



# The Euro in the Swedish Financial Sector

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## ■ Preface

On 14 September 2003 a referendum will be held as to whether or not Sweden shall introduce the euro as its currency. The government has announced that it advocates a direct changeover, i.e. that the euro be introduced as electronic transaction currency and as banknotes and coins at the same time, on 1 January 2006, if the result of the referendum is a "yes" vote. The financial sector also supports a direct changeover, as this is the most secure and cost-efficient alternative.

The Riksdag (the Swedish parliament) decided in 1997 that Sweden would not join the euro from its start in 1999, but that the highest possible level of preparedness should be maintained for a potential future membership of the Eurosystem. The financial sector has made a survey of the adaptations that would be necessary for a Swedish changeover to the euro and how long a period would be required to implement them. Here, there has been an endeavour to make the period between a decision by the Riksdag to join the Eurosystem and actual entry into the system as short as possible. To achieve shorter lead times and limit resource utilisation, the changes that will take a long time or that can be implemented in connection with other change work will be initiated before the referendum.

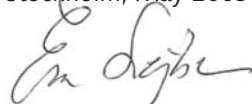
"The Euro in the Swedish Financial Sector – Progress Report 9" summarises and supplements the analysis of adaptations and lead times in the financial sector described in the earlier reports, nos. 5, 7 and 8, as well as in the memorandum "Lead times in the Swedish financial sector" from September 2002 (Ref. 02-657-INT). The minimum possible lead time for the financial sector to manage a direct changeover is two years from a Riksdag decision to joining the Eurosystem. Membership from 1 January 2006 is thus compatible with the financial sector's preparation time needs.

A possible adoption of the euro would entail many changes for the Swedish financial sector. It would involve both challenges and opportunities. In Progress Report 9 representatives of Swedish banks, Stockholmsbörsen (the Stockholm stock exchange), the Swedish Securities Dealers' Association, VPC (Swedish central securities depository and clearing house) and the Riksbank describe the possible future developments in certain parts of the financial sector if Sweden joins the Eurosystem.

As there has been no foreign exchange risk in the euro zone since 1999, a joint euro capital market has developed for the 12 euro countries. The introduction of the euro also provides new financial opportunities for companies and households in Sweden. The sector therefore monitors use of the euro in Sweden on an annual basis. This progress report gives an account of statistics on use of the euro in 2002. Earlier surveys were described in reports nos. 6 and 8.

The report has been produced within the cooperation between the Riksbank and the financial sector on preparations for participation in the monetary union, known as the SIFS group (Consultation and Information with the Financial Sector). Within the Riksbank the report has been coordinated by Björn Hasselgren, Johan Östberg, Johan Pontén and Maria Svalfors. In addition, Lars Boman (the Swedish National Debt Office), Göran Ahlberg (Finansinspektionen – the Swedish Financial Supervisory Authority), Ulla Lundquist (the Swedish Bankers' Association), Leif Vindevåg (Stockholmsbörsen), Vigg Troedsson (the Swedish Securities Dealers Association), Jan Dafgård (VPC), Ellen Bramness-Arvidsson (the Swedish Insurance Federation), Mats Wallén (BGC), Pehr Wissén (Svenska Handelsbanken) and Fredrik Pettersson (the Swedish Investment Fund Association) have all contributed material and valuable viewpoints. I should like to thank them, the SIFS steering group and all those who have contributed material and ideas and in other ways helped in the work on this report.

Stockholm, May 2003



Eva Srejber

Deputy Governor of Sveriges Riksbank

#### **EARLIER PUBLICATIONS IN THIS SERIES**

The euro in the Swedish Financial Sector – A Situation Report (spring 1997)

The euro in the Swedish Financial Sector – Common Standpoints (1997 – NB. only available in Swedish)

The euro in the Swedish Financial Sector – The Payment System (1997 – NB. only available in Swedish)

The euro in the Swedish Financial Sector – Situation Report 2 (January 1998 – NB. only available in Swedish)

The euro in the Swedish Financial Sector – Situation Report 3 (January 1999)

The euro in the Swedish Financial Sector – Situation Report 4 (October 1999)

The euro in the Swedish Financial Sector – Situation Report 5 (March 2000)

The euro in the Swedish Financial Sector – Situation Report 6 (March 2001)

The euro in the Swedish Financial Sector – Banknotes and Coins - Progress Report 7 (September 2001)

The euro in the Swedish Financial Sector – experiences of the cash changeover  
in the euro zone - Progress Report 8 (June 2002)

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# Lead times and changeover scenarios for a potential Swedish entry into the Eurosystem

The Swedish government announced on 28 January 2003 that it advocates a direct changeover on 1 January 2006 as Sweden's negotiating position with regard to possible participation in the Eurosystem. One of the main reasons given for this is the importance of implementing the changeover to the euro in a safe and efficient manner. The general public's handling of cash and financial transactions will be made easier if euro banknotes and coins are introduced at the same time as Sweden becomes a member of the Eurosystem. In addition, a direct changeover would reduce the need for investment in financial systems to handle double currencies during a transition period.

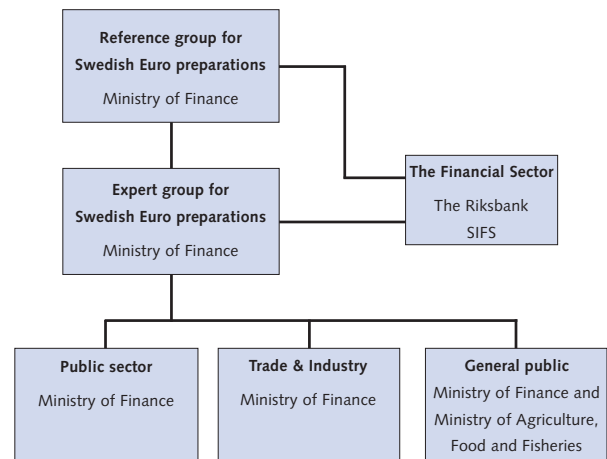
The Riksbank coordinates the financial sector's preparations in the SIFS group (Consultation and Information with the Financial Sector). The SIFS group is in turn part of the national organisation of preparations for adopting the euro. Below is a presentation of the considerations that have led the SIFS steering group to advocate a direct changeover on 1 January 2006, a description of the preparations remaining to be made for possible Eurosystem membership and the lead times required for these preparations.

## THE CHANGEOVER PROCESS IN THE FINANCIAL SECTOR

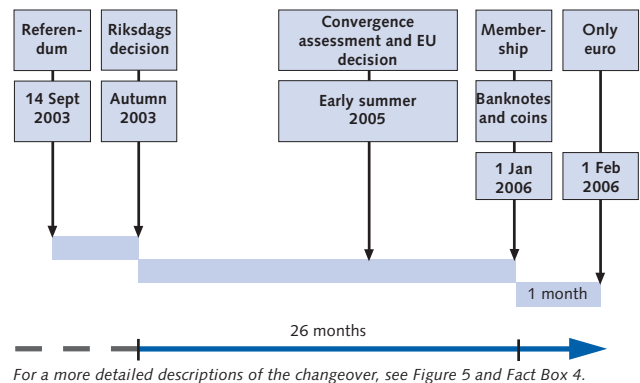
During spring and summer 2002 the SIFS steering group made a new review of the necessary lead times for a possible full participation in Stage Three of EMU. To summarise, the financial sector will need a lead time of 25 months for a direct changeover calculated from the point of a decision in the Swedish Riksdag to apply for full membership until the cash changeover is complete. This lead time is based on a number of assumptions presented in more detail in this report.

As early as autumn 2002, the SIFS group advocated a direct changeover, where banknotes and coins are changed at the same time as Sweden enters the Eurosystem, rather than an alternative with a step-by-step transition and a transition period of one year. A step-by-step transition would mean that euro

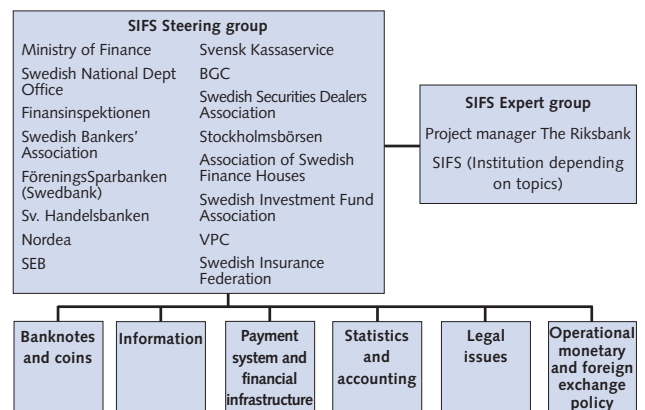
**Figure 1.** Organisation for the national Euro preparations



**Figure 2.** Direct changeover on 1 January 2006



**Figure 3.** Organisation for The Riksbank's consultation and information with the financial sector



banknotes and coins were introduced one year after Sweden had joined the Eurosystem.

When choosing to advocate a direct changeover, the SIFS group has mainly taken into account the conditions in the financial sector. SIFS worked previously on the assumption that a step-by-step transition would be the chosen alternative. This was motivated by the presumed political wish for early full participation in the monetary union's forums for political decision-making and cooperation. A step-by-step transition would enable entry into the Eurosystem twelve months before the final date for all preparations and the beginning of the cash changeover period. However, for large parts of the financial sector the main preparation work must be complete by entry into the Eurosystem, even with a step-by-step transition. (See further below.) A direct changeover is therefore simpler and cheaper in technical terms for the financial sector and it gives a shorter total transition period.

The Swedish financial sector has already made a number of adjustments to be able to handle the euro as a foreign currency, although comprehensive changes still need to be made to enable the replacement of the krona by the euro as Swedish currency and legal tender.<sup>1</sup>

The present euro countries made the transition step by step. The changeover to the euro in the financial markets took place at the year-end 1998/1999<sup>2</sup>, during what was known as the conversion weekend. The changeover to the euro as electronic transaction currency had been preceded by several years of technical and practical preparations and by extensive testing of systems and emergency routines during the final six months prior to the introduction. At the time of the euro's introduction during the New Year holiday 1998/1999, approximately 50,000 people were working in banks and stockbroking firms around Europe. The irrevocably-fixed conversion rates had been fed into all the systems during the period prior to entry and used during the conversion weekend to convert securities and all account balances to euros, with the aim of enabling monetary policy transactions, payments and securities trading in euro from the first working day of the new year; 4 January 1999. During a period of four days, all of the participating countries' central government debts and other outstanding securities issues were

<sup>1</sup> However, it is not necessary to take all measures prior to a potential Swedish membership. See the section below on lead times in the financial sector for information on various operations' specification of the lead times before and after possible membership.

<sup>2</sup> Greece has only participated in the Eurosystem since 1 January 2001.

converted to euros and then trading in the bond and stock markets of the euro zone changed over to euros.

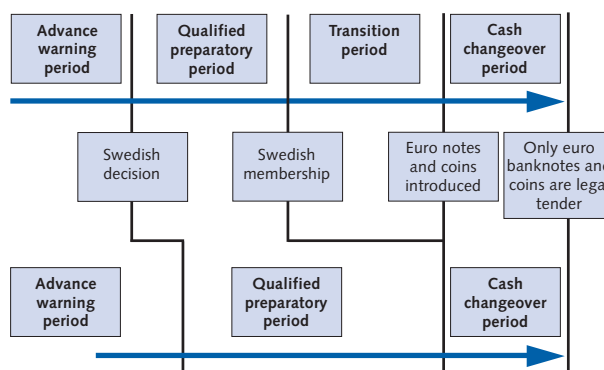
A further effort was required at the end of the changeover period, when the exchange of banknotes and coins in national currencies for banknotes and coins in euro began at the year-end 2001/2002. This also required considerable resources, both from the retail trade and banks, which in many cases extended their opening hours. In practice, the retail trade, with the aid of the banks, accounted for the population's exchange of national banknotes and coins for euros.

A conversion weekend would need to be planned in Sweden if we join the Eurosystem. As Swedish entry would be by means of a direct changeover, that is to say, banknotes and coins would be introduced at the same time as the euro was introduced into the financial system, there would be extra high demands on coordination and planning of operations during the conversion weekend. Extensive tests of all parts of the euro-adapted financial structure would need to be carried out first, as well as tests of electronic payments between the financial sector and public authorities, municipalities and corporate clients and of the retail payment systems. The high degree of automation and integration both within the Swedish financial sector and between the financial sector and its customers, means that preparations for a changeover to the euro are more complicated and require more tests than was the case for the countries that have already adopted the euro. It is assessed that joint tests will be necessary throughout society, starting no later than the beginning of July 2005, given the current planning.

### ADVANTAGES AND DISADVANTAGES OF THE TWO CHANGEOVER SCENARIOS

Prior to the government announcement in January

Figure 4. Two scenarios – step-by-step transition and direct changeover





2003, the SIFS group was working on the basis of two possible changeover scenarios; a direct changeover and a step-by-step transition. A step-by-step transition entails irrevocably fixing the exchange rate on entry to the Eurosystem, the euro becoming Sweden's currency while national banknotes and coins remain legal tender during the transition period. In this scenario, it is not until the cash changeover that the euro would become legal tender. With both transitions, membership of the Eurosystem begins at the start of a new year. One disadvantage with a gradual transition is that considerable resources, particularly within the banks, must be invested in developing systems to handle double currencies during the transition period. Another disadvantage with a step-by-step transition is that the general public might think it odd that they cannot fully use euro banknotes and coins in all transactions in Sweden immediately upon entry to the Eurosystem when they are already in circulation in other euro countries.

With a step-by-step transition the financial sector as a whole would need 18 months to prepare for electronic use of the euro, calculated from the time of a Riksdag decision to apply for Eurosystem membership until entry into the system. After this it would require up to a further twelve months before the cash changeover could begin. The total changeover time would in this scenario be 31 months until the cash changeover was complete.

In a direct changeover, banknotes and coins would be replaced at the same time as Sweden entered the Eurosystem. This scenario requires a 25-month lead time until the cash changeover is complete. A simultaneous entry into the Eurosystem and cash changeover would require everyone in Sweden having the ability to handle the euro in all physical and electronic transactions from the date of entry. As this alternative entails the simultaneous changeover of IT systems, accounting systems, tax payments and a physical cash changeover, it makes extensive demands for coordination and information in society. The SIFS group has not made an analysis of the coordination requirement in society as responsibility for this rests with the Ministry of Finance. The group's analysis is thus limited to the financial sector and its connections to customers and authorities.

<sup>3</sup> For a scenario with a step-by-step transition, the corresponding period would be thirty-one months. With a step-by-step transition, at least 18 months would be required from the time of a decision in the Swedish Riksdag to membership of the Eurosystem, in order to prepare a changeover of the systems supporting the processes that need to function from the moment the euro becomes Sweden's currency in electronic transactions.

One advantage of a direct changeover is that it would provide increased focus on managing entry into the monetary union at one single occasion, which could increase the effectiveness of the entire change-over. In addition, a direct changeover entails extensive cost savings, compared with a step-by-step transition. The savings for the banks alone are considerable. The amount saved depends on the extent of customer information provided during a transition period and on the number of internal conversion modules in the IT systems that need to be developed for a step-by-step transition. A certain capacity to manage double currencies needs to be built up in order to manage late payments, even with a direct changeover.

Both changeover scenarios contain elements of risk. A direct changeover concentrates many elements into one short period of time, while a step-by-step transition entails spreading the risks over two points in time. A step-by-step transition could draw less positive attention and thereby less focus on risks and coordination requirements. Although the risks of disturbances do not differ much between the two changeover scenarios, the SIFS group has nevertheless drawn the conclusion that the risks would probably be easier to handle with a direct change-over.

#### **LEAD TIMES IN THE FINANCIAL SECTOR FOR FULL PARTICIPATION BY SWEDEN IN STAGE THREE OF EMU**

The timetable now proposed, with a referendum on 14 September 2003 and membership, in the event of a "yes" vote, on 1 January 2006 provides a lead time of 24-27 months after a decision by the Riksdag. This is sufficient time for the preparations and planning SIFS considers necessary to ensure a safe and efficient direct changeover. However, the margins are small as the changeover requires precise testing of the IT systems to safeguard an orderly changeover. At least 24 months would be required from the time of a decision in the Swedish Riksdag to membership of the Eurosystem, in order to prepare a changeover of the systems supporting the processes that need to function from the moment the euro becomes Sweden's currency in electronic transactions. In addition, the stated lead times of 24 months until membership assume that the preparations have begun 15-17 months prior to a Riksdag decision on membership<sup>3</sup>. The preparations have now reached such a stage that the SIFS group assesses the risks to be manageable.

The Riksbank and the financial sector have studied experiences of the cash changeover in the

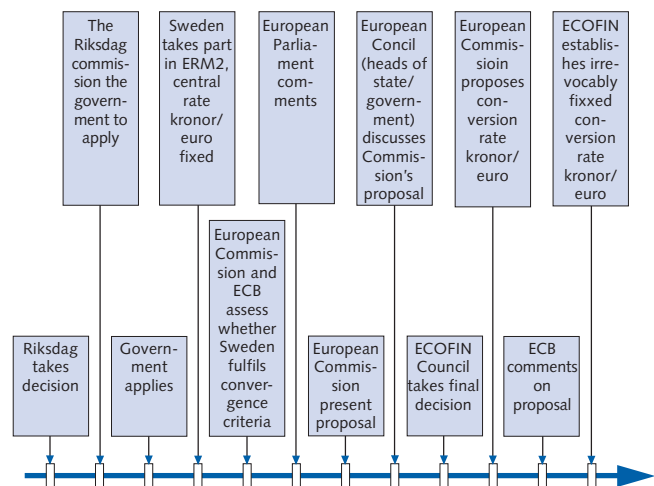
**Fact Box 1.** Admission procedure for entry into the Eurosystem

The choice of timing for entry into the Eurosystem is not merely a question for Sweden to consider, but would be decided by the ECOFIN Council, which would assess Sweden's qualifications for adopting the single currency. If a majority of the Swedish people vote "yes" to adopting the euro in the referendum on 14 September and the Swedish Riksdag then decides to commission the government to apply for membership of the Eurosystem, there will be an examination of whether Sweden fulfils the convergence criteria, probably during spring 2005. The procedure is the same as that followed by the present members when they joined the Eurosystem and involves the European Commission and ECB examining whether a country fulfils the convergence criteria of the Treaty of Maastricht in a sustainable manner. These criteria concern the degree of price stability, exchange rate stability, stable low interest rates and sustainable public finances. In addition to the four convergence criteria, there is also a scrutiny of whether the national legislation is compatible with the Treaty and with the Statute of the ESCB. Assessments of fulfilment of the convergence criteria have previously taken place in spring of alternate years (2000, 2002, etc.). Sweden would therefore need to request a special assessment in 2005<sup>4</sup>. On the basis of the assessment made, the Commission would put forward a proposal that Sweden be invited to join the Eurosystem. After this the European Parliament would comment on the proposal and the Council, in the form of heads of state and government would discuss the proposal, following which the ECOFIN Council would take a qualified majority decision on whether Sweden fulfilled the necessary conditions for membership of the Eurosystem. Such a decision would invalidate Sweden's derogation from full participation in Stage Three of EMU and the time of entry would be set<sup>5</sup>. The aim of the Swedish government is that Sweden would be able to join on 1 January 2006.

