-financial undertakings and other financial institutions as their counterparties and then mainly within the EU. Activity by households in euro is very limited in relation to Swedish financial institutions.

was traded spot for the D-mark). As the diagram shows, the daily spot turnover (interbank) has fluctuated around SEK 20 billion since 1995. The largest part of interbank transactions spot are made with foreign banks as a counterparty.

The average daily turnover in kronor for D-mark in the period 1995-1999 was SEK 19.2 billion and the

**Figure 5. Spot turnover interbank in the Swedish foreign exchange market 1995-2001, billion SEK**



Source: The Riksbank

corresponding figure for the period 1 January 1999 to 31 December 2000, i.e. after the introduction of the euro was SEK 19.5 billion. During the period 1 January 2001 to 28 February 2002, the average daily turnover totalled SEK 22.5 billion. The slowly increasing trend in 1999 and 2000 has thus intensified in 2001.

## Payments in euro

Within the Eurosystem, there is a common payment system, TARGET<sup>12</sup> that links together the national settlement systems of the EU Member States. TARGET is operated by the ECB and the national central banks. The system is based on the principle of gross settlement in real time, that is payments are settled continuously throughout the day. This means that payments can be carried out in seconds between account-holders in the fifteen EU Member States. It is a system intended for large payments. TARGET was created to enable the monetary policy operations to be carried out in an efficient and safe way, and, in addition, to use the system for interbank payments and large customer payments. TARGET is the largest system for transfers of large payments within the EU area. Next in size is the Euro Banking Associations (EBA) payment system Euro1<sup>13</sup> which is intended for commercial payments. It is used to a great extent by the four big Swedish banks. Euro payments in Sweden also take place in the bank and postal giro systems. The initiative of the EU Commission and the European banks, SEPA (Single European Payment Area) and the growing demands for swiftness and cost-effectiveness for mass payments as well show a continued development of the payment systems for euro.

The Riksbank has two parallel but functionally separate settlement systems, one of which is for payments in Swedish kronor (K-RIX) and the other for payments in euro (E-RIX). A payment in E-RIX can be settled domestically, i.e. between participants in E-RIX or cross-border, which is done through TARGET to the central bank in which the recipient participant has their account. E-RIX is open for dif-

ferent types of payments, both interbank payments and customer payments and there is no limit amount.

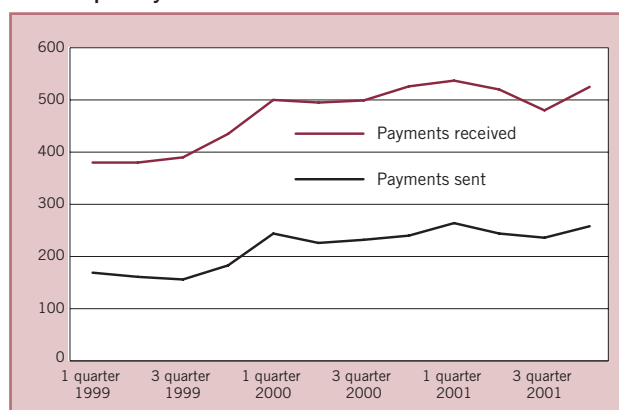
The Riksbank's regulatory framework for settlement in E-RIX<sup>14</sup> is based on the principles adopted by the ECB. The system is open for credit institutions, certain securities undertakings, clearing organisations, and certain government agencies.

## Payments in E-RIX

Cross-border payments are mainly settled in E-RIX, i.e. those that go to or from other central banks in the EU. The number of cross-border payments from Sweden averaged 258 per day in 2001, see figure 6. Compared to 2000, this is an increase of approximately 6 per cent. Payments from Sweden consist almost entirely of interbank payments, unlike payments to Sweden, where customer payments account for approximately 30 per cent. The number of cross-border payments to Sweden is considerably more than the number of payments from Sweden. In 2001, a daily average of 531 payments were received, which was an increase of 2 per cent by comparison with 2000. In E-RIX, few domestic payments were settled; on average about 10 to 15 per day.

The value of the cross-border payments from Sweden in 2001 averaged approximately EUR 5.6 billion per day, which was a reduction of over 16 per cent in comparison with 2000.