An appendix to the Treaty contains more detailed instructions on gauging the conversion criteria. Exchange rate stability is gauged over a two-year period and participation in the joint exchange rate mechanism, ERM2, plays a central role in this assessment. A decision on Swedish participation in ERM2 would be taken by the government. On the other hand, a decision on the central exchange rate and bandwidth in ERM2 between the krona and the euro would be made in agreement between the ECB, the finance ministers of the euro countries and the central bank governors and finance ministers in Sweden and the countries already participating in ERM2. Representatives of the EU countries not participating in the Eurosystem or ERM2 would be able to participate in the discussion but not in the decision.

Prior to joining the Eurosystem, a fixed conversion rate<sup>6</sup> between the euro and the Swedish krona must be

determined. When earlier decisions have been made regarding joining the monetary union, the central rate in the exchange rate mechanism has formed a base for the final conversion rate. The conversion rate has thus been notified at least six months prior to actual membership. The Commission puts forward a proposal for a conversion rate, which is submitted to the ECB for comment, after which the rate is decided by the ECOFIN Council in unanimity between all of the euro countries and Sweden.

**Figure 5.** The path to Eurosystem membership

The legal frameworks for the introduction of the euro are the euro regulations ("Council Regulation (EC) 1103/97 on certain provisions relating to the introduction of the euro" and "Council Regulation (EC) 974/98 on the introduction of the euro"). The first of these prescribes, for instance, that continuity of contracts shall apply as well as stating the rules for conversion and rounding of rates for the changeover to the euro. The second Regulation contains more precise stipulations on how the euro shall replace national currencies in various contexts and in particular how the cash changeover shall be implemented. However, this Regulation was formulated primarily for the current participant countries and the Council must adapt the contents if Sweden joins the monetary union. (See further Fact Box 2 - Conversion and rounding-off and Fact Box 6 - Continuity of contracts.)

Sweden will draw up a national changeover plan for the practical implementation of the cash changeover on the basis of the principles in the euro regulations. As planning here is aimed towards a direct changeover, the plan will differ somewhat in details from the procedure undergone by the current euro countries, who introduced banknotes and coins in euro three years after membership of the Eurosystem.

<sup>4</sup> In accordance with Article 122.2 in the Treaty establishing the European Union.

<sup>5</sup> Articles 121 and 122 in the Treaty and Protocol on convergence criteria in accordance with Article 121 in the Treaty establishing the European Union.

<sup>6</sup> See Fact Box 2 regarding the application of the conversion rate.

**Fact Box 2.** Conversion and rounding-off

Articles 4 and 5 of Council Regulation (EC) 1103/97 contain provisions on how amounts should be converted and reported in accounts. These rules were applied by the current euro countries during their three-year long transition period. If Sweden makes a direct changeover to the euro, they would apply on actual entry to the Eurosystem and to the conversions of kronor to euros made then. According to Article 4.1, a conversion rate shall be adopted for the national currency of each of the participating Member States. This rate shall be adopted with six significant figures. The conversion rate shall not be rounded or truncated when making conversions. This is stipulated in Article 4.2. According to Article 4.3, the conversion rate shall be used for conversions either way between the euro unit and the national currency units. Inverse rates derived from the conversion rates shall not be used. Monetary amounts to be paid or accounted for when a rounding takes place after a conversion into the euro unit pursuant to Article 4 shall be rounded up or down to the nearest cent. The amount shall contain no more than two decimals. Monetary amounts to be paid or accounted for which are converted into a national currency unit, if any such exist on Swedish membership, shall be rounded up or down to the nearest sub-unit. In the absence of a sub-unit, the amount should be rounded to the nearest unit, or according to national law or practice to a maximum of two decimals. If the application of the conversion rate gives a result which is exactly half-way, the sum shall be rounded up<sup>7</sup>.

*Rounding-off, decimals and standard amounts*

It is probable that the conversion rate between the euro and the krona will be expressed as a decimal. It will thus not usually be possible to convert whole numbers in krona to whole numbers in euro. A direct translation of an amount in krona to euro or vice versa would therefore

need to contain decimals to retain sufficient accuracy. At present, Swedish authorities only deal in whole numbers of krona. At the beginning of the 1970s, when many Swedish authorities began to build up IT systems, there was no requirement to use öre in their calculations. The value of a Swedish krona was then roughly the same as a euro today. Analogous to this, one could draw the conclusion that decimals would not necessarily be needed by central government authorities in a changeover to the euro. The Swedish Agency for Public Management is commissioned by the government to coordinate the central government authorities' work on certain preparations for the euro. In a report published in 2001 the Agency provides certain recommendations, which are summarised below. With regard to decimals, the Agency has the following proposal for recommendations to apply to conversions at the fixed rate.

- Any conversion between Swedish krona and euro shall be made with the aid of the conversion rate of six significant figures (five decimals). When making further calculations using the converted amounts, the amounts used in the calculation should exist of at least three decimals. The amounts then stored should contain at least two decimals. The converted amounts that are stored or used in an operational system that cannot or should not manage decimals should be rounded up or down to whole numbers.
- All amounts included in a financial system should contain at least two decimals. When new operational systems are constructed, scope should be allowed where necessary for at least two decimals in the amounts to be stored. However, when constructing calculation modules, scope should always be provided for at least three decimals.
- The Agency recommends that in calculations involving several steps, the amounts should be rounded up or down as late in the process as possible.

euro area and drawn the conclusion that in Sweden a replacement period of only one month would be needed, instead of the two months that applied for the current members of the Eurosystem.

*The lead times presented in this report are based on the following general assumptions:*

- That the choice of changeover plan will receive rapid support from the European Central Bank (ECB),

<sup>7</sup> The provisions for conversion of monetary amounts from one national currency unit to another, known as triangulation, are contained in Article 4.4. This states that the amount shall first be converted into a monetary amount expressed in the euro unit, which amount may be rounded to not less than three decimals and shall then be converted into the other national currency unit. No alternative method of calculation may be used. Thus, the inverse value may not be used.

the European Commission and other euro countries.

- That Sweden will be treated similarly to Greece with regard to admission procedure and setting the conversion rate, that is to say, the conversion rate will be fixed at least four, preferably six, months prior to Eurosystem membership.
- That laws or statutes regarding how conversion should be carried out at financial institutions and insurance companies should be issued in connection with the Riksdag decision to apply for full participation in Stage Three.
- That the point of entry will require the banks to provide limited service for four days in a row. Some

of these days will be what are already bank holidays. Time must be allocated for two calendar days with ordinary year-end running and two days with euro conversion.

- That some preparations will be begun prior to a Swedish Riksdag decision on membership being taken.
- That other sectors will manage the changeover without problem.

The Riksbank and some financial institutions have already implemented a number of euro adaptations to enable them to manage the euro on a large scale from the start of the Eurosystem. For instance, the Riksbank has been participating in the joint EU payment system, TARGET, since its start on 1 January 1999<sup>8</sup>. However, Swedish participation in the Eurosystem would require that systems and routines for monetary policy and management of the central government debt were adapted to the systems existing in the euro zone, as well as the requirement that the payment system be completely adapted to the euro.

With effect from a possible Swedish membership of the Eurosystem, newly issued treasury papers and other debt securities would be denominated in euro. In addition, the outstanding central government debt would be redenominated to euro. Both of these measures apply to securities registered with VPC. Most of the current euro countries chose to base their assumptions on investors' holdings and redenominated outstanding securities to euro with a precision of two decimals, i.e. down to cents. Other alternatives for redenomination include exchanging each outstanding security or rounding-off to whole euros. In the SIFS expert group, the professional organisations concerned are consulting on the issue of which redenomination method should be used in Sweden. These discussions are still in progress (April 2003). See further the section on the Swedish National Debt Office's preparations.

It is important to obtain a decision on the irrevocable fixed conversion rate between the krona and the euro in good time (four to six months prior to

entry to the Eurosystem), in the same way as for the Greek drachma,<sup>9</sup> when Greece was given just over six months to make its preparations. This is important, partly because a very large number of prices need to be adjusted in customer systems and not all systems are parameter-controlled. Many older IT systems therefore need to be manually changed over, for instance by changing the currency rates directly in the program code.

One condition for the lead times being so much shorter in Sweden following a decision to participate than they were in the other euro countries, despite the higher degree of automation and the greater customer-institution integration, is that some preparations have begun already during the advance warning period, i.e. the period prior to a Riksdag decision.

### Lead times and preparations in the financial institutions and authorities in the financial sector

The financial sector will play a key role in a possible Swedish membership of the Eurosystem. In earlier editions of the series "The Euro in the Swedish Financial Sector – Progress Report", the SIFS group has presented surveys of necessary adaptations and lead times in various parts of the financial sector. Operations and areas that would be affected by a changeover to the euro have been identified in order to ensure readiness for action.

This section contains an account of the adaptation measures the various participants in the SIFS work consider to be necessary in their respective operations to replace the krona with the euro in the event of a direct changeover, and how long these adaptations are expected to take.

The chapter begins with a survey of the Riksbank's lead times for various operational areas, followed by the accounts of Finansinspektionen, the Swedish National Debt Office, the Swedish Bankers' Association, the Swedish Securities Dealers Association, Stockholmsbörsen AB, VPC (the Swedish Central Securities Depository), the Association of Swedish Finance Houses, the Swedish Insurance Federation and the Swedish Investment Fund Association.

### THE RIKSBANK

The Riksbank coordinates the euro preparations in the SIFS work with its internal preparations. These are conducted in the project "the Riksbank's EMU preparations", which has now entered a more active phase.

<sup>8</sup> Trans-European Automated Real-time Gross settlement Express Transfer system. The primary purpose of TARGET is to create the right conditions for conducting a joint monetary policy within the euro zone. TARGET provides an opportunity for the banks to rapidly and safely implement large payments in euro. It therefore also functions as an alternative to traditional payments via correspondent banks. Participants in the TARGET system can send and receive both cross-border and domestic payments in euro. See also the section entitled "A changing payment system".

<sup>9</sup> See the Council Regulation (EC) No 1478/2000 of 19 June 2000 amending Regulation (EC) No 2866/98 on the conversion rates between the euro and the currencies of the Member States adopting the euro.

This project is a continuation of the EMU preparations that have been in progress at the bank since 1995. The work on the internal practical preparations for a possible full Swedish participation in Stage Three of EMU comprises ten main fields of operations. During 2002 the work was aimed at, following on from the euro countries' experiences<sup>10</sup> of the cash changeover, making a detailed survey of what needed to be done and how the work should be distributed if Sweden changes over to the euro. During the current year, the work has been focused on a more detailed run-through of the legal acts within the EU and ESCB governing the euro cooperation. In addition, an update is being made of the project descriptions covering the adaptation of the Riksbank's operations to a situation where Sweden participates fully in Stage Three of EMU. Many of the projects are IT-related. An important part of this process has entailed updating the assessment of how long the projects will take to implement and at what stage they should be implemented.

Up to the point of the government's announcement in January 2003 on its preferred changeover scenario, the Riksbank's internal preparations had been aimed at Sweden joining the Eurosystem on 1 January 2005 at the earliest and had assumed that the changeover would be in the form of a step-by-step transition. However, as one of the Riksbank's main tasks is to promote a safe and efficient payment system, the Riksbank has assessed that an exaggeratedly fast timetable would risk disturbances in the payment system. This is the most important reason for the Riksbank's support of the SIFS group's

recommendation of a direct changeover on 1 January 2006. The Riksbank's preparations have now been adapted to this date as the date of entry. The changes to the internal plans include allocating more time for necessary tests together with the financial sector and other sectors than was previously thought possible. It is mainly this greater scope for tests that leads to the assessment of 1 January 2006 providing a safer entry into the Eurosystem.

Below follows a description of the preparations remaining in order to change the Riksbank over to managing euro. For each sub-area there is a description of the approximate time required and at what stage in the process the change needs to be made.

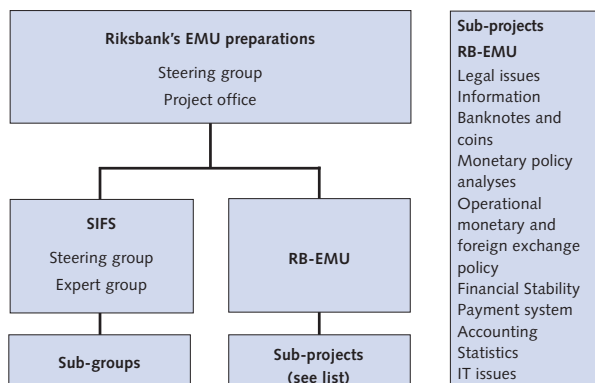
To summarise, the most changeover work is required for the production and changeover of banknotes and coins, the information campaigns and the system changeovers. The Riksbank's changeover to a euro environment would require approximately eighteen months work from a decision on membership (on condition that certain preparations were carried out during what is termed the advance warning period)<sup>11</sup>.

#### *Legal adaptations*

The Riksbank's survey shows that the necessary legal adaptations are of two different natures. Firstly, the Riksbank must adapt its own operations to the ESCB regulations within all fields of operation. This applies both to those rules aimed at the Riksbank's external counterparties and those applying internally within the ESCB system, between the ECB and the national central banks. These rules concern, for instance, the functioning of the TARGET payment system, rules for exercising monetary policy, foreign currency reserve management, the fields of banknotes and coins and statistics.

Secondly, there is a need to adapt national legislation. If the euro were to be introduced, Swedish legislation would need to be amended in a number of areas. This applies, for instance, to the Sveriges Riksbank Act and to all legislation where the krona is mentioned as the Swedish currency. It may also be necessary to review the copyright legislation with regard to the copyright protection for banknotes and coins in euro. The convergence reports of the European Commission and the ECB show that Swedish legislation is not entirely compatible with the requirements in the Treaty and the Statute of the ESCB. For instance, only the Riksbank has the right to

**Figure 6.** Riksbank's EMU preparations – project organisation



<sup>10</sup> The euro countries' experiences of the cash changeover are reported in "The Euro in the Swedish Financial Sector – experiences of the cash changeover in the euro zonen – Progress Report 8".

<sup>11</sup> See Fact Box 4 – The various periods of the changeover process.

issue banknotes and coins according to the Instrument of Government, which means that the ECB's sole right to permit the issuing of banknotes within the EU is not recognised. However, this sole right for the Riksbank to issue banknotes and coins in Sweden does not need to be changed, according to the government's assessment, as the EU law applies in Sweden<sup>12</sup>. Nevertheless, according to the government, a proposal to change the Instrument of Government should be put before the Riksdag in connection with a decision to join the Eurosystem, to enable it to be changed after a second decision in the Riksdag following the parliamentary election in 2006. The reason why the government wants to introduce this change is that the stipulation should be adapted to the actual conditions.

The changes to the Riksbank's internal rules and in the legislation are necessary to enable Swedish membership of the Eurosystem. Most of them should be made prior to membership. A survey of the amendments to laws and rules required for the smooth running of the preparation work is currently in progress, in cooperation with the SIFS group. The survey will divide the changes into those needing to be decided in autumn 2003, those which must be decided prior to membership on 1 January 2006 and those that can wait. The Riksbank is closely following the work on legislation, which is the responsibility of the government offices.

#### *Banknotes and coins – production and changeover<sup>13</sup>*

Since the Riksbank in 2001 transferred management responsibility for Tumba Bruk to Crane AB and sold the Swedish Mint to Rahapaja Oy's<sup>14</sup> subsidiary Nordic Coin, the Riksbank has refined its role with regard to banknotes and coins to being a customer. The transfer to Nordic Coin has provided access to competence in the production of euro coins and greater production capacity in the merged company, which have enabled the lead times for production of euro coins to be reduced.

One point of departure for the preparations has been that the Riksbank would only distribute coins with a Swedish national side if the euro is adopted. As mentioned above, Sweden intends to apply a cash changeover period of one month, taking into account

<sup>12</sup> Government Bill 1997/98:40 the position of the Riksbank, p. 82 on.

<sup>13</sup> A detailed survey of the elements in the production of banknotes and coins is provided in the SIFS Progress Report 7 "The Euro in the Swedish Financial Sector – Banknotes and Coins".

<sup>14</sup> The Finnish Mint.

#### **Fact Box 3.** Assumptions regarding lead times for a Swedish cash changeover.

##### **BANKNOTES**

- The current delivery agreement with Crane AB (which has management responsibility for Tumba Bruk) applies until the end of 2005.
- After 1 January 2002 and until a Swedish cash changeover there is vacant production capacity in other European banknote printing works.
- The ongoing preparation work will continue and parts of the work on tests, trials and certain investments will be carried out during the advance warning period.
- Crane AB will quickly receive the necessary security and quality approval from the ECB.
- Permission from the ECB to print banknotes will be received immediately upon a Swedish decision to apply for Eurosystem membership and the producers will be approved.

##### **COINS**

- There is no need to produce 1-cent and 2-cent coins in any great volume. The Riksbank assumes that similar rounding-off rules to those existing in Sweden today would be applied by the retail trade following the introduction of the euro, which is the case in Finland, where they continued to apply existing rounding-off rules.
- The total number of coins needed at the time of membership is approximately 860 million.
- The Sveriges Riksbank Act would be amended in autumn 2003, immediately after a decision to apply for membership of the Eurosystem. The change gives the General Council of the Riksbank the authority to make decisions regarding the national side of the euro coins and would come into effect autumn 2003.
- Proposals for national sides of the coins have been put forward in advance, but not formally adopted.
- The Royal Court and the State Herald rapidly approve the national sides of the coins, the design of which has already been checked with them.
- The General Council of the Riksbank makes a decision immediately after the change in legislation on the design of the national sides.
- Nordic Coin AB has prepared production and minting tools with the preliminary national sides as a model, has test minted and quality tested during the advance warning period.
- Permission from the Commission to mint coins is obtained immediately after a Swedish decision to apply for membership of the Eurosystem.

the experiences from the cash changeover in the present euro countries.

The preparations also include planning the cash changeover. All of those involved in cash management, including the Riksbank's subsidiary Svensk Kontantförsörjning AB, SKAB, are involved in this work. The planning work for a cash changeover is conducted in the SIFS sub-group on banknotes and coins.

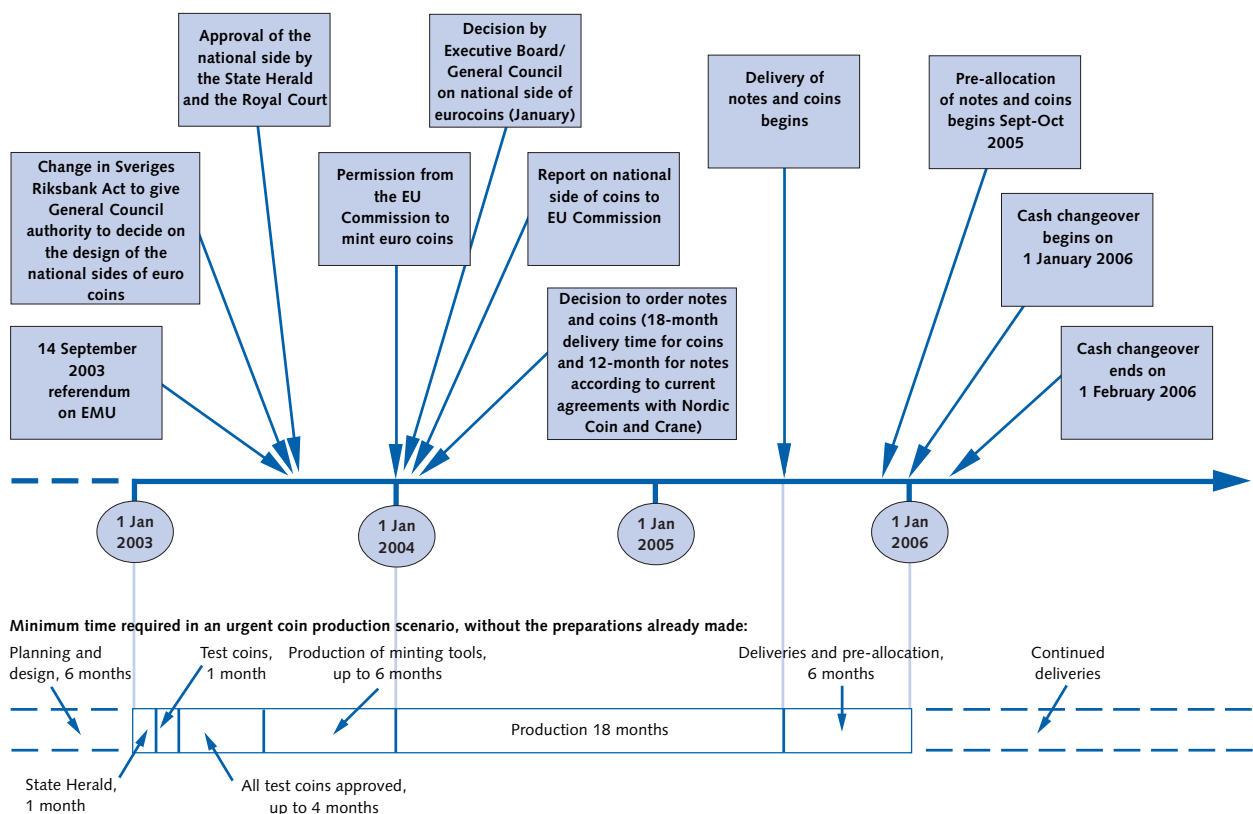
The production time for banknotes is 12 months and for coins 18 months, after receipt of an order from the Riksbank. Production needs to be complete in sufficient time prior to entry and the cash changeover to allow time to transport the banknotes to storage sites and for frontloading. As the total lead time for coin production is significantly longer, the Riksbank has been working on reducing these lead times since autumn 2000, at the request of the Riksbank's General Council. The foremost method of shortening lead times and thereby retaining the best possible readiness for action, in accordance with the Riksdag decision of 1997, is to implement a number of preparations during the advance warning period. In addition, this reasoning is based on a number of specific assumptions, including that the Sveriges Riksbank Act will be amended with regard to the General Council's authority to make decisions on the design

of krona and öre to apply to euro. This change needs to apply with effect from autumn 2003. See further Fact Box 3. If any of the assumptions is not fulfilled, this could entail longer lead times. For most of the assumptions, the preparation process will be delayed by as much as the actual delay in making a decision or taking measures.

#### *Lead times for the production of euro banknotes*

Euro banknotes are issued in the denominations 5, 10, 20, 50, 100, 200 and 500 euros. Experiences from the current euro countries show that the amount of banknotes and coins in circulation declined prior to the euro introduction. If this occurs in Sweden, it is assessed that the number of euro banknotes needed to be produced to enable the Riksbank to implement a cash changeover without risking a shortage of banknotes is approximately 270 million notes. All euro banknotes of the same denomination have jointly established and identical appearance regardless of their country of issue. There is very little tolerance for deviation from the technical specifications for the banknotes. Certain investments would need to be made at Crane AB to be able to quality control the banknotes in accordance with these specifications, both during and after printing. These investments are expected to take approximately twelve months to im-

**Figure 7.** Planned timetable for production of coins



plement, mostly planned for the advance warning period.

The production time for the Swedish requirement of euro banknotes is estimated by Crane AB to be approximately 12 months, which also corresponds to the delivery time Crane AB shall meet according to its agreement with the Riksbank. As the current euro countries have already implemented a cash changeover, there will be a possibility, if necessary, to out-source some production to other printing works in the EU.

#### *Lead times for the production of euro coins*

Experiences from the current euro countries show that the manufacture of euro coins is complicated and requires extensive preparations, see Figure 7. This is partly because the tolerance for deviation from the technical specifications for coins is very slight, as all of the coins shall function in, for instance, all cash-operated machines throughout the entire euro zone. The coins must also fulfil high requirements for security, i.e. be difficult to forge.

Euro coins are produced in the denominations 1, 2, 5, 10, 20 and 50 cents, as well as 1 and 2 euros. The Riksbank's planning is based on the assumption that only small amounts of 1-cent and 2-cent coins would need to be produced. This is because the Riksbank is counting on applying similar rounding-off rules to those existing today if Sweden joins the Eurosystem. This assumption is based on practice in other countries. Finland retained its earlier rounding-off rules when it adopted the euro. However, sufficient amounts of Swedish 1-cent and 2-cent coins will be produced to avoid the collector value deviating from the nominal value.

In Sweden the initial minting requirement is expected to be 860 million euro coins if the euro is introduced. The number of coins denominated in kronor and öre in circulation is slightly over 2 billion<sup>15</sup>. Based on the present euro countries experiences, where many of the coins distributed at the beginning of the changeover then returned to the central bank, the estimated amount of coins is judged to be sufficient.

The manufacture of euro coins is a process entailing several stages and, as for banknotes, one of the requirements producers of euro coins must fulfil is continuous quality control. The stages carried out during the advance warning period are design, casting moulds, producing test coins, producing minting tools and test minting as well as proposals for

<sup>15</sup> This figure refers to the year-end 2002.

#### **Fact Box 4.** The various periods of the changeover process

**Advance warning period** – the period until a Riksdag decision to apply for Eurosystem membership. Only banknotes and coins in Swedish kronor and öre are legal tender, but euro banknotes and coins can be used if both parties of a transaction agree to it.

**Qualified preparatory period** – the period between a Riksdag decision to apply and the time of entry to the Eurosystem. All formal decisions related to entry would be taken, see Fact Box 1 – Admission procedure for entry into the Eurosystem. The authorities would be responsible for some preparatory work, while preparations in trade and industry would be on a voluntary, commercial basis. Only banknotes and coins in Swedish kronor and öre are legal tender, but euro banknotes and coins can be used if both parties of a transaction agree to it.

**Point of membership** – the date from which Sweden participates fully in Stage Three of EMU and is thereby covered by the joint monetary policy. Also with effect from this date, the euro is Sweden's currency and euro banknotes and coins become legal tender (unless a step-by-step transition is applied – see below).

**Transition period** – (only in the event of a step-by-step transition – will not be the case for Sweden) the period between Eurosystem membership and a cash changeover. During this period Sweden would participate fully in EMU and be covered by the joint monetary policy. The euro would be the legal currency but used only in electronic form. Banknotes and coins in kronor and öre would still be the only legal tender.

**Cash changeover period** – the period when the euro is legal currency and the krona is a subordinate unit. Banknotes and coins in both euro and krona are legal tender, but banknotes and coins in kronor and öre will be gradually withdrawn. During this period the Riksbank will issue banknotes and coins in euros and cents. At the end of the period, only banknotes and coins in euros and cents will be legal tender.



amendments to the laws. Nordic Coin will implement some of these preparations with some commercial risk. However, the Riksbank must compensate Nordic Coin for other parts of the preparations. This applies in particular to production of the minting tools. Following a decision on Eurosystem membership, an amendment to the Sveriges Riksbank Act, a decision by the General Council of the Riksbank and the placing of an order, minting and distribution of the coins can begin. The various stages of the production process are described in detail below.

#### *Design and casting moulds*

With regard to euro coins, one side must have the same design, regardless of which country it is minted in. The other side carries a national design with certain given motifs and on the basis of the applicable technical specifications for euro coins. In spring 2000 the General Council of the Riksbank commissioned the Executive Board to present proposals for shortening the lead times for the production of euro coins. This led to the General Council deciding in autumn 2000 to update the portrait of King Carl XVI Gustaf on the Swedish one-krona and ten-krona coins. At the same time, the General Council expressed full support for the Executive Board's proposal to focus the continued planning for euro coin production on using the updated portrait of the King on the national

side of 1-euro and 2-euro coins and the lesser national coat of arms without escutcheon on the cent coins. This meant there would be no risk of delay in the event of Swedish Eurosystem membership. A decision by the General Council on the final design of the national side of Swedish euro and cent coins will be taken when the law is amended following a "yes" vote in the referendum.

Before the General Council can formally decide on the design of euro coins, the Sveriges Riksbank Act must be amended. According to Chapter 5, § 2 (1988:1385) of the Sveriges Riksbank Act, coins may be issued in various denominations of kronor and öre. An amendment to this act needs to be made allowing Swedish coins to be issued in euros and cents, before the General Council of the Riksbank can determine the appearance of the euro coins to be issued by the Riksbank. The approval of the Royal Court is needed to use the King's portrait and motto on euro coins. Consultation with the State Herald is required for use of the lesser national coat of arms without escutcheon. Only then can the General Council take a decision on the planned motif for Swedish euro coins.

The action taken following the General Council's decision in October 2000 has been to take informal contact with the Royal Court and the State Herald to check the appearance of the coins. This has partly

**Figure 8.** The Riksbank's and the Eurosystem's steering interest rates – a comparison

	<b>The Riksbank</b>	<b>The Eurosystem</b>
<b>Regular market operations</b>	<ul style="list-style-type: none"> <li>• Repo with one-week duration               <ul style="list-style-type: none"> <li>– Monetary policy signalling</li> <li>– Deposits and loans to the financial system</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Repo with two-week duration               <ul style="list-style-type: none"> <li>– Monetary policy signalling</li> <li>– Loans to the financial system</li> </ul> </li> <li>• Repo with three-month duration               <ul style="list-style-type: none"> <li>– Rate takers</li> <li>– Loans to the financial system</li> </ul> </li> </ul>
<b>Standing facilities</b>	<ul style="list-style-type: none"> <li>• Deposits</li> <li>• Loans</li> </ul>	<ul style="list-style-type: none"> <li>• Deposits</li> <li>• Loans</li> </ul>
<b>Fine tuning</b>	<ul style="list-style-type: none"> <li>• Daily</li> </ul>	<ul style="list-style-type: none"> <li>• Ad hoc</li> </ul>
<b>Minimum reserves</b>	<ul style="list-style-type: none"> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• Yes, average method</li> </ul>
<b>Monetary policy counterparties</b>	<ul style="list-style-type: none"> <li>• Primary Dealers (small number)</li> </ul>	<ul style="list-style-type: none"> <li>• All credit institutions with minimum requirement (large number)</li> </ul>
<b>Collateral</b>	<ul style="list-style-type: none"> <li>• Treasury papers</li> <li>• Mortgage bond</li> </ul>	<ul style="list-style-type: none"> <li>• Treasury papers</li> <li>• Private debt instruments</li> <li>• Shares</li> </ul>

Sources: The Riksbank and the ECB

been on the basis of drawings. After that, plaster moulds were cast and test coins have been produced to obtain the desired appearance for the selected motifs. These would be checked with the Royal Court and the State Herald, and after their approval the minting tools could be produced.

#### *Production of minting tools, test minting and quality tests*

Before full-scale production of coins can begin, the minting tools need to be produced. Producing tools that gave coins of the quality prescribed proved to be a technical challenge for the countries which introduced the euro in 2002. As the national sides of the coins differ between the countries, it has proved to be complicated to produce coins that meet the technical specifications in the same way, regardless of their country of issue. The tools are produced first, and then a number of coins are test-minted. These are thoroughly quality tested and then the tools are finely adjusted until the coins have the required quality. Experiences from the euro countries so far show that it has taken approximately one year to produce finished minting tools, but through experience gained and collaboration with the Finnish Mint it should be possible to shorten the process. In addition, the quality controls require some investment in new technology at the Mint in Eskilstuna.

#### *Minting*

After minting tools have been produced, the actual coin production can begin. This would start after a referendum and a Riksdag decision to apply for Eurosystem membership. Nordic Coin is investing in the Swedish Mint to increase production capacity and there is also a possibility to receive assistance with production capacity in Finland. The current machinery and machine utilisation provide the capacity to cope with the necessary minting and other remaining parts of the production process within 18 months of receipt of an order from the Riksbank. However, this assumes that the earlier stages in the production chain have been completed as rapidly as stated in Fact Box 3.

#### *The steering interest rates system*

The Riksbank's and the Eurosystem's<sup>16</sup> steering interest rates systems are relatively alike. For instance,

<sup>16</sup> The Eurosystem consists of the ECB and the national central banks of the EU Member States participating in the monetary union. The Eurosystem is governed by the ECB's Governing Council and has been responsible for the joint monetary policy in the euro area since 1 January 1999. The overall objective of the Eurosystem is to maintain price stability.

both the Eurosystem and the Riksbank use open market operations and standing facilities in their interest steering systems. If Sweden participates fully in Stage Three of EMU, the instruments used will be similar to those used today. However, some procedural changes will be required in that the Riksbank will be part of a decentralised system, where the ECB determines what monetary policy measures shall be taken, while the national central banks implement the decisions. One important difference with regard to the monetary policy instruments used is that the Eurosystem applies a minimum reserve requirement. The Riksbank's minimum reserve requirement has been set at zero since 1994. Prior to Swedish participation in the Eurosystem it would thus be necessary to work out routines for a minimum reserve requirement per institution in the Riksbank's payment system. A number of other changes regarding the steering interest rates system would also need to be implemented prior to membership, such as which securities can be used as collateral and which counterparties can participate in monetary policy transactions. In addition, a new regulatory framework for monetary and foreign exchange policy would need to be introduced and a number of IT systems would have to be adapted to process transactions in the joint environment of the Eurosystem.

There has been extensive work on preparations in this field for a couple of years now. Initially, this was a question of designing the joint system for steering interest rates within the future monetary union, together with colleagues from other central banks in the EU. Since 1999, it has mainly involved maintaining knowledge within the Riksbank of how the Eurosystem's steering interest rate system functions and develops and thereby surveying what would need to be changed in the Riksbank's system in the event of participation in the Monetary Union. Some changes have already been implemented, for instance, valuating and managing securities, either because these changes have been assessed as beneficial even if Sweden is not a member of the Eurosystem or because the preparation period would be so long.

The total changeover work in this field that needs to be completed prior to Swedish membership of the monetary union, is estimated to take approximately 18 months, including a test phase of all systems amounting to around six months. The systems must be complete prior to entry, which gives a certain time margin.

### *The payment system*

Most of the adaptations with regard to the payment system were implemented back in 1999. At present, the Riksbank operates two settlement systems, one in kronor, K-RIX, and one in euro, E-RIX, which is linked to TARGET. The remaining adaptation work involves changing over to one single system, with settlement only in euros. This system needs to be supplemented; partly to be able to manage the minimum reserve requirement applied by the ECB and partly the addition of a number of standing facilities regarding deposits and lending at the Riksbank. Examples of necessary changes in connection with this are the introduction of minimum reserve accounts, systems for communication and routines for inward and outward payments, calculating interest and follow-up of both direct and indirect participants in the system.