Figure 6. Payments sent and received via TARGET to and from Sweden per day



Source: ECB and the Riksbank

<sup>12</sup> Trans-European Automated Real-Time Gross Settlement Transfer System

<sup>13</sup> EBA stands for the Euro Banking Association which includes a large number of private banks and provides the payment system Euro1. This is not to be confused with the European Banking Federation, EDF which is

an association of all the national European banking associations. See also the following section on other euro payments.

<sup>14</sup> Swedish Riksbank, Regelverket för betalningsavveckling i RIX, January 2001 (*Rules for payment settlement in RIX, January 2001, in Swedish*)

Sweden accounts for approximately one per cent of the cross-border payments in TARGET. The fact that relatively few cross-border payments are made from Sweden is largely due to the Swedish banks preferring to channel the majority of their payments via Euro1.

Banks in Europe, in particular small banks which do not participate in Euro1, use TARGET to a greater extent to send cross-border customer payments.

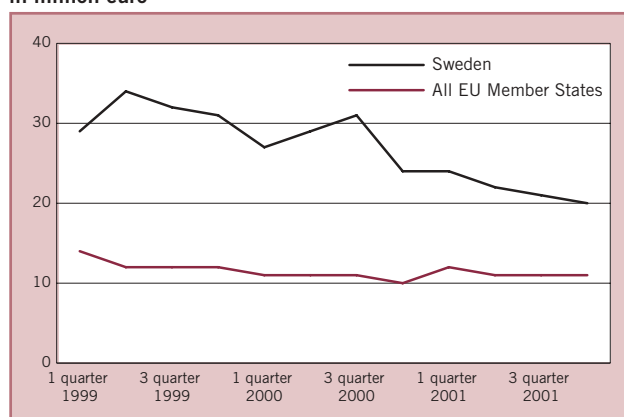
Since payments which are sent from Sweden are almost exclusively interbank payments the average cross-border payment from Sweden is relatively high compared to the average TARGET payment in the EU, see figure 7.

### Provision of liquidity in E-RIX

The countries that participate in the monetary union provide the countries outside with euro liquidity. This is necessary since the central banks in the EU Member States outside the monetary union cannot create euro liquidity. For Denmark and Sweden, the maximum liquidity is 1 billion euro. For the United Kingdom, the corresponding amount is 3 billion euro.

Initially, the Riksbank provided participants in E-RIX with intra-day credit in euro totalling EUR1 billion for collateral. Since the requirement from the participants in E-RIX proved to be less than expected, the amount has been reduced in stages to EUR 500 million. The cost of provision of euro

Figure 7. Average amounts of cross-border payments in TARGET in million euro



Source: The ECB and the Riksbank

liquidity has been apportioned by the Riksbank to the participants that use the credit.

One reason for the participants in E-RIX not having such a great demand for the Riksbank to supply them with euro is that the majority of banks have branches or subsidiaries in one or more of the countries inside the euro area, which means that they can obtain access to liquidity in euro from a central bank in the euro area. Another possibility is to arrange an agreement for a credit facility with another bank within the monetary union. A third possibility is to use the interbank market.

Securities that can be used in the Eurosystem for monetary policy transactions can also be used as collateral for intra-day credit. Like other central banks in the EU Member States outside the euro area, the Riksbank has its own list of collateral that can be used for intra-day credit in euro. The ECB has, with respect to Swedish issuers, at the request of the Riksbank, generally approved that bonds and other promissory undertakings issued by the Swedish state, and bonds issued by Swedish housing finance institutions are used by the Riksbank as collateral for interday credit.

The Swedish securities can also be used by other central banks in the EU as collateral for interday credit, after approval by the EU. Central banks in Finland, France, the Netherlands, and Germany have also obtained such permission. A bank which participates in the central banks' settlement systems can in this way use Swedish securities as collateral for intraday credit in the systems.

### Other euro payments

As mentioned above, Swedish banks have to a great extent preferred to channel their customer payments via EBA's payment system Euro1. Approximately 70 European clearing banks belong to the system. Euro1 is a net settlements system, i.e. only the net of the different participating banks' payments are settled and only once per day, through ECB's TARGET. The system forwards individual payment commissions. As Euro1 is a net system, it requires less liquidity which leads to lower costs for payments.