### *Accounting and IT systems*

If Sweden joins the Eurosystem, the Riksbank must report its balance sheet to the ECB on a daily basis. This reporting is governed by a special guideline (ECB/2002/10), which mainly covers valuation and income recognition rules for the gold and foreign currency reserve. The Riksbank's new system for business transactions and accounting (SARA) will meet the requirements in this guideline. This means that with effect from the planned operating start of SARA on 1 January 2004, the Riksbank would be able to report its balance sheet to the ECB in accordance with the guideline mentioned. All of the changes in the accounting area would have to be implemented prior to participation in the Eurosystem. Examples of important changes in the accounting field include the calculation of realised and unrealised exchange rate effects on the basis of average acquisition value. At present no acquisition value is calculated for currency, which means that no difference can be made between realised and unrealised exchange rate effects. Unrealised price and foreign exchange rate effects will be booked in special value adjustment accounts in the balance sheet. At present these are booked in the profit and loss account. In addition, there is currently daily market valuation in the balance sheet, whereas this would be done monthly if Sweden were in the Eurosystem.

With regard to the IT systems, some changes in hardware and system software may be necessary to be able to install the ECB systems. The IT Department would also be involved in implementing a large

number of projects necessary for the changeover, but described under the respective operational area.

### *Statistics*

The Riksbank's production of balance of payments statistics and financial market statistics has changed drastically since Sweden joined the EU. Over the past year there has also been a redistribution of statistical work between the Riksbank and Statistics Sweden (SCB), as production of financial market statistics and collection of certain parts of the balance of payments data is now carried out by SCB. Access to a good statistical base in the two main fields has been considered by the ECB to be a necessity for conducting joint monetary policy. This involves being able to compile data on the development of the money supply, which is a reference value for the ECB when shaping its monetary policy. Statistics are also used for calculating minimum reserve requirements and for obtaining a correct and up-to-date picture of the euro zone's assets and liabilities abroad, which is important, for instance, in the analysis of exchange rate developments.

Within the ESCB new requirements for statistics have been drawn up on a regular basis. This applies, for instance, to statistics on interest rates in various sub-markets and the requirement for well-developed securities statistics. In general, the ECB's statistical requirements would entail an increase in the disclosure of information on durations and counterparties that would make the statistics more complex. The statistics are collected jointly by the Riksbank, Finansinspektionen and SCB. The changeover would demand considerable effort by both the authorities and the reporting institutions.

The statistics have already been partly adapted to ECB and EU requirements, but further steps will be taken in the coming years to meet the other requirements. Certain requirements must be fulfilled for Eurosystem membership, for instance, the minimum reserve statistics. In addition, the Riksbank would have to meet all statistical requirements based on EU legislation. Some changes could be implemented after joining the system. The Riksbank's assessment is that the changeover work would take a total of around 24-30 months. A more detailed timetable for the changeover work will be established during 2003. The minimum reserve requirement could be introduced within a twelve-month period from a decision to join the Eurosystem.

**Figure 9.** Timetable for the communications work

### *Communication strategies*

Participation in the Eurosystem and a cash change-over would affect all inhabitants of Sweden and require well-planned information ventures. This requires a close collaboration between different sectors in society with regard to the forms for information and communication to enable a smooth changeover process.

The preparations for the information work began in 2002. In December 2002 the Executive Board of the Riksbank adopted a platform for the Riksbank's communication prior to membership of the Eurosystem. This platform specifies the overall aim of the communication work. The Riksbank's information ventures will be coordinated with the information plan included in the Ministry of Finance's national changeover plan.

### *Division of responsibility*

The Riksbank and the Ministry of Finance have discussed the division of responsibility between themselves. The information ventures should support the execution of the tasks imposed on the respective authorities prior to Eurosystem membership. The basic principle is therefore that each authority takes responsibility for information within its own area.

The Riksbank coordinates the information work in SIFS and thus has coordinating responsibility for information to target groups within the financial sector. Information to the financial sector on, for instance, minimum reserves and payment system changes will be provided within the framework of respective sub-projects within the Riksbank, with the support of the Riksbank's Communications Department.

For the Riksbank, this entails a responsibility for ensuring that the general public and the financial sector become familiar with the practical issues regarding a change of currency.

### *Purpose and goals of the information ventures*

The purpose of the communications ventures is to contribute to a smooth entry into the Eurosystem and an efficient and safe cash changeover. The Riksbank's overall communications goal is for the target groups to:

- know when the cash changeover will take place and how it will work in practice,
- recognise genuine euro banknotes and coins, and
- be informed about and feel confidence in the monetary union and the euro.

After making an inventory of the target groups, communications goals will be specified for each target group. For instance, suppliers of technical equipment have rather different information requirements than the Riksbank's counterparties in monetary policy transactions.

### *Preparations for the information ventures*

The Riksbank's preparation work is conducted both externally in the SIFS sub-group for information and internally within the Riksbank.

The SIFS sub-group for information, which comprises around twenty authorities, companies and organisations, is building up a network for collaboration. Within this network a survey will be made of the sector's target groups and their information requirements. The responsibility for giving information to the respective target groups is under discussion.

The internal information project is responsible for preparing for the work to be done and the project organisation to be set up if there is a "yes" vote in the referendum. The following preparations will be made prior to the referendum:

- experiences will be gathered from information campaigns in countries that have already adopted the euro,
- there will be a review of the competence needed for the information work prior to membership of the Eurosystem and preparations will be made for the recruitment of project staff,
- preparations will be made for a network for cooperation and for a partnership programme structure for the companies and organisations that will be involved in the information work,
- there will be a survey of the target groups and their respective information needs,
- preparations will be made for knowledge and attitude surveys and
- preparations will be made for the public procurement of communications consultants' services.

Preliminarily, the project work will cover the following sub-projects: organisational contacts with the aim of pursuing a partnership programme, market communications with the aim of producing information material and selecting channels for information, press services, internal communications, inquiry services, website, information to schools and organisation of seminars.

After a potential "yes" vote in the referendum, the information work will enter an active planning stage. The work that starts up then will cover the recruitment of project staff, the selection of agencies (communications consultants) and the start of a partnership programme. A communications concept for the entire information campaign is expected to be complete in spring 2004 and a decision on the budget can be taken then. An information campaign directed towards the general public is planned for launch in mid-2005 at the earliest.

#### Timetable

The project started in June 2002 and will be complete when the cash changeover has been implemented and a follow-up has been made in March 2006. The work will roughly follow the timetable on page 20, Figure 9.

#### Summary of the Riksbank's lead times

The Riksbank's euro preparations will have covered approximately 34-36 months once the cash changeover is complete. Of this time period, 15-17 months come under the advance warning period, while 18 months is the minimum needed for the qualified preparatory period. The cash changeover period is plan-

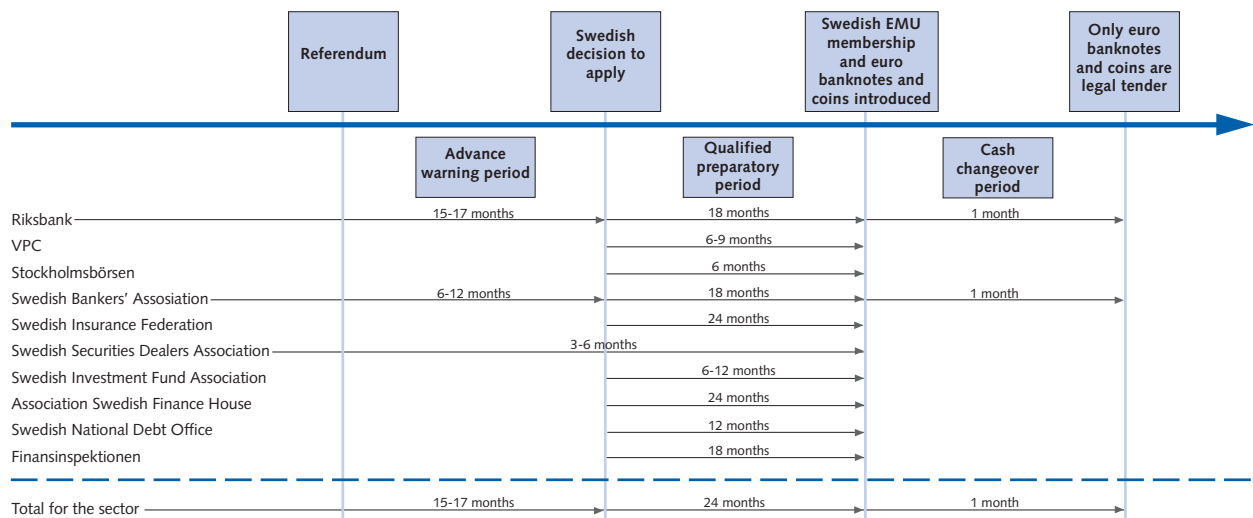
ned to be one month. After this, further measures will be needed to gather and destroy the banknotes and coins in kronor that have been handed in. Discussions on this are in progress.

The cash changeover is the project that is most demanding with regard to time and coordination with other parties. Within the internal preparations, the statistical adjustments will also require considerable time and resources. Extensive work has been done in the accounting field with the introduction of the Riksbank's new system for business transactions and accounting, SARA. The same applies to the payment system area, where the Riksbank is closely monitoring the changes occurring in the Eurosystem's TARGET payment system. The lead times given for the respective areas in the Riksbank's preparations do not include time for tests, unless specifically stated. In addition, time will be required for joint national tests, probably around six months. The current planning gives sufficient time for the Riksbank's preparations including tests, although the margins are not very great.

#### FINANSINSPEKTIONEN (THE SWEDISH FINANCIAL SUPERVISORY AUTHORITY)

Finansinspektionen's euro preparations cover accounting issues, the authority's own IT preparations, adaptation of regulations and general guidelines, the institutions' reports to the authority, monitoring of the institutions' preparatory work, customer and consumer aspects and training of the authority's staff. When assessing the work that remains to be done at Finansinspektionen prior to Eurosystem membership, it is mainly these areas that need to be taken into consideration.

Figure 10. Lead times financial sector



*Current management of the euro by  
Finansinspektionen*

The current internal use of data in euro by Finansinspektionen is limited to parts of the obligatory reporting of statistics from companies under its supervision. At present, the authority only uses the euro as a reference currency for the krona. The euro has the same formal status as other foreign currencies in the regular reporting and all regular reporting is currently in Swedish kronor.

Externally, that is to say, among the institutions and organisations for which Finansinspektionen has supervisory responsibility, use of the euro has attained a certain, albeit limited, scope. The authority has followed the financial institutions' work on building up and changing IT systems to be sure of a safe and smooth adaptation and changeover to the new conditions that followed on from the introduction of the single currency. This work has continued even after the introduction. The institutions' IT-based communications with both customers and other institutions must function safely and efficiently during and after a changeover from kronor to euros. All of the institutions must have plans as to how IT systems shall be adapted, including the scope and time required for these adjustments. Some similarities can be observed here between the planning required by the authority and the institutions prior to the millennium changeover.

*Finansinspektionen's stated need of lead times  
during the qualified preparatory period –  
opportunities to reduce these*

The adaptations of IT systems include planning, problem audits, prioritising, decisions, specification of requirements, construction, testing, implementation, etc. The most time-consuming element for the operational units at Finansinspektionen will be the reviews that must be made on-site at the institutions. Information aimed at the authority's own employees will need to be provided regularly, for instance with regard to timetables, work input, new regulations, etc. Training for employees will be needed in the IT and accounting fields. External information ventures will probably be needed in a number of areas. When assessing lead times and the work input required at Finansinspektionen prior to full participation in Stage Three of EMU, the above measures regarding IT systems have come under special focus.

Finansinspektionen's report "Finansinspektionen's work on preparing for the euro – Progress Report 2" from 1 October 2001, concluded that the need for lead times during the qualified preparatory period was greatest in the IT field. The analysis presented in the report was based on a step-by-step transition. Adaptation of the IT systems is the most cumbersome, most critical and most expensive part of the authority's preparations, regardless of the changeover scenario. The time required for Finansinspektionen's own IT preparations has earlier been estimated at between 12 and 18 months. Other operational areas within Finansinspektionen have stated lead times of between six and twelve months. The report from 2001 established that the need of lead times for Finansinspektionen as a whole was between 12 and 18 months. Based on the above, the authority's assessment is that it would be possible to shorten the preparations during the qualified preparatory period to 12 months, through strict planning of the changeover in IT systems.

*Direct changeover*

Finansinspektionen's report "Finansinspektionen's work on preparing for the euro – Progress Report 1" from 1 March 2000, contained a discussion on four of the time scenarios given by the Ministry of Finance. Of these four, Finansinspektionen then considered that a direct changeover would be preferable for all of the authority's areas of operations, with the exception of the IT area. It was assessed that, for instance, the regulatory framework would be much less complex and translation of all statistics much easier. However, the assessment for the IT area was quite different. The authority considered that a direct changeover would increase the demands for simultaneous resource allocation and coordination on the IT side.

The advantage of a direct changeover is that Finansinspektionen would not need to create and maintain a scale model in its IT systems to convert between kronor and euros. With a step-by-step transition all periodic reporting to the authority during the transition period could be in either kronor or euros if the authorities agreed to apply a "Full Euro Option"<sup>17</sup>. This option could also make the authority's regular inspection work more difficult and make increased requirements on the functioning of the institutions' internal checking routines to avoid incorrect reporting.

According to earlier calculations, the greater part of Finansinspektionen's work on preparations would be carried out during the qualified preparatory pe-

<sup>17</sup> Service in both kronor and euros.

riod, that is to say, approximately 70 per cent of the total time requirement until the cash changeover. With regard to the IT work, this figure is over 80 per cent. Other preparation work could be carried out during the transition period. The reason for this is that Finansinspektionen has intended to offer a Full Euro Option right from the start of a potential transition period, i.e. the authority would deal with both euros and kronor immediately upon entry into the Eurosystem. Consequently, the authority's need of preparation time during the transition period would be limited and could be kept relatively short. The report from 2001 gave a preparation time during the transition period of between six and twelve months. Transferring the work that was planned to be done during the transition period in the case of a step-by-step transition to the qualified preparatory period does not technically entail any problem.

Finansinspektionen's current assessment is that there are several indications that a direct changeover would involve lower costs and simpler management for the authority. Compared with a step-by-step transition, the risk of a direct changeover is concentrated to one individual point in time. This involves increased focus and readiness for action, compared with the two critical points in time of the step-by-step transition scenario. Consequently, the requirement for thorough planning increases with a direct changeover, which in turn assumes a fairly long qualified preparatory period. In total, Finansinspektionen needs a lead time of 18 months for a direct changeover.

*Adaptations required in regulations, general guidelines and when reporting to Finansinspektionen*

The changes that can be foreseen today in a changeover to a single currency with regard to the authority's working methods, regulations, general guidelines, reporting forms, etc. are of a relatively limited scope. The survey of the authority's regulations and general guidelines also includes a review of the reporting to the authority. This work requires coordination with the Riksbank and Statistics Sweden. In addition, Finansinspektionen can foresee that institutions under its supervision may need to make changes to, for instance, articles of association, instructions, statutes and regulations.

*Accounting regulations*

Finansinspektionen's assessment is that the introduction of the euro would only have a limited effect on

current regulations for institutions' external accounting (annual and interim reports). According to the current legislation on accounting a basic valuation rule for foreign currency is that it shall be valued at the closing day rate. For Sweden there is thus no need to make a change here. Finansinspektionen has earlier identified a number of accounting issues that would follow on from a changeover to the euro. These issues have been partly dealt with since the earlier report through a change in The Annual Accounts Act (SFS 1995:1554) with references included in both The Act on Annual Accounts in Credit Institutions and Securities Companies accounting (SFS 1995:1559) and The Act on Annual Accounts in Insurance Companies (SFS 1995:1560). In addition, the European Commission has published a report on "Accounting for the introduction of the euro" and the International Accounting Standards Committee has issued a statement SIC 7 "Introduction of the Euro". At present, Finansinspektionen does not foresee any further need of accounting norms for financial companies with regard to adopting the euro.

On the other hand, the introduction of the euro could entail significant adjustment problems in the institutions' regular bookkeeping. The financial companies must ensure that their accounting systems can correctly convert the balance sheet for the outgoing accounting year into euro at the conversion rate set by the ECOFIN Council. This conversion becomes particularly important in the accounting systems that have multiple currency systems. The operational risks largely lie in the possibility of the conversions in IT systems being incorrect due to a programming error, insufficient testing or the use of incorrect conversion rates.

*Consumer regulations*

Introduction of the euro brings up the need for clarification in several areas important to consumers. One important issue is what type of information institutions should give to consumers/customers, when they should give it and how. Other issues that will be relevant are foreign exchange issues, freedom of choice for the customer to make payments in a certain currency, adaptation of ATMs, telephone banks, Internet services, prepaid cards, etc. The issues that Finansinspektionen has identified in the consumer field all have a point of contact with related issues applying to non-financial companies, so the handling of these issues should be coordinated. The authority assumes that consumer issues will be dealt with in the framework for the reference group's sub-group working with consumer issues. This group can coordinate the

work with the authorities concerned, the ministry and professional organisations. The timetable for this work will be determined by the government's work. As with the other areas, it is important to make an inventory as soon as possible to identify the areas that may need to be regulated in laws, regulations and general guidelines.

#### *Operational issues*

Finansinspektionen's report on the effects of the introduction of the euro did not observe any requirement for changes in the authority's operations or organisation. In the short term, introduction of the euro would entail some minor changes in rules and reporting and an adaptation of the current IT systems and databases. The long-term effects of the authority's operations are more about developing risk analysis of the financial companies and the markets. The changes that may be required appear to be of a limited nature. This conclusion was also confirmed by the experiences reported by foreign supervisory authorities in a survey made by Finansinspektionen in autumn 1999.

As mentioned earlier, IT issues are central in the preparation work for introducing the euro. All of the operating systems at Finansinspektionen have been analysed and roughly assessed with regard to possible change requirements prior to a changeover to the euro. For some years the authority has worked actively on ensuring that the administrative systems and other support systems can be easily upgraded to manage a changeover. In 1999 a thorough inventory was made of all systems and around fifteen were identified as having conversion requirements. Four of these were financial systems in one sense or another; the financial system (Agresso), the charge debiting system, the accounts receivable ledger/invoicing system (own development) and the wage system (Slör). Finansinspektionen is following the development of Agresso and Slör and last year updated Agresso to a euro secured version. Alternative action plans were created in 2000 for the other finance-related systems. At present, there is an investigation into whether the debiting and invoicing systems should be adjusted to manage the euro requirement or whether they should be replaced by the functions in the Agresso financial system.

## **THE SWEDISH NATIONAL DEBT OFFICE**

### *The Swedish National Debt Office's lead times*

The work carried out by the Swedish National Debt Office with regard to preparations for possible Swedish membership of the Eurosystem consists of mapping necessary system amendments and changes in regulations, the analysis and assessment of possible consequences for operations, planning of training and information ventures, etc. The analysis of the consequences for the Swedish National Debt Office's main operations has already begun. The implementation of other work tasks will begin when the Riksdag has taken a decision on Swedish Eurosystem membership, which means that most of the concrete development and change work at the Debt Office remains to be done.

The survey of what changes need to be made to systems and regulations has resulted in a number of partial problems being identified and in most cases solutions have been presented – where relevant in consultation with other market participants – which should enable the total time for the preparation work to be kept to a minimum. The survey has enabled the Debt Office to estimate that it should be able to manage its own preparation work within a time framework of twelve months.

The Debt Office's borrowing activities on the money and bond market and the private market can be adapted even more quickly to extensive operations in euro. How quickly depends on the preferences in the market and on how quickly other participants in the financial market complete their own euro preparations.

If Sweden joins the Eurosystem, the Debt Office may build up various "shells" around some of its IT systems prior to membership. These would enable the Debt Office to convert the outstanding central government debt from kronor to euros and in future borrow in euros or kronor, regardless of the base currency of the accounting system. With regard to borrowing from the private market, the Debt Office is primarily aiming to convert existing accounts into euro at the point of Eurosystem membership.

The Debt Office itself can have its preparations regarding borrowing activities ready within less than twelve months. Other parts of the Debt Office's operations; government guarantees and interbank activities, which are linked to the central government sector, will probably need twelve months for a changeover to the euro, but are partly dependent on developments in the central government sector as a whole.



### Legislation

The Swedish National Debt Office may require the support of special legislation to be able to convert the outstanding krona debt into euros with sufficient accuracy. This legislation should be a supplement to the euro regulation on conversion of national currencies to euros with the aid of six significant figures. This special legislation should also enable the Debt Office to change the interest rate calculation convention for existing krona loans to adapt it to the standard for euro loans. The proposed legislation should refer not merely to the Debt Office's loans, but also to other issuers' loans on the money and bond market. In connection with the conversion of outstanding loans, the Debt Office intends to reduce the lowest nominal amount (value) of bonds and treasury bills to enable the market to create manageable trading items by means of odd lot trading. In its prospectus, the Debt Office has retained the right to make changes in values, but other issuers may require legal support to make such changes. For further information on the

redenomination of the central government debt, see Fact Box 5.

### Interface

The Swedish National Debt Office has interfaces in its borrowing activities with the Riksbank, VPC, OM/Saxess and the banking system. The Debt Office's interbank activities and government guarantees have an interface with the central government sector, as well as with private companies. The forecasting work and the finance function are connected to the central government payment system and the national accounts. It will be necessary to coordinate the activities at the time of conversion and test the interfaces between the respective systems. The survey of these links forms part of the general survey work in which both the Debt Office and other financial market participants are involved. Shell systems could then enable the borrowing activities to have the euro as base currency, while the central accounting would have kronor as base currency until Eurosystem membership.

#### Fact Box 5. Conversion of debt securities

Council Regulation (EC) 974/98 states the legal foundation for a conversion of the central government debt and of other issuers' bonds and money market instruments.

According to Council Regulation (EC) 1103/97, when converting debt the value in euro must be given with a precision of two decimals, that is to say, rounded off to the nearest whole cent. An obvious complication here is that the conversion must be on two different levels, but still lead to the same result. The total loan debt, as reported in the Debt Office's system, corresponds to the total value of all holders' portfolios or to the total of all bonds or treasury bills issued. This type of conformity does not generally exist after conversion of total debt and comparison with converted and aggregated sub-items. The lack of conformity is due to the rounding up or down in the various calculations.

Among the present euro zone countries, France and the Netherlands chose to round off to whole euros when converting. In France they thus elected to consistently round down to the nearest euro and pay the rounding-off difference in cash (market valued). In the Netherlands they instead chose to round the portfolio values up to the nearest whole euro. This rounding-off process led to a lack of conformity between the value of the total portfolios and the total debt. Banks, etc. were obliged to defray the difference. The Dutch banks and the Amsterdam stock exchange did not have the possibility to manage decimal

quantities of securities in their systems and preferred the solution described to changing their systems.

In connection with redenomination – change of currency – renominalisation and reconventioning become necessary.

**Renominalisation** involves changing the (lowest) value of the respective type of security.

**Redenomination** leads, as mentioned above, to the value of a portfolio or bond being stated in a fraction down to individual cents (or euros). This fraction can be considered to consist of a trade item and an odd item. To be able to create trade items through transactions in such odd items, the lowest value must be set at one cent (or one euro).

**Reconventioning** involves changing the interest rate calculation convention. Prior to the creation of the monetary union, various European professional organisations agreed on a European standard for calculation of accrued interest; act/360 for bills (already introduced in Sweden) and act/act for bonds (not introduced in Sweden). "Act" means the actual number of days in the period, unlike the current Swedish standard which calculates on 30-day months ("30/360").

Source: The Swedish National Debt Office

### *Main areas*

The most critical area in the concrete preparations will be IT systems. There will be extensive system adjustments at the Debt Office. The work on system adjustment also includes building up various shell systems that need to be able to supply statistical series expressed in euros or kronor but based on historical data, which can be a combination of the two currencies. The internal training and the external information ventures are not expected to entail any major problems.

The Debt Office has no cash business and thus would not be directly affected if imported euro banknotes began circulating prior to Eurosystem membership. On the other hand, the Debt Office could be affected indirectly by households taking an interest in saving in euro.

### **THE SWEDISH BANKERS' ASSOCIATION**

#### *Direct changeover*

Since early autumn 2002, the Swedish Bankers' Association has advocated a direct changeover to the euro on 1 January 2006. The main motive for choosing this point in time is the preparation time required for a safe changeover to the euro, while a direct changeover is advocated because it would entail significant cost savings for the bank system if the need to develop special solutions to manage double currencies during a transition period were avoided. In addition, the internal risks within the banks are assessed to be lower in the event of a direct changeover. A direct changeover would also have significant advantages for other parts of society, for instance, with regard to information to the general public, as the euro would be legal tender immediately on entry to the Eurosystem.

#### *Lead times*

The total project time for the banking system until entry into the Eurosystem is 24-30 months. The qualified preparatory period, that is to say, the time from a Riksdag decision to apply for membership until actual membership, would amount to at least 18 months of this. A direct changeover to monetary union on 1 January 2006 thus gives the banks time to prepare, test and implement a safe conversion to the euro.

<sup>18</sup> A discussion is currently in progress on which services could be offered by the banks during these days, for instance, the exchange of banknotes and coins.

Managing the practical preparations for entry to the Eurosystem will require the conversion rate to be set in good time, 4-6 months prior to entry, and the banks will have to receive/apply four bank holidays in connection with the actual point of entry<sup>18</sup>. The banks prefer a shorter period with both the euro and krona as legal tender than that applied by the current euro zone countries. They would thus prefer the cash changeover to take place in one month.

#### *Organisation*

The Swedish Bankers' Association's euro steering group has the overall responsibility for the banks' joint planning prior to a possible full Swedish participation in Stage Three of EMU. A coordination group has been set up under the euro steering group. This group has responsibility for coordinating a number of working groups preparing various issues linked to Eurosystem membership.

The main areas covered by the banks' planning are the banking system, information, legal issues and the cash changeover. Sub-groups may be formed under some of these groups.

#### *Banking system*

The banking system is the area that requires most input prior to a changeover. This area includes, for instance, the bank giro system, the private giro system, data clearing and ATMs. The extensive system changes will require intensive work not merely among the banks but also together with other participants in the market, such as central government authorities, municipalities, corporate clients and IT suppliers.

#### *Information*

Prior to the referendum, the Bankers' Association has chosen to adopt a neutral stand on the issue of whether Sweden should adopt the euro. On the other hand, each individual employee of both the Bankers' Association and the member banks can express an opinion in the debate.

As the bank sector does not want to take a stand either for or against EMU, no general information will be issued ahead of the referendum. However, the Bankers' Association will, like the Riksbank and others, provide information on EMU and the euro by publishing questions and answers on its website. This information is mainly aimed at the general public.

The Bankers' Association and some of its member banks participate in the SIFS information group in close cooperation with the Riksbank. This is to plan

and prepare information activities with regard to EMU membership if the outcome of the referendum is a "yes" vote.

#### *Legal issues*

The legal preparations as far as the banks are concerned are essentially concentrated to two areas, the need for changes in particular acts and contract issues. With regard to changes to legal acts, it can be observed that the principle of continuity of contracts when changing currency is confirmed in law in the EU and in several important financial centres around the world. Thus, existing contracts will not be affected by the introduction of the euro. Experiences from the first round of countries indicate that no problems have arisen in the contract field to disrupt the changeover.

The changes to legal acts that need to be made are of two types; the replacement of krona by euro and conversions of amounts in legal texts, etc. as well as more substantial changes to facilitate the changeover to a new currency. The changes in legal acts that have been implemented in most of the euro countries, for instance, with regard to redenomination of bonds and how existing reference rates (e.g. interbank rates, discount rates or equivalent) shall be replaced in various contracts, should also be considered in Sweden.

It should be examined in the continued preparations whether there is a need for legal support in any aspects to enable implementation of a direct changeover. Two special euro regulations were introduced for the first wave of euro countries (see Fact Box 1 Admission procedure for entry into the Eurosystem). These would also apply to Swedish entry to the Eurosystem, possibly with the addition of an amendment regulation.

#### *The cash changeover*

The Swedish Bankers' Association's work in this field is conducted in close collaboration with the SIFS subgroup for banknotes and coins.

The banking sector's preparation work will continue to be characterised by a broad dialogue with both financial concerns and various sectors of society. The sector will also have the opportunity, through its continuous contacts with the first wave of euro countries, to benefit from their experiences of the changeover. The period up to the referendum will be aimed at organisation, planning and allocation of resources. In the event of a "yes" vote in the referendum, the planning will move into an active

implementation phase with amendments to and tests of the banking systems.

### **STOCKHOLMSBÖRSEN (THE STOCKHOLM STOCK EXCHANGE)**

Stockholmsbörsen and VPC adapted their systems for trading and settlement of securities transactions in euros as early as the EMU start-up on 1 January 1999. With regard to the stock market, this means that the initiative for euro trading was left with the issuing companies. During 1999 four companies asked to also have their shares listed in euros on Stockholmsbörsen. As a result of an acquisition, one of these companies has since been de-listed. Trade in euro in the three remaining companies, that is to say, Electrolux, Nordea and StoraEnso, has been very little since the start. With regard to the latter two companies, this could be connected with the fact that they have many owners in both Finland and Sweden and that there is liquid euro trading in the shares on the Helsinki stock market.

Many stock market members chose to wait before making a full euro adaptation of their systems and routines. There has thus been no full scale tes-

#### **Fact Box 6.** Continuity of contracts

It is a generally accepted principle that contracts are not affected by the introduction of a new currency. Council Regulation (EC) 1103/97 also states that the introduction of the euro does not give any party the right to unilaterally revoke legal instruments, such as contracts, or to change legal documents. The Regulation covers conditions within the EU and is therefore applicable in Sweden. Analyses have been made, by the European Commission, amongst others, of how other legal systems view the introduction of a new currency. It has then been observed that the principle of *lex monetae* is accepted in all important financial centres around the world, which means that the introduction of the euro should not affect any contracts entered into, etc. Some states have introduced special legislation to safeguard continuity of contracts. Council Regulation (EC) 974/98 states that references in legal instruments to any of the national currency units shall be read as of 1 January 2002 as references to the euro unit according to the respective conversion rates. Legal instruments here means all deeds with a legal effect, e.g. acts of law, contracts and transactions. This means, for instance, that a contract stipulating remuneration in German Deutschmark shall be read with effect from 1 January 2002 as remuneration in euros calculated according to the irrevocably-fixed conversion rate.

ting. The scanty trading over the following years did not provide motivation for major investment in a changeover to the euro before the political conditions become clearer.

#### *Lead times*

Securities trading in Sweden is technologically advanced with extensive integration between the central systems and those used internally by stock exchange members. A changeover to efficient euro trading in large volumes would therefore require that all affiliated banks and securities companies had adapted their systems. The time required for implementing the remaining adaptations of the stock exchange members' internal systems in particular and for testing all interacting systems will set the framework for the time required to adapt securities trading to the euro. With regard to Stockholmsbörsen's own systems, only a few amendments remain to be made. These are mainly connected to the production of indices and other real time statistics and to the adjustment of the stock market's tick sizes, i.e. the stages by which share prices can alter at various price levels.

The stock exchange assesses that these measures, including internal tests, can be implemented in less than six months. At the same time, the stock exchange will play a central role in the full-scale tests of all systems that need to be made before trade can change over from kronor to euros. The internal adjustments should be complete before the joint tests begin.

#### *Legislation*

Share trading on the stock market is really quite neutral with regard to the currency used for pricing the shares. In isolation, each individual transaction could be executed in whatever currency the parties choose. This is because the stock market is only responsible for organising the actual sale and reporting the number of shares involved and their value back to the parties. It is the requirement to be able to total the turnover, calculate an index and provide clear background information for settlement of transactions that means it must be clear which currency is used.

At the same time, a general changeover to using the euro means that the stock market companies change their accounting currency from kronor to euros. This means that an individual share which has had an even total, e.g. SEK 10 as a nominal value will have an uneven value when expressed in euros. This can create problems and costs for companies managing the share stock. If the deviation is slight,

the company can in theory round off through a bonus issue where the value per share is written up. However, the deviations are often too large for this method to function. One solution then is to change over to what are known as NPV shares, where the individual share simply has no par value. The value is only expressed at company level in the balance sheet. Anyone wishing to know the value per share can calculate this by dividing the share capital by the number of shares issued by the company.

On the other hand, a change in the nominal value and the requisite rounding-off rules has great significance on the securities market. It is probable that some change in routines for calculating interest will be introduced in connection with this. These problems have already been discussed in the section on the Swedish National Debt Office (see above).

#### *Reporting and information*

According to the main scenario with a direct changeover on 1 January 2006, all operations will be based on kronor during the whole of 2005. Special rules will apply for the transactions carried out so late during 2005 that payment is to be exchanged on one of the first days of 2006.

The tax authorities say that accounting for the year 2005, that is to say the income tax declaration in 2006, shall be in kronor. However, incoming or outgoing payments referring to 2005 but made during 2006 will be in euros.

Stockholmsbörsen has analysed the changeover routines and experiences in the current euro countries. This has provided a basis for assuming that a growing euro trade in both shares and debt instruments can arise as soon as the krona is perceived as irrevocably fixed against the euro. It will then no longer be possible to speculate in or hedge against currency movements in kronor compared with euros. Instead there is a hope of increased liquidity in the trading if the euro is used.

If the trading begins before the year-end, special routines must be applied where statements of accounts, etc. contain information both in euros and converted to kronor. Information in double currencies is needed partly for the tax declaration and partly because the customers will exchange payments in cash or through accounts in kronor. Bearing in mind that this reasoning assumes the irrevocably fixed exchange rates will probably be set in summer 2005, it should be relatively easy to offer such conversions, on condition that the rate can be accepted even during the period up to Eurosystem membership

when the krona will fluctuate around the central ERM2 rate.

### THE SWEDISH SECURITIES DEALERS ASSOCIATION

Euro trading (parallel trading in euros and kronor) has already been introduced onto Stockholmsbörsen and in the affiliated infrastructure, that is, among banks, securities companies and at VPC. The branch is thus used to trade and settlement in euros. The new main scenario with a direct changeover on 1 January 2006 is also the least complicated transition scenario.

Although the turnover in securities trading in euros has been low so far, it has nevertheless led to the sector adapting systems, interfaces and routines to some extent. Thus, all of the interfaces and functions needed for trading and settling in euros already exist. This applies in particular between stock exchanges, stock market members, the VPC and the Riksbank. Many institutions need make almost-no further preparations.

The work that remains is primarily to establish the detailed procedure for a changeover with the various elements of regulations, legislative support, acceptance, etc. connected with EMU membership and to establish how trading in euro should be regulated to provide the overall necessary conditions for stable and credible trading.

#### *Lead times*

The preparation work prior to a possible full participation in Stage Three of EMU has previously raised some unclear points with regard to the authorities' requirements and support for securities trading. Stock exchange members and institutions therefore need to receive clear instructions as soon as possible on how long they can report information only in kronor. Other issues that require regulating are the date from which the same information can also be provided in euros and when information shall only be provided in euros. Another question is whether there will be special requirements made of different customer categories and whether private persons and legal entities will be treated in the same way.

On condition that there is a "yes" vote in the referendum in September 2003, the securities institutions will be able to supply a euro-adapted infrastructure for securities trading and settlement with effect from the first day of membership, on 1 January 2006.

#### *Legislation*

Terms of issue, which are often confirmed in prospectuses, trade regulations, traditions, etc. have so far provided a stable platform for trading and settlement in kronor. It is therefore important, in a changeover to the euro, to quickly create a new, stable legal platform to facilitate and support trading in euro. It will probably be necessary to provide support through legislation to avoid uncertainty, and in a worst case scenario, disputes. It is also important, in the continuing process, that the legal conditions are made clear as early as possible to enable the planning and preparation work to be carried out in a structured and efficient manner. Early clarification can reduce adaptation costs, facilitate planning and increase security prior to the changeover.