For more convenient processing of mass payments, EBA is preparing a system for mass payments called STEP2<sup>15</sup>, which will be able to forward payment files, thus increasing efficiency. The banks that are not at

<sup>15</sup> STEPS = Straight Through Euro Payment System.

present members of Euro1 can join STEP1 for a small fee, which is intended for smaller payments up to EUR 50,000. STEP 2 is being developed in response to political pressure on banks to carry out cross-border mass payments in euro as quickly and cheaply as domestic payments. In 2001, the EU regulation on cross-border payments<sup>16</sup> was adopted, which means that these payments must not cost more than the equivalent internal payments.

CLS<sup>17</sup> which is an international so-called special purpose bank, owned by private banks, plan to start its activities during the third quarter of 2002. CLS aims at reducing the risk that arises in settlement of foreign exchange transactions by linking both sides of transactions to one another. Some Swedish banks are members of CLS.

This system competes with E-RIX so that the start of CLS will further intensify competition.

At Bank Giro Center (BGC), a major Swedish clearing house for retail payments, some domestic payments are made in euro. The accumulated value of these payments in Sweden is small, equivalent to SEK 500 million per quarter, and this has been relatively stable during 2001. This is to be compared with the turnover of the entire bank giro system which is around SEK 375 billion per year. A small increase of the number of euro payments occurred in the first quarter of 2002 in comparison with the first quarter of 2001 but it is difficult to judge whether this is a significant change. See table 6. In addition, there are other customer payments in euro (retail payments) which according to information from the Swedish Bankers' Association total 4 500 per quarter. This is a small increase from previous years but still involves insignificant quantities. The value of these payments

**Table 6. Domestic payments in euro via BGC**

	Number	Amounts (SEK 000s)
Quarter 1 – 2001	3 659	267 549
2 – 2001	4 070	347 051
3 – 2001	3 293	766 461
4 – 2001	4 290	421 916
1 – 2002	6 486	536 804

Source: BGC

<sup>16</sup> Regulation (EC) No. 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro.

<sup>17</sup> Continuous Linked Settlement.

in euro is estimated at around SEK 80 million per quarter. The above figures do not include domestic payments through international systems, for instance those provided by EBA.

## Swedish export companies' attitude to the euro

The Riksbank engages in continuous discussions with the agents in the Swedish financial markets. Swedish export companies are one such group, who have sometimes been given the opportunity to express their view as to how they have adapted their financial policy to the changes that have taken place in the foreign exchange market in recent years.

Discussions have also concerned the issue of what the effects of the introduction of the euro in the countries that now participate fully in the third stage of EMU third stage for financial policy. In particular, it was interesting to examine more closely whether this has meant that companies have changed or plan to change their base currency from kronor to euro.

To begin with, it can be noted that the trend towards increased globalisation in the corporate sector is continuing. Some export companies have in recent years undertaken major divestments and business mergers which have led to the companies having smaller volumes of currency to sell forward than they

### In brief on payments in euro

The Riksbank's settlement system, E-RIX, is linked to the common EU payment system

TARGET. The number of payments to Sweden from other countries via TARGET averaged 539 per day in 2001. Relatively few cross-border payments are made from Sweden via TARGET, which is largely due to Swedish banks preferring to send the majority of their euro payments through other systems than TARGET. During 2001, an average of 258 cross-border payments were made from Sweden per day. The value of these payments in TARGET averaged about EUR 5.6 billion. Swedish banks used EBA's payment system Euro1 to a great extent and a limited number of domestic euro payments are made through Bankgirot.



previously had. In conjunction with earlier mergers and takeovers, a number of wholly Swedish listed export companies have changed accounting currency, for instance Astra Zeneca, Pharmacia Upjohn, and Stora Enso. The effect of this is inter alia that these companies no longer convert their operating profit into krona.