The areas where legislative support should be considered are:

**Changes in nominal amounts for debt instruments.** In the issue prospectus the issuer has stated the nominal amount of a promissory note. This is changed when redenomination takes place. The holdings will then take on odd and impractical nominal amounts. One can expect strong pressure against changing to new, more even values. The nominal amount would then have to be changed to even amounts on the outstanding securities editions. To begin with it should be possible to deal with the problem by changing the nominal amount to one euro. However, this would require changing legislation.

**Rounding-off holdings.** It is possible to use different models and rounding-off principles when converting in connection with the redenomination process. This conversion would in its simplest form be based on the respective customer's individual holdings and formulated to the nearest whole cent. However, cent holdings are a difficult unit for which trading systems are not prepared. One practical means of avoiding cents is to have each redenominated holding rounded up to the nearest whole euro. This would probably require a change in the law, in the same way as there is currently legislation for the retail trade to round off to the nearest 50 öre.

**Interest calculation conventions.** One of the purposes of Eurosystem membership is to facilitate cross-border trade within the EU. This is further facilitated through harmonisation of conventions so that calculations are made in the same way. One example is interest rate conventions, that is to say, how transactions and settlements in debt instruments occur in daily trading. The EMU has entailed a de

facto standard for its members in this respect. This means that interest is calculated according to the principle – actual/actual<sup>19</sup> for bonds. There is a clearly expressed desire from Swedish parties to adapt to this standard and for the change to be made no later than at the time of Sweden joining the Eurosystem. The big question is how trading can be adapted most smoothly. Rules for trading in short-term papers, such as treasury bills, have already been adapted to the euro standard.

*Difference in daily calculation when calculating coupon rate and on settlement*

The continued discussions must distinguish between how accrued interest should be calculated in a transaction and how coupon rate should be calculated. It is by no means certain that they are calculated in the same way and that there are the same number of days between two dates. Calculating days in the same way is an advantage in this context, as it makes it simpler to calculate a settlement amount and the instrument then becomes more attractive to trade.

The terms for calculating the coupon have been determined by the issuer and are stated in the issue prospectus. The terms for calculating accrued interest in a transaction are determined by the buyer and seller of the financial instrument at the time of settlement.

Participants in the money market, Stockholmsbörsen, the Swedish National Debt Office and other large issuers can determine and announce that they intend to calculate accrued interest and settle deals according to the euro standard with effect from the time of Eurosystem membership. One alternative is to request support in legislation for this change in calculation principles. Announcing and regularly reminding participants in early 2006 of the principles in a suitable manner should work satisfactorily, and in particular be a smoother means. (Deals entered into before the time of membership should not be affected by the change in calculation principles according to consensus opinion). The question of whether it is best to change the principles by requesting a market agreement or by means of legislation requires a decision by the branch itself.

There are also those who advocate legislation to provide issuers with the opportunity to change calculation principles for calculating coupon days. However, there have been objections to changing agreements already entered into through legislation,

which would be the consequence. Even if it were voluntary for issuers, it would mean that some parties gained an advantage and others a disadvantage. The question of legislation on this issue thus needs further investigation.

*Interface*

The current infrastructure for securities trading is clear with regard to when trade and settlement should be in kronor and euro respectively. The Swedish Securities Dealers Association considers that the technical interface descriptions between the institutions, VPC, Stockholmsbörsen and the Riksbank need not be changed or supplemented prior to membership. On the other hand, the actual details of the changeover scenario are currently being examined. Examples of questions that have been discussed are how long trade in kronor should continue before a general changeover to the euro and at what point cash payments will be changed over to euros. An opinion on this will be expressed during spring 2003.

**VPC**

Prior to the introduction of the euro in 1999, VPC made a number of adaptations to its systems, which mainly concerned making it possible to manage other currencies than Swedish kronor in VPC's main system. This included opening up VPC's clearing and payment settlement to foreign currencies and making it possible to issue securities in other currencies than Swedish kronor. These extensions to the functionality of the systems enabled VPC to create securities in euro and at the same time handle several currencies in clearing and payment settlement.

During 1999 VPC completed the adjustment work that had not been complete by the year-end 1998. This included completing the work on entirely separating clearing in different currencies from one another and VPC's development project to produce a new system for outward payments. This new system enables VPC's issuer customers to make outward payments in other currencies than Swedish kronor; these are usually share dividends or interest payments. The system has been in operation since 1999 and there is thus a possibility to make payments in euros. However, a shareholder who only has accounts in Swedish kronor can still receive dividends credited to an account in Swedish kronor, even if the company has chosen to pay dividends in euros.

With regard to the work on putting together conditions and routines for net clearing in euros in

<sup>19</sup> This principle entails interest calculation based on the actual number of calendar days per month/year.

the money market, proposals for routines and rules have been discussed with market participants on a number of occasions during 1999. VPC began net settlement in euros for the money market on 1 February 2000, when regulations and routines had been completely adapted.

#### *VPC's lead times*

VPC is in most ways prepared for a changeover to the euro. The greater part of the necessary preparations has already been made in accordance with the description above. The work that remains largely concerns measures in connection with redenomination of the Swedish central government debt and other debt instruments. VPC's assessment is that these adaptations must be implemented prior to Eurosystem membership. This conclusion is based on the assumption that the Swedish National Debt Office's loans in kronor, and those of other issuers, will be redenominated to euros at that point in time. The content of the above is that VPC has no adaptations that can wait until after Sweden has joined the Eurosystem.

VPC's assessment is that the remaining preparations, that is to say, system amendments to be able to implement conversion (redenomination, renominisation, possibly new interest calculation) of loans originally issued in kronor to the new currency euros could be carried out during a period of less than twelve months (probably around six to nine months). However, this work cannot be started until a decision has been taken on which rules will apply for redenomination of a loan in kronor. For VPC it is essential that these issues are resolved and that a decision is taken during 2003 if Eurosystem membership can take place on 1 January 2006.

#### **THE SWEDISH INSURANCE FEDERATION**

The insurance companies differ considerably in size and structure and therefore also vary in terms of the level of planning and preparations for a possible changeover to the euro. The largest insurance companies have for a long time had project groups for making surveys of various forms of operations. On the capital management side a large part of the systems have already been adapted to the euro. Insurance policies are also issued in euros for large international corporations in the non-life insurance field, both

as direct policies and reinsurance. On the insurance and property side, plans are under way for various system technology alternatives and on the legal aspects of changing contracts, etc. In addition, there is monitoring of current events and gathering of experiences from the euro countries and the parts of groups located in countries that have already adopted the euro. The companies are also planning customer information and personnel training on euro issues.

#### *Lead times for the insurance companies*

With a direct changeover, the preparation time would be 24 months and this would start when the outcome of the referendum is clear. This means that if there is a "yes" result in the referendum in September 2003 the insurance sector will manage to complete its preparations prior to 1 January 2006. This is based on a number of assumptions being fulfilled. The industry as a whole wants to make clear how the rounding-off problem can be solved (see below). In addition, it is important that the conversion rate be established at an early stage, at least 4-6 months prior to Eurosystem membership.

#### *The insurance companies' legislation needs*

With regarding to preparing IT systems, the coming practice on rounding-off after Eurosystem membership is a very important issue. In Sweden, unlike other European countries, many companies have given up decimals in reporting and financial transactions. This is also common practice among certain Swedish authorities, for instance, the Swedish National Tax Board. The regulations for conversion to euros require a precision of two decimals<sup>20</sup>. Rounding-off of euro amounts to one decimal gives roughly the same precision as the current rounding-off to whole kronor<sup>21</sup>. The Swedish Insurance Federation considers that Swedish recommendations should be drawn up as soon as possible, to make it clear that Swedish practice will allow rounding-off to whole figures in euro. However, this would entail particular problems for mutual insurance companies, where the owners and customers are one and the same and rounding-off could not be decided to either's advantage. This problem probably needs to be solved through legislation, which should enter into force as soon as possible. It is common that Swedish laws and contracts refer to factors such as basic amounts, CPI and other indices. A survey should be made of the possible consequences for these.

<sup>20</sup> See the Fact Box on conversion and rounding of rates.

<sup>21</sup> Rounding off in retail trade to the nearest öre amount that can be divided by 50 is regulated in the Act on rounding off certain amounts in öre (1970:1029). This act only applies to amounts to be paid in Swedish coins. With regard to certain other payments, a practice of only using whole kronor has been established.

Other surveys should look into regulations regarding deductions and application of taxation regulations within the tax administration and the Swedish National Tax Board as well as regulation requirements from Finansinspektionen with regard to information and currency management regarding the companies' customers.

#### *Interface*

Many companies have interfaces with a very large number of external parties, including client companies, banks, public authorities, insurance brokers and other insurance companies. In some cases the companies are dependent on these completing their own preparations. This applies for instance to the Swedish National Tax Board, VPC and participants in the banking and payment system. There is a need for future discussions and finally tests of solutions within the IT field with regard to background information to the Swedish National Tax Board, Finansinspektionen, the Riksbank, the National Social Insurance Board, banks, bank and postal giro systems and other insurance companies.

#### *Main areas*

For the insurance companies, participation in the Eurosystem would require extensive preparation work in terms of analysis and construction, amendments to insurance products, customer documents, financial systems, information to customers and IT systems. Although some preparatory work has been begun, the major system changes cannot be executed until a decision has been taken on conversion of the currencies, rounding-off of amounts, decimals and the authorities' requirements of the insurance companies and their products. The insurance sector needs to have a decision on these issues in autumn 2003, because it needs a period of 24 months after a Swedish decision to join the Eurosystem to fully manage the remaining adaptations to the euro.

#### **THE SWEDISH INVESTMENT FUND ASSOCIATION**

Most of the Association's members are connected to owners such as banks, insurance companies and securities institutions. The forward planning for a changeover to the euro is therefore the same among these companies as among their respective owner categories as reported to their own trade organisations.

The Swedish Investment Fund Association can thus largely agree with what has already been stated

by the Swedish Bankers' Association, the Swedish Insurance Federation and the Swedish Securities Dealers Association.

#### *The Association's lead times*

The Association made a survey of all members in December 1999. Judging by the survey replies, six to twelve months would be quite sufficient for a changeover and transition to the euro in the investment fund industry. This is a result of the preparations that have already been made regarding trade in funds and securities listed in euros. The work that remains is to adapt accounting and IT systems (particularly sales ledgers) and carry out tests.

It has become clear in further contacts with investment fund companies that a presumed change in the market view if the euro is introduced would require extensive changes. The market focus would probably move from countries/regions to industries, which would have consequences for both management and information to unit trust investors. However, there is nothing to indicate a change in the assessment of the lead times.

Even after a conversion to the euro the number of investment fund shares would be the same. The total fund wealth would correspond to the total value of all shares in the fund. After conversion, it will not always be possible to get the fund wealth and the total value of all fund shares to conform. This lack of conformity is due to the rounding up or down in the various calculations.

The lead times that follow on from the political decision-making procedure are assessed as quite sufficient. A direct changeover on 1 January 2006 would give the investment fund companies sufficient margin for the lead times calculated.

#### **THE ASSOCIATION OF SWEDISH FINANCE HOUSES**

Adaptation to the euro varies considerably from one finance company to another. Some have chosen to retain their focus on the Swedish market and their financing in Swedish kronor. Others have taken measures to adapt so they can already offer services in euro. These companies can invoice in both kronor and euros. Some companies also aim to provide credit directly to borrowers in other Member States of the EU. Financing in euro is thus their main alternative. Other member companies find themselves in a transition phase, whereby they will also be able to supply



efficient financing in euros in the long term. As the companies supply financing in euros, they also refinance themselves in euros, which is necessary to avoid foreign exchange risks. One group of members will not offer financing in euros unless the euro becomes legal tender in Sweden.

#### *Lead times*

This heterogeneous background makes it impossible to state which measures remain to be taken by the Association of Swedish Finance Houses' members to manage a complete changeover to the euro or which resources will be required. The administrative systems concerned will need to be changed before member companies can offer financing services in euros. To summarise, however, the companies do not consider they will have any problems in a changeover.

The Association's assessment is that financing in euros will increase over the coming years. This applies not only to financing abroad, but also to domestic borrowers, for instance, companies which in their turn invoice in euros. These companies have clients in euro countries or are sub-contractors to domestic companies working with the euro as their internal currency. The Association has made a survey of its members to examine how EMU preparations are conducted and how long an adaptation period would be needed. However, this did not provide any background for a specific lead time, not even to state any

maximum time in months or other units of time for adaptation to the euro. On the other hand, member companies assessed that they would have no difficulties in adapting in time and that this also applied to their client relations.

#### *Interface*

The question of interface and thereby the related need for joint solutions and tests is particularly important as most important communications take place in electronic form. This applies to taxation, payment orders and taking out mortgage deeds. It should be the responsibility of each respective authority to observe and resolve any issues in the respective field.

The corresponding questions in the private sector should be dealt with by that sector. The Association envisages no particular difficulties that would require intervention by the authorities.

#### *Main areas*

The Association considers the areas directly affecting operations and measurement of results to be the most critical ones. It is particularly important that administration and accounting systems in these areas function faultlessly during the changeover. The Association's members do not handle banknotes or coins. This part of the transition therefore does not affect the Association's members.



## ■ The Swedish financial market – challenges and development opportunities in the event of full EMU participation

### The euro in Sweden – a membership scenario

The strategic challenge facing the Swedish banks and other participants in the Swedish financial market is how they will maintain or increase competitiveness when the Swedish financial market becomes an integral part of the euro area. Naturally, entry into Monetary Union will entail a reduction in the volume of foreign exchange trade. The competitive situation will also change, as it will be easier for financial companies based in the euro area to provide services to Swedish households and firms. At the same time, the European market will become truly open for customers, enabling them to seek financing and to compare costs and prices easily and without any exchange rate risk in the entire banking and financial market in Europe. Entry into Monetary Union will also entail a challenge for securities trade, as it will be easier to channel this trade via foreign marketplaces than is the case today.

In addition to these challenges, there are also a number of opportunities. Sweden will become part of a major currency union, and an increase in cross-border trade will create considerable opportunity for increasing market shares, particularly for companies that provide efficient services. The Nordic banking market is already relatively integrated, and this allows Swedish banks to capitalise on this proximity and provide knowledge-intensive services to both the Swedish and Nordic markets. At the same time, an adoption of the euro would probably result in greater interest from abroad in investing in Sweden, as exchange rate risk would disappear and asset allocation in securities portfolios would be influenced more by sector-specific risks (see below).

Preserving the dynamism of the financial market in Sweden ought to be an issue of common interest. If the Swedish financial sector succeeds in maintaining a high level of efficiency and collaborates with Nordic companies to develop an infrastructure that meets the requirements of investors and other participants, this should create an opportunity to attract trade not only from the euro area but also from the Nordic countries outside Monetary Union.

A strategic question in this regard is whether banks and other financial market participants should proceed along a Nordic path of development, building alliances with market players in the rest of the Nordic region and creating a financial centre, perhaps with Stockholm as a base, or whether they should seek alliances with market participants in other parts of

Europe. In the latter scenario, Sweden may come to receive the role of intermediary of transaction volumes to larger marketplaces in the EU. In order to maintain the strength and distinctive character of the Swedish financial market, the way forward is to build customer-adapted, efficient trade systems and marketplaces. The introduction of the euro will increase the pressure on market participants to provide cost-efficient services. Furthermore, structural rigidities at national level will then have to yield to a greater extent to efforts to produce rational solutions.

### **SWEDISH BANKS AHEAD OF MEMBERSHIP IN MONETARY UNION**

A potential future membership in Monetary Union raises the issue of whether the Swedish banking system will face greater transformation pressure than before, including more extensive cross-border business and thereby a changed competitive situation. While certain conclusions can be drawn from developments in the countries that have already introduced the euro, the picture for the Swedish banks is still somewhat unclear.

All the leading Swedish banks have a wide distribution network in nearby countries. Through organic growth, mergers and acquisitions, they have set up operations throughout Scandinavia, as well as in other countries to a certain extent. This is also true of the major banks in Norway, Denmark and Finland. From a European perspective, the Scandinavian banks' cross-border activities are relatively extensive. This integration has taken place despite the fact that Norway is neither a member of the EU nor a participant in EMU, while Finland has joined both, and Sweden and Denmark have joined the EU but

not Monetary Union. Consequently, joining both the EU and Monetary Union is not a requirement for carrying on cross-border banking activities. Correspondingly, the existence of different currencies within a market area does not appear to be a crucial obstacle for setting up operations in other countries.

The initiation of Monetary Union was accompanied by expectations among market participants of a coming wave of cross-border bank acquisitions. In the ECB's Monthly Bulletin in August 2002<sup>22</sup> it was concluded that the consolidation of the European banking market was proceeding and that cross-border bank mergers had increased – during the period 1999-2001 a total of 25 per cent of all mergers and acquisitions were cross-border in nature, in spite of the fact that this had previously been extremely rare. While the financial services sector has been in a process of consolidation for more than a decade, this has only involved limited cross-border activity. Developments have been driven principally by factors such as technology, deregulation, globalisation, etc. The euro has also been an important driving force. In a number of countries, such as France and the United Kingdom, the banking sector has undergone a marked consolidation, and some cross-border acquisitions have also occurred in countries such as Holland and Belgium. However, the trend has not reached the level that was widely expected. On the other hand, integration of the Nordic banking market inside and outside the euro area has been relatively comprehensive. It is therefore not evident that entry into Monetary Union will lead to immediate acquisitions of Swedish banks or that Swedish banks will acquire banks in other euro countries as a result of the single currency.

Cross-border credit and deposits have not reached any significant levels in the euro area. According to statistics from the ECB<sup>23</sup>, the interest rates offered by various banks to their household and corporate customers are still at very different levels. Thus, cross-border banking activities have not levelled out the differences in interest rates offered to the general public in various euro area countries. Neither is there any indication that such a levelling-out is imminent, which is why Swedish participation in Monetary Union is not likely to have a great impact on the interest rates offered by the banks to

the general public.

On the other hand, Swedish banking conditions will change in a number of respects. Obviously, the nature of foreign exchange trade will undergo a marked change. The Swedish banks will no longer be able to trade in Swedish kronor, which will mean a certain loss of income. In addition, it will become even more attractive to trade Swedish treasury and mortgage bonds in the European market. This also applies to Swedish shares denominated in euro, which ought to create earnings opportunities for Swedish banks.

Swedish investors will most likely increase their interest in assets denominated in the euro once exchange rate risk disappears. This applies to funds, life assurance companies and individuals. This will also involve earnings opportunities for the Swedish banks, especially during periods in which portfolio holdings are restructured. This appears to have compensated at least partly for the loss of income from foreign exchange trade in the countries that have already introduced the euro.

Swedish banks, credit market corporations – generally owned by the banks – and large companies will almost certainly obtain financing through bond issues in the euro market to a greater extent than before. For credit market-corporations the introduction of secured, or gilt-edged, bonds<sup>24</sup> will provide help in this regard. Secured bonds have become an increasingly common instrument of borrowing for mortgage institutions in the EU. The introduction of these in Sweden is expected to afford Swedish institutions the same opportunities enjoyed by many European institutions in this area.

#### SECURITIES TRADE FROM THE PERSPECTIVE OF THE SECURITIES FIRM

Participation in Monetary Union will affect the conditions, structure and development of the domestic market in Sweden.

The partially independent price formation for *interest-bearing securities* issued in kronor will disappear once Sweden changes over to the euro. Price formation for instruments with short maturities will be determined by the ECB's actions. Long-term instruments (bonds) will be priced according to the liquid contracts traded on Eurex (BUNDS, BOBL, SCHATZ<sup>25</sup>). Liquidity in Swedish treasuries together with Sweden's credit rating will determine any deviations from these prices.

A reduced level of foreign exchange exposure for issuers, investors and intermediaries will affect the

<sup>22</sup> The European Central Bank, Monthly Bulletin, August 2002.

<sup>23</sup> See the ECB's website under Statistics/Retail interest rate statistics.

<sup>24</sup> See the memorandum entitled *Säkerställda obligationer* (Ds 2001:38) (Secured bonds) and the statement of the Council on Legislation (Lagrådet), also entitled *Säkerställda obligationer*, from 20 February 2003

<sup>25</sup> Financial instruments traded on the German derivatives exchange, Eurex.

structure of the marketplace. Stockholm as a financial district will be exposed to increased competition. Settlement systems, trading methods and issuers' choice of maturity structure will be adjusted in the long term to both a broader investor base and the changed requirements of domestic investors.

A decisive factor for how the marketplace will be affected is how issuers decide to manage their debt. A key factor when choosing listing, settlement structure and distribution system is whether Stockholm as a financial centre can compete with other financial centres in the euro area.

#### *Treasury and mortgage bonds*

Participation in Monetary Union will lead to a broadening of the marketplace. Presumably, a number of new agents will enter on both the market-maker and customer sides. As regards market-making, Sweden will have a larger marketplace, similar to that in other euro countries and possibly in cooperation with the EuroMTS electronic marketplace. There will be a greater number of allocations as customers from Sweden and abroad buy or sell Swedish treasury and mortgage bonds.

With regard to mortgage bonds, new legislation for secured bonds is close at hand. A relevant question in this context is how foreign customers will view Swedish credit risk in mortgage institutions and how the institutions will carry out their issues if Sweden joins Monetary Union. Indications are strong that the trend is moving towards a combination of current on-tap issues and syndication. In terms of liquidity and pricing, the Swedish market for mortgage bonds functions well in an international perspective. In the event of Swedish participation in Monetary Union, it is likely that institutions will want to admit more foreign market-makers, thus increasing the number of investors.

#### *Corporate borrowing in euro*

The trend in corporate debt financing, excluding direct bank financing, is expected to move in a direction whereby companies borrow short-term funds through either domestic notes programmes, US Commercial Papers or in the market for Euro Commercial Papers. The introduction of the euro in Sweden is likely to lead to some of the domestic programmes disappearing and being replaced by such global programmes. For a certain period of time, some companies will probably conduct the domestic euro programmes with the Swedish infrastructure and cost aspects in mind, as it will be easier at least initially to

focus one's efforts on the Swedish market.

The scenario is somewhat similar for long-term borrowing. Large companies will have either an EMTN (Euro Medium Term Note) or GMTN (Global Medium Term Note) programme with which they can meet their requirements. Many will also have a domestic MTN programme. The costs of establishing an EMTN or GMTN programme exceed those incurred when setting up a domestic MTN programme. For this reason, it is probable that major borrowers will make use of "international programmes". Small borrowers will most likely use domestic programmes only. Consequently, the initial effects are not likely to be particularly significant. Neither will the market for syndicated loans change to any great extent as the greater part of major lending facilities today is already structured in euro or USD.

#### *Swedish securities from the perspective of the international investor*

With regard to securities, a number of investors have previously chosen to reduce the exchange rate risk in their portfolios by applying relatively simple rules of thumb for capital allocation. The main principle here has been to weight securities holdings according to the respective countries' share of the total global market. The target value for holdings of Swedish shares according to this principle has been approximately 3 per cent of a European portfolio and around 0.7 per cent of a global market portfolio. This has entailed limitations for investors' holdings in large Swedish companies in the fields of electronics, pharmaceuticals and manufacturing, compared with the companies' market positions in their respective industry.

However, this strategy is not supported by either modern financial theory or practical experience in a world characterised by free capital mobility. All important industries today are dominated by companies that are more or less multinational. Furthermore, the companies themselves have been adopting measures designed to reduce foreign exchange exposure in both their current payments and their balance sheets. Instead, their investments entail mainly "sector risk" and to a considerably lesser degree exchange rate or country-specific risk.

For this reason, an increasing number of investors have recently begun to allocate their financial assets according to sector in their global portfolios and thereafter to overweight or underweight the sector as a whole depending on, for example, cyclical factors. In such a situation, the shares of leading Swedish companies are given a portfolio weighting that

corresponds to their market share in their sector to a much greater extent. As a result, international demand for these shares has increased in scope. A changeover to company accounting and share trading in euro will reinforce this trend, as the final remains of currency restrictions will thereby disappear in the euro area.

Another significant change is that in the application of the matching rules in the EU directive for pension insurance<sup>26</sup>. The Directive lays down the condition that 80 per cent of those assets corresponding to the assurer's guaranteed commitments must be invested in the same currency in which future payments will be made. An introduction of the euro in Sweden would mean that all Swedish shares and bonds would all at once be considered as "domestic" and be included in the matching quota for life assurance companies in the entire euro area. This is also expected to result in increased demand for Swedish securities.

### SECURITIES TRADE IN STOCKHOLM

At the beginning of 2003, Stockholmsbörsen accounted for 48 per cent of total share trade in the five Nordic countries. At the same time, Swedish companies accounted for 40 per cent of total market capitalisation. A study<sup>27</sup> was carried out a number of years ago of Stockholm's capabilities for functioning as a hub in the northern European financial market. The proportions of trade and market capitalisation were more or less the same as today. The study pointed out the importance of trading technology and competence in the entire financial field for enabling Stockholm to develop in its position as a financial trading centre. Other necessary conditions included training initiatives and the support of closely-related businesses. Among its findings, the study showed that cluster effects from close cooperation and the support of customers and representatives for research and development in the field were notable factors in the success of other financial centres around the world.

For a long time now, Sweden has been a leader in the field of electronic trading and settlement of securities. A stock exchange collaboration called Norex exists between four of the five Nordic countries, and work is underway to enable a smoother connection between the Nordic securities

clearing organisations. The aim is to make the Nordic markets easily accessible and cost-efficient for international investors regardless of which Nordic stock exchange member acts as intermediary.

Sweden is one of the countries that stand out in a couple of significant areas in this regard. This applies in particular to the system of remote exchange members and the spread of Internet services. More than half of the stock exchange members in Stockholm are foreign banks and brokerages, of which the majority trade directly from their own country. These remote members provide liquidity and help to concentrate trade in Swedish shares to Stockholmsbörsen. Private share ownership is also widespread in Sweden, as is share trading on the Internet. Approximately 700,000 households make use of this cost-efficient method for trading in shares. At present, the number of foreign customers is limited, but the service could easily be enlarged to accommodate this market segment.

Stockholm today holds the dominant position once more for trade in Swedish securities. This means that Stockholm has now recaptured its role as the leading marketplace for Swedish securities since the years at the end of the 1980s and beginning of the 1990s when securities transaction tax contributed to trade in Swedish securities being moved to other marketplaces. For example, the majority of trade in many of Sweden's most important securities was carried out in London for a period of time.

Stockholmsbörsen has analysed the effects of an introduction of the euro in Sweden and come to the following conclusions:

- Trade in Swedish blue-chip shares may face somewhat stiffer competition from markets such as London, Euronext and Deutsche Börse.
- Trade in other large and medium-size companies would be affected to a small extent only. Their residence in Sweden and analysis skills in the home market would constitute an advantage for trade in Stockholm.
- Trade in small companies would not be threatened whatsoever as they are even more tied to the local market. On the other hand, the absence of perceived exchange rate risk could bring about an increase in demand for their shares from investors in the euro area.
- Trade in Swedish treasuries would decline in line with a convergence of interest rates. Only the proportion of trade that is related to real cash flow would remain. Insurance companies, funds and other treasury operations would go over to "buy and hold". Spe-

<sup>26</sup> Directive 2002/83/EC of the European Parliament and of the Council of 5 November 2002 concerning life assurance

<sup>27</sup> Andersson Å: Finansplats Stockholm – en tillväxtmotor (Stockholm as financial centre - a growth engine) Sweden: SNS Förlag, 1998

culative trade would disappear and instead be targeted at foreign products with better liquidity as Swedish interest rates become more correlated with other interest rates in the euro area.

- The actions of issuers in the primary market for loans with a maturity date after 1 January 2006 would be guided by liquidity in the euro and krona markets. Well-known issuers are expected to continue to issue in kronor until 1 January 2006 since their long bonds are mainly purchased by a small number of Swedish institutional investors.

- Trade in derivatives associated to Swedish treasury securities would probably be replaced by more liquid fixed-income derivatives such as Bunds, etc.

- It is difficult to predict developments in the secondary market for corporate bonds as it is still relatively undeveloped in Sweden. In the euro area, growth has been uneven. Even if the rate of increase in certain areas has been considerable, growth is hampered by the fact that the rating systems are considered far too blunt to allow different issuers' loans with the same rating to be viewed as equivalent.

*Changes in share trade in connection with a changeover to the euro*

Since 1999, Stockholmsbörsen and VPC (the Swedish Central Securities Depository & Clearing Organisation) have been able to provide trading and settlement in both kronor and euro. An amendment to legislation has also enabled companies to change accounting currency from kronor to euro. Very few have made use of these opportunities thus far, however. In spring 2003, only three companies – Electrolux, Nordea and StoraEnso – had a parallel quotation in euro on Stockholmsbörsen. The apparent sluggishness of Swedish companies to both change accounting currency and quote their shares in euro is most likely due to the companies' prospects of participating in a collective changeover within a short space of time, which appears both less expensive and more efficient than a unilateral conversion to the euro.

The outcome of the referendum will of course be of vital importance for the development of the market but also for the changeover to the euro among market players. A "yes" vote is expected to prompt a quick convergence of money market rates to euro area levels, particularly given that a definite political timetable for the changeover has been set in Sweden. The market is likely to come to a quick conclusion that there is no longer reason to speculate that the krona will deviate appreciably from the central rate with the euro, or that short-term rates in

Sweden will not converge towards current levels in the euro area. This would then remove any motivation for investing in Swedish interest-bearing securities due to interest rate differentials.

Unlike investment in interest-bearing securities, investment in shares is not as exposed to long-term currency exposure provided that there is free mobility between markets. It can not be ruled out, however, that lingering psychological inertia may contribute to a cautious approach among financial market participants towards euro-based share trading in Sweden. Nevertheless, the stability of the krona compared with the central rate is expected to provide an increasingly strong argument for switching to euro-based trade. When the conversion rate between the krona and the euro has been determined, which could take place some four to six months before 1 January 2006, demand for trading in euro may arise, which is why systems for trading shares and their associated derivatives must be ready for euro trade by this time.

#### **CLEARING AND SETTLEMENT OF SECURITIES TRANSACTIONS IN SWEDEN**

The consequences of full Swedish participation in EMU can be divided into short-term effects and longer-term, structural changes.

The short-term effects concern mainly patterns of share and bond trading, where we are very likely to witness an increase in cross-border trade.

This increase in trade and movement of securities across national boundaries will in the long run impose even greater demands on more efficient and secure settlement. The greater efficiency will be required insofar as it must become easier and less expensive to settle securities issued in another country. There will also be demands that investors should not need to be connected to a large number of different settlement systems or securities depositories in order to be able to invest in securities in different countries. Further demands will also be placed on the possibility of netting transactions to a greater extent and of attaining a more transparent risk exposure.

This will lead to a continuation of the structural changes and consolidation processes that have already started to become evident, e.g. Euroclear, which has taken over the national settlement institutions of France, Belgium, the Netherlands, the United Kingdom and Ireland. One often talks of horizontal or vertical integration in this regard, where Euroclear is an example of horizontal integration. Vertical integration involves the integration of trading, clearing

**Fact Box 7.** The fundamentals of payment systems

Payments used to be made through a physical meeting of the payer and payee, whereupon payment was made in cash. Increased trade, in particular over national boundaries, resulted in a growing volume of payment flows. All in all, this led to demands for other methods of payment. Technological advances have enabled new payment methods, but these in turn require the existence of systems that can handle the transfer of transactions between different parties. It is this task that is performed by different payment systems.

For payments between two bank customers with accounts in the same bank, the payments are handled within the bank's own system. In the majority of cases, this transfer is made immediately without any time lags. For payments between customers with accounts in different banks, it is necessary that the banks are linked via a central system. In Sweden, as in many other countries, the banks and certain other financial companies have accounts at the central bank. These accounts at the Riksbank enable payments to be made between the banks. The way in which different payments are handled is connected with the various risks and requirements associated with them.

*Different kinds of payments*

Payments can be divided into two categories: retail payments and large-value payments. By retail payments is meant payments that are usually made between non-financial corporations and households. Characteristic for these payments is that they most often do not require immediate execution and that they involve relatively small amounts. A typical example of a retail payment is the payment of bills by private individuals. By large-value payments is meant urgent payments involving very large amounts between two participants in the financial market, e.g. two banks. This could be a foreign exchange transaction, for example.

The various risks that are associated with these kinds of payments involve different requirements for the systems that are to execute the payments. For large-value payments, major problems could arise for a recipient bank if a payment can not be made. Important risks in this regard are credit risk, i.e. the risk that the payment will not be made at all and that the bank thereby will lose the entire amount, and liquidity risk, which is the risk that the payment will not be made at the point in time expected by

the bank and that the bank thereby will encounter problems with both its liquidity and its capacity to make its own payments. Problems that spread in this way between different financial companies are said to constitute a systemic risk, and this can lead to serious consequences for the financial system. Retail payments, which involve smaller amounts, do not carry the same risks for the banks that transfer the payments. Thus, if a retail payment is not made, it does not entail the same consequences for the banks that arise when large-value payments are delayed or cancelled. On the other hand, the large volume of payments imposes demands on the design of the system. Consequently, the different demands and risks require different kinds of payment systems.

*Real-time gross settlement or net settlement?*

There are two main principles for the construction of payment systems: gross settlement and net settlement<sup>28</sup>. Gross settlement means that transactions are settled individually. In the majority of cases this is done in real time, i.e. continuously during the day on condition that the payer has sufficient liquidity. Each payment is processed individually and is therefore not directly dependent on any other payment, on the condition that remaining participants have sufficient liquidity or can obtain sufficient liquidity through access to credit in the system. Gross settlement is used primarily for large-value payments since the credit risk that is associated with these payments is eliminated by settling the payments continuously and immediately when they are initiated in the system, instead of on a few occasions during the day. The disadvantage of this kind of settlement system is that it requires more liquidity from participants, as they must have sufficient funds in their accounts to cover the payments to be made. This in turn makes settlement more expensive for the participants. It is therefore common to equip this kind of system with different kinds of liquidity-saving functions and to allow participants access to intraday credit against collateral.

A net settlement system takes advantage of the fact that participants have many transactions that offset one another which through netting can give rise to lower settlement amounts. Netting can either be bilateral between each pair of parties included in the system or multilateral, i.e. the positions of all participants are netted against one

<sup>28</sup> Settlement is the completion of a payment commitment. – In practice this is the transfer of funds from one account to another and, in the central system, the transfer between two banks' accounts at the central bank.



**Fact Box 7.** The fundamentals of payment systems, cont.

another, thus creating one single payable or receivable amount. This means that the liquidity requirements are lower than those for gross settlement. The disadvantage is that there is a time lag from when the payments are registered until the final settlement of the net amounts takes place. The longer this time lag is, the greater the risk, and each transaction is dependent on the completion of all other transactions. If one participant cancels payment, there is therefore a risk that all payments will not be made. This means that there are special requirements for risk management in net settlement systems.

In addition, there are hybrid systems that attempt in various ways to capitalise on the advantages of both types of settlement method and minimise the effects of their disadvantages. For example, the system may use a net settlement process but this would be performed many times during the day.

To sum up, the choice of structure for different settlement systems involves weighing up the risks that must be managed and the cost of managing these risks.

*The situation in Sweden*

In many countries including Sweden, the payment system is based on a central system that functions in accordance

with the principle of real-time gross settlement. Other systems, such as those for different kinds of retail payments, are often based on net settlement. Large-value payments in Sweden are made within the framework of the Riksbank's system, RIX, in which the banks and certain other financial companies have accounts. The RIX system employs real-time gross settlement of payments, and participants can obtain intraday credit against collateral. RIX consists of two components: K-RIX and E-RIX. K-RIX handles krona payments while E-RIX handles payments in euro.

Retail payments are handled in the bank giro system, which functions according to the principle of bilateral net settlement between participants. BGC (the bank giro centre) calculates the net amounts between the participants which are settled through the banks' accounts in the RIX system at settlement times determined in advance.