### **The use of the euro by Swedish export companies**

The introduction of the euro has meant that businesses have successively moved to the euro as a transaction currency in the euro area. The large export companies invoice their customers and pay their sub-contractors in the currency that the customer or sub-contractor prefers. The trend towards outsourcing to foreign-owned undertakings, leads to some extent to increased cost in other currencies than kronor. There are indications that there are no concrete plans to change accounting currency to euro or any other currency, apart from the changes that have already taken place due to mergers. One of the reasons given against changing accounting currency is the uncertainty that applies on future Swedish membership of EMU's third stage. The fact that it is difficult to calculate the economic benefits and disadvantages of switching to accounting in euro before a Swedish membership of the monetary union is a reality, probably means that the current renewed discussions of the EMU issue in Sweden is not a reason to change accounting currency at present. For some export companies, it would moreover probably be more natural to change to US dollars if a change of accounting currency was being considered.

## **The euro in the stock market**

When euro banknotes and coins were introduced in the euro area on 1 January 2002, the stock market in the euro countries had already traded in euro since 1999. When the exchange rates were permanently fixed in relation to the euro, the stock exchanges in the euro area changed over to using euro for share trading. When Greece entered the monetary union as the twelfth country, the same changeover took place in the Greek stock exchange. In previous progress

reports it has been reported that almost three-quarters of European share trading takes place in euro, including the euro trade in the London stock market. At present, there is probably not a significant component of euro listing from non-participating EU Member States in London. The reason that London contributes approximately 10 percentage points of the euro trade in the European turnover is the London tradition of normally trading foreign shares in the currency of the domestic country. This to avoid the effect on pricing which could be caused by movements in the foreign exchange market. However most other stock exchanges apply the strategy of also trading foreign paper in its (the host country's) currency since they view themselves as retail market where simplicity for the customer is more important than the professional players having a pricing that suits them.

### **Use of the euro during the changeover period**

From 1999-2001, the euro has served as a pricing currency in the stock exchange in the euro countries in the same way as the US dollar is the listing currency for the international oil trade. Settlement of transactions has, however, taken place in the old national currencies in accordance with customer preferences. During these three years of the changeover period, very few customers, both among institutions and private persons, have opted to open bank accounts in euro for share transactions etc. The reasons for this is probably that the benefits were considered to be small. There was no currency risk since their own currency was permanently fixed in relation to the euro and the national accounts could be seen as euro accounts even if the unit of account, the local currency was uneven. During the changeover period, the customers therefore received settlement notes which have wholly or partly stated the amounts both in euro and in the national currency. The version entered in the customer accounts has not depended on whether the customer had access to a euro account or not. As from the start of 2002, all accounts in the euro countries have automatically been converted to euro accounts. In this way, the previous double accounting has disappeared and all information is given only in euro which make it easy both for customer and the broker.

Europe's share of the global share trading has increased in recent years, which reflects the fact that the euro market has expanded more quickly than the markets in the USA and the Far East. To some extent, this is a result of the restructuring of share portfolios in Europe that took place in 1999. Pension funds, insurance companies, and others are often most liable to have the majority of their investments in the domestic country's currency since it is the basis for future pension payments. For them, the perspective after 1999 has expanded so that the securities of twelve euro countries can be considered as domestic investments, which has led to very large reinvestments of long-term portfolios.

### Preparations in Sweden

Since 1999, companies listed on the Stockholm stock exchange have been able to request to have their shares listed and traded in euro. During this period, it has also been made possible to change from kronor to euro in the company's accounts. Very few companies have to date decided to use this possibility. At the start of 2002, there were only three companies in the Stockholm stock exchange for which parallel trade took place in euro. Of these, two - Stora Enso and Nordea - were really special cases since both companies were Swedish-Finnish.

They have a well functioning trade in krona at Stockholmbörsen and an equivalent liquid trade in euro in Helsinki. This probably explains the scant interest for trading in euro in Stockholm by these companies.

Prior to the introduction of the euro in 1999, the Swedish Central Securities Depository/VPC introduced opportunities for settlement in kronor and in euro. This was necessary taking into consideration VPC's handling of the interest-bearing paper that was traded between the central banks in TARGET.

Sharetrading in the stock exchange's SAXESS system can really only take place in an optional currency as long as it involves a single currency per security. This arrangement also applies to the common SAXESS platforms used for share trading in Denmark, Iceland, Norway, and Sweden. Trade and settlement of

transactions take place in the respective country's currency. However, the stock exchange's statistical and index calculations are complicated if trade takes place in parallel in several currencies.

If Sweden were to join the monetary union, a changeover to trading in euro would take place. This would require work to adapt the internal systems at the members of the stock exchange as well as for communication between Stockholmsbörsen and VPC. The industry estimates that the necessary measures can be carried out with a broad margin of time within the so-called qualified preparatory time which defines the limits for most agencies.

A lot indicates that changes in the stock market will be small during the period up to a referendum on the EMU issue. If a referendum results in a yes vote, the Riksdag will make a decision that Swedish should apply to join the monetary union and therefore Sweden's will apply to participate fully in ERM 2. The central exchange rate will then be the rate around which the krona fluctuates. It is conceivable that businesses will decide to anticipate entry. They are able to change accounting in euro on their own initiative and to request that their shares be traded in euro. This issue is examined in more detail in the section on Swedish export companies' attitude to the euro.

When the exchange rate of the euro is permanently fixed in relation to the euro on entry, the currency risk will no longer exist and the situation will be the same as at the beginning of 1999 in the first euro countries. At the latest at this date, Stockholmbörsen will change generally to euro in stock trading. For customers, the changeover to the euro can be considerably more smooth than in the euro area in 1999, since euro banknotes and coins will already been widely circulated and individuals are able to open current accounts in euro. The changeover is facilitated also by the currency changeover not requiring adjustment of steps in market pricing, what is known as tick sizes. These have already been adapted to the very broad range of share prices that Sweden covers. However, companies with shares that are traded at low prices may find called upon to reduce the number of shares so that the rate ends up at least 0.5 euro.

## Summary

The description of the use of the euro in Sweden in progress report 8 is intended as an update of the information contained in SIFS "Euro in the Swedish financial sector – progress report 6". It was already noted in progress report 6 that despite expectations that the euro would compete with the US dollar more markedly as a contract and reserve currency, the activity of the Swedish financial agents in the euro market has been limited. The situation largely persists and the four big Swedish banks remain the dominant Swedish actors in the euro market. These also encounter limited demand for euro services from others besides certain big companies. Other Swedish financial institutions have only limited euro shares in their balance sheets which can be explained by the currency risk between the krona and the euro. In the balance sheets of the Swedish monetary financial institutions, the Swedish krona accounted for 74 per cent of the assets side and 60 per cent of the liabilities side in December 2001, which is a reduction from 78 and 70 per cent respectively in January 1999.

There has been a slight increase in the number of euro accounts at Swedish banks from 16 000 in April 2000 to 18 000 in March 2002.

Payments from and to Sweden in euro as well as payments in Sweden in euro are settled partly in the ECB's TARGET system to which the Riksbank's E-RIX system is linked and partly in Euro1 a system developed and run by the EBA. Moreover, certain euro payments go through Bankgirocentralen. The extent of these

payments is still relatively modest between Swedish agents while payments to and from agents in the Euro area for natural reasons often take place in euro. The number of customer payments in euro remain at a low level and the total value of these payments is still low. Approximately 1 500 payments take place per month at an estimated value of approximately EUR 3 million. There are no signs that the euro driving out the krona nor that use of the euro is now more extensive than payments in the former national currencies.

Within the corporate sector, the trend toward increased globalisation continues. After introduction of the euro, export companies have successively changed over to euro as the transaction currency in the euro area. However, the great majority of companies have no concrete plans for changing accounting currency, above all due to the uncertainty about the timetable for possible Swedish membership in the third stage of the EMU.

Only a few of the shares in Stockholmsbörsen are involved in parallel trade in euro and of these two are special cases since they are Finnish-Swedish companies. There is a lot to indicate that the changes in stock trading will be small in the period up to a referendum being carried out on the EMU issue.

The changes that have taken place since progress report 6 on use of the euro in Sweden are thus limited and are probably more related to other changes in the market than the introduction of banknotes and coin in euro. The Riksbank intends to continue to report on use of the euro in Sweden.