The bank giro system has been built to cope with a larger volume of transactions than the RIX system and transfers more than one million payments per day at a value of over SEK 13 billion. This can be compared with the approximately 5,000 payments per day that are settled in the RIX system at a total average value of SEK 500 billion.

and settlement activities in one country. An example of this is the Deutsche Börse in Germany, which owns both the clearing institution Eurex and the securities depository Clearstream. The introduction of central counterparty (CCP) and netting at the clearing stage is another trend that is on the rise, as market players want as few counterparties and as large a netting effect as possible.

This development imposes demands on increased standardisation in different areas. The European securities depositories have through the organisation ECSDA (European Central Securities Depositories Association) laid the foundations for a common standard for managing cross-border transactions. Major changes are also taking place in the legal domain. New EU directives, international agreements, recommendations and standards will entail changes in the conditions for regulating clearing and settlement activities and for the national participants in this area.

All these trends will have consequences for the national securities depositories (VPC in Sweden), in the form of greater demands on efficiency and

security, stiffer competition, and the need for cooperation with other participants in the financial markets. Exactly how these structural changes will take shape for VPC is more difficult to predict.

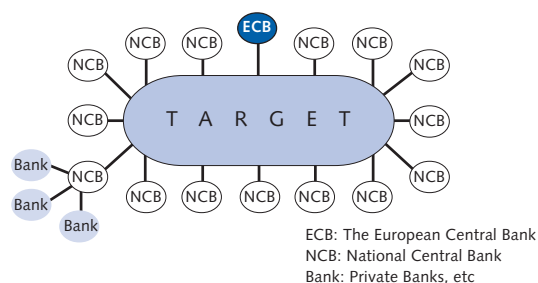
At present, VPC is continuing to develop the VPC system through its NewClear project, which is partially aimed at facilitating settlement of cross-border transactions. The introduction of several settlement times will ease adaptation to the settlement timetable in other depository and clearing organisations. This means that the time lag involved when transferring securities between countries will decrease.

**THE PAYMENT SYSTEM – FROM A NATIONAL TO INTERNATIONAL FOCUS**

Historically, payment systems have been domestically based to large degree. In other words, each country has had its own infrastructure for executing payments. The need for a common infrastructure has arisen, however, as a result of an increasing flow of

cross-border payments in the EU. A number of different initiatives are under way in the EU to create this common payment infrastructure. The central banks in the EU already have a common system for large-value payments, TARGET, which is going to be developed further. The banks in Europe have joined forces as a response to the political pressure being applied for efficient retail payments over national boundaries. This section describes these different projects. The advances that they represent are ongoing and are relatively independent of full Swedish participation in EMU. In the event of participation in Monetary Union, the advances will become more accentuated and Sweden will be integrated into a European payment area in which payments within the EU to an increasingly large extent will become as simple and inexpensive as domestic payments.

**Figure 11.** The TARGET payment system.



### TARGET2

In autumn 2002, the ECB Governing Council decided that the current TARGET system<sup>29</sup> should be replaced by a new system (TARGET2). The Council also established a number of principles and a basic structure for the new system. The current TARGET system was launched in January 1999 to coincide with the introduction of the euro. TARGET was developed mainly for the Eurosystem's common monetary policy but also to guarantee quick, secure and efficient settlement of cross-border large-value payments in the EU. While TARGET has fulfilled these requirements, there are some requirements that TARGET has yet to meet.

In order to ensure that TARGET would be able to be launched in connection with the introduction of the euro, it was decided to base TARGET on the central settlement systems of each EU Member State and link them with the ECB's payment mechanism. As such the infrastructure, with fifteen national settle-

<sup>29</sup> TARGET stands for Trans-European Automated Real-time Gross settlement Express Transfer system, and comprises the ECB and the fifteen central banks of the EU. The RIX system is also linked to TARGET through the component that handles euro payments (E-RIX). Through the national central bank systems, TARGET links the 16 central banks and approximately 5,000 commercial banks in the EU.

ment systems linked to the ECB's payment mechanism, is complex. This complexity has made the system sensitive to disruptions, while increasingly tighter security requirements have increased the costs of providing the system. The cost is therefore relatively high. It was in light of this that the ECB Governing Council decided to replace the current TARGET system.

### General principles and structure

TARGET2 will also consist of a number of different systems linked together. Unlike the TARGET of today, TARGET2 will partly comprise the national settlement systems, and partly a common system ("a shared platform") for countries that do not perceive the need to provide a national settlement system of their own. The shared platform will in other words be a part of the structure of TARGET2.

TARGET2 will be based on the following principles: i) a broadly defined and harmonised core service that will be provided by all systems, ii) a single price structure that will be applied to this core service and iii) cost-effectiveness, which, for example, will entail that the single price will be based on the system which, with full cost coverage, demonstrates the lowest unit cost. Subsidies will therefore be phased out.

Each EU Member State will have the option to choose between providing a national settlement system of its own, provided it complies with the above principles, or to join the shared platform. Due to the requirements of full cost coverage and a single price structure, it is likely that smaller countries such as Sweden will have difficulty in providing a national settlement system in the same manner as today.

**Figure 12.** The European System of Central Banks (ESCB)

The Eurosystem	
- The European Central Bank	- Banque centrale du Luxembourg
- Nationale Bank van België /Banque Nationale de Belgique	- De Nederlandsche Bank
- Deutsche Bundesbank	- Osterreichische Nationalbank
- Banco de España	- Banco de Portugal
- Banque de France	- Suomen Pankki/ Bank of Finland
- Bank of Greece	
- Central Bank of Ireland	
- Banca d'Italia	
Danmarks Nationalbank	Bank of England
Sveriges Riksbank	

Larger EU Member States more often have the capability to capitalise on economies of scale in their payment operations.

It has been expressed that the services and functions in TARGET2 should be seen from a user perspective. Similarly, issues such as the system's service level should be determined in close cooperation with the users through various kinds of consultation processes.

#### *Future work*

In December 2002, the ECB initiated a consultation process for TARGET2 with a view to both obtaining viewpoints on the chosen approach for TARGET2 and obtaining information about the operational requirements of the user community. This information will form the basis of a project plan for future work.

TARGET2 will be launched when the guidelines for TARGET2 come into force, when all systems provide the core services specified in these guidelines, and when these services are offered at a uniform price. A schedule for the work has yet to be announced. It has been said in the consultation process, however, that TARGET2 can not be expected to be launched before the second half of this decade.

#### *The Riksbank and TARGET*

At present, some 5,000 payments are settled every day in K-RIX, the part of the RIX system that handles krona payments. Considerably fewer transactions are settled in E-RIX; the Swedish banks transfer around 300 payments on average per day in TARGET. In addition, approximately 30 euro payments are transferred directly between the Swedish participants. Should Sweden participate in Monetary Union, the volumes in the Swedish payment system are likely to diminish for a number of reasons. Firstly, many of the payments made today in the RIX system are international payments, i.e. payments in kronor to and from foreign banks which for this reason have accounts at a Swedish bank. Should Sweden no longer have the krona as its currency, these payment flows would become euro flows for which the foreign banks already have other established channels.

Secondly, the reason the volumes passing through the Swedish payment system are expected to

diminish is that the Swedish krona will be included in CLS Bank from the beginning of July 2003. CLS is a global system for the settlement of foreign exchange transactions. The system was launched in 2002 and included initially the seven largest currencies<sup>30</sup>. CLS provides accounts for settlement, and each account consists in turn of a number of subaccounts, one for each of the component currencies. Transactions are settled through these accounts, and pay-ins and pay-outs are made on a small number of occasions each day. Today, foreign exchange transactions in kronor are settled directly through the RIX system, but as a result of CLS including the krona, the vast majority of foreign exchange transactions will be settled through CLS, while the traditional payment systems (RIX for the krona) will contain the small pay-ins and pay-outs made by the CLS participants. Thus, this change is not connected to a Swedish participation in Monetary Union.

The Riksbank today participates fully in the current TARGET system via E-RIX. In the event of Sweden joining Monetary Union, the Riksbank will provide the Swedish banks with a system for settling payments in the euro irrespective of whether or not TARGET2 has been launched.

#### **EBA: EURO1, STEP1 AND STEP2**

After TARGET, Euro1 is the second-most used system for payments in euro. It is also the most used system for cross-border payments in euro. Euro1 is used for both interbank and customer payments. The four major Swedish banks participate in Euro1 and have chosen to channel their euro payments to a large extent via this system<sup>31</sup>.

In 2001, the EU adopted a regulation on cross-border payments<sup>32</sup> which entailed that such payments were not allowed to cost more than corresponding domestic payments. In response to the authorities' criticism of the excessive cost and time involved in sending low-value cross-border payments, the EBA initiated Step1 in November 2000. The overwhelming majority of payments in Step1 are amounts less than EUR 12,500. These payments are processed on Euro1's platform. In light of the lower amounts involved in Step1, the participant requirements are lower than those for Euro1. Euro1/Step1 currently have just over 200 participants, of which 74 participate in Euro1.

Payments in both Euro1 and Step1 are processed individually. In order to create a more efficient system for cross-border retail payments, the EBA will be initiating Step2 in spring 2003. The purpose of Step2 is

<sup>30</sup> The US dollar, the Canadian dollar, the British pound, the euro, the Japanese yen, the Swiss franc and the Australian dollar.

<sup>31</sup> Euro1 is managed by the Euro Banking Association, which consists of more than 70 banks in Europe.

<sup>32</sup> Regulation (EC) No 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro.

to create a pan-European clearing house with a broad number of participants. With Step2 it will be possible to transfer payments in batch files<sup>33</sup> which will enable the system to be used in a more efficient way for low-value payments as well.

#### THE SINGLE EUROPEAN PAYMENT AREA – SEPA

The three European banking associations (The European Banking Federation, The European Savings Banks Group and the European Association of Co-operative Banks) together with fifty representatives of European banks and national banking associations have established the European Payment Council (EPC). EPC's members share the vision that European payments should function as easily and efficiently between EU Member States as domestic payments do today. The aim of the work in the organisation is to develop functionality for EU payments within a Single European Payment Area which benefits consumers, companies and banks in Europe.

Five working groups have been charged with the tasks of developing the regulatory framework and establishing the standards that are required to both create a single euro payment area and meet the demands imposed on the banking sector by the European Commission, the European Parliament and the ECB.

The creation of a single euro payment area in Europe will entail major changes for all parties involved. Customers will need to be given incentives to aban-

don the well-known services they use today and instead begin to use other services that sometimes will require the use of new technology. Dealers and other intermediaries will also require incentives to actively contribute to the new services reaching a critical mass. Banks will need to both redefine their business models and bear the costs of developing a new infrastructure. This in turn entails that all involved parties will have to conduct an active dialogue in order to ensure a harmonious migration from old to new systems.

The banks have now taken the necessary first steps towards creating the payment structure required and towards ensuring that the legislative process also can be used in a positive way to attain the goal of a single euro payment area.

A fully integrated European payment structure will be developed in several stages, the first of which will involve credit transfers in cooperation with existing clearing and settlement systems, after which the focus will be on a pan-European structure. This will bring together existing national payments and cross-border payments. To this end, a regulatory framework is currently being drawn up for a Pan-European Automated Clearing House (PEACH). PEACH will be "country-neutral" and the banks will own and/or be users of the system.

The Swedish Bankers' Association and the Swedish banks have been actively involved in the work with SEPA since it began in June 2002.

<sup>33</sup> Payment files that contain information about a large number of payment orders.

## ■ Use of the euro in Sweden

The SIFS Group (Consultation and Information with the Financial Sector) has in its progress reports regularly followed the use of the euro in Sweden and the extent to which this has changed over time. There were expectations as early as 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 transaction currency would lead to a spontaneous changeover to the euro in Sweden, at least in parts of the Swedish financial system. As the SIFS Group noted in progress reports 6 and 8, this has not been the case. This is also the assessment of this report.

The activity of Swedish financial agents in the euro market is relatively limited. While there has been a continued increase in the use of the euro, this has 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 that of exchange rate risk. In addition, financing costs for Swedish agents in the euro market compared with other alternatives have not become decisively lower; the interest rate differential between Sweden and the euro area has been narrower than expected. It is also probable that the uncertainty surrounding when Sweden may participate in Monetary Union has had an impact on the use of the euro in Sweden. This can be seen partly in the fact that certain opportunities to handle transactions in euro (accounts, share listings, financial accounting) have been made use of to a lesser extent than expected. However, the Swedish financial market is also affected by the structural changes in marketplaces, payment systems and products that the introduction of the euro and the increasing level of financial integration have brought about - a development that has intensified, if anything, in recent times.

<sup>34</sup> There are approximately 250 monetary financial institutions in Sweden. These comprise banks, credit market corporations, some credit institutions that are regulated by special legislation and money market funds. Statistics Sweden are collecting these statistics on behalf of the Riksbank as from April 2003.

<sup>35</sup> Other EU currencies are the British pound, the Danish krona and, prior to 2001, the Greek drachma.

### THE EURO IN SWEDISH MONETARY FINANCIAL INSTITUTIONS

Statistics Sweden collects financial market statistics every month from Swedish monetary financial institutions (MFI)<sup>34</sup>. A review of these statistics shows that the euro accounts for a relatively small share of MFI's balance sheet total. The largest proportion of the balance sheet total is comprised of assets and liabilities in Swedish kronor, more specifically 73 per cent of the assets and 61 per cent of the liabilities (see Table 1). The corresponding proportions in January 1999 were 78 per cent and 70 per cent, respectively. Among the Swedish monetary financial institutions, the banks are the wholly dominant actors. Of a total of SEK 431 billion in euro on the assets side (December 2002), SEK 367 billion can be found in the balance sheets of the banks. On the liabilities side the banks are equally dominant. Of a total of SEK 496 billion kronor in euro, the banks account for SEK 382 billion (see Table 2).

In December 2002, the reduced proportion of SEK corresponded to 70 per cent to an increased proportion in euro on the asset side, and on the liabilities side to an increase of around 50 per cent. In previous periods, it was instead the proportion of foreign currency other than the euro and other EU currencies<sup>35</sup>, i.e. including the US dollar, that increased most compared with 1999. This trend was broken in 2002, as the proportion of other currencies on the liabilities side decreased from 28.7 per cent to 25.1 per cent and the euro increased from 7.3 per cent to 9.9 per cent. Compared with January 1999 this represents nevertheless an increase of almost 5 percentage points for other foreign currencies. One conceivable explanation for the increase is that large companies have retained increased import income in US dollar accounts, for instance, to meet future needs. The tendency on the assets side has also weakened. Between January 1999 and January 2002, the proportion of other foreign currencies rose from 13.4 per cent to 17.2 per cent, after which it fell back to 14.4 per cent during the course of 2002. Over the same period (full-year 2002), the proportion of assets in euro also

**Table 1.** Balance sheet totals of Swedish monetary financial institutions, SEK billion

ASSETS									
	Balance sheet total	Swedish kronor	Euro	EU currencies other than euro	Other foreign currency (other than euro and other EU-currencies)	Proportion of Swedish kronor, per cent	Proportion of euro, per cent	Proportion of EU currencies, per cent	Proportion of other foreign currency, per cent
Jan 1999	4 005	3 126	205	137	537	78.1	5.1	3.4	13.4
Dec 1999	3 933	3 065	222	96	550	77.9	5.7	2.4	14.0
Jan 2000	4 203	3 164	282	110	647	75.3	6.7	2.6	15.4
Dec 2000	4 425	3 245	289	126	764	73.3	6.5	2.9	17.3
Jan 2001	4 610	3 362	307	156	783	72.9	6.7	3.4	17.0
Dec 2001	4 837	3 596	341	171	729	74.3	7.1	3.5	15.1
Jan 2002	5 018	3 622	352	181	864	72.2	7.0	3.6	17.2
Dec 2002	5 015	3 666	431	198	720	73.1	8.6	3.9	14.4
LIABILITIES									
	Balance sheet total	Swedish kronor	Euro	EU-currencies other than euro	Other foreign currency (other than euro and other EU-currencies)	Proportion of Swedish kronor, per cent	Proportion of euro, per cent	Proportion of EU currencies, per cent	Proportion of other foreign currency, per cent
Jan 1999	4 005	2 790	227	168	820	69.7	5.7	4.2	20.5
Dec 1999	3 933	2 721	254	129	830	69.2	6.5	3.3	21.1
Jan 2000	4 203	2 769	307	137	991	65.9	7.3	3.2	23.6
Dec 2000	4 425	2 844	263	132	1 185	64.3	6.0	3.0	26.8
Jan 2001	4 610	2 918	318	178	1 195	63.3	6.9	3.9	25.9
Dec 2001	4 837	2 944	361	198	1 334	60.9	7.5	4.1	27.6
Jan 2002	5 018	2 995	368	215	1 441	59.7	7.3	4.3	28.7
Dec 2002	5 015	3 063	496	196	1 259	61.1	9.9	3.9	25.1

Source: The Riksbank's financial markets statistics

increased by 1.6 percentage points.

The proportion of euro in the balance sheet totals of MFIs, as shown in Table 1, rose slightly between 1999 and 2002, even though the rise varied for different types of institutions and balance sheet items. At the beginning of 1999, the euro accounted for 5-6 per cent of the balance sheet total, or just over SEK 200 billion. By December 2000 the proportion of euro had risen to 6-7 per cent of the balance sheet total. At the beginning of 2003, the proportion of euro was still somewhat higher, accounting for 8-10 per cent of the balance sheet total or just over SEK

<sup>36</sup> Credit market corporations are specialised financial intermediaries. Each group of institutions has its defined area for the provision of credit, as shown in their articles of association. Credit market corporations comprise housing credit institutions and other credit market corporations. Other credit market corporations consist of the former intermediary institutions and finance companies. Their operations specialise in lending to municipalities and agricultural companies, for example, and/or providing special finance such as export finance.

<sup>37</sup> FöreningsSparbanken (Swedbank), Nordea, SEB and Svenska Handelsbanken.

400 billion on the assets side and SEK 500 billion on the liabilities side.

#### *Lending in euro*

It is primarily banks and other credit market corporations<sup>36</sup> that have activities reported in euro in their balance sheets. As shown in Table 2, the banks accounted for the majority of the euro volume in absolute figures in December 2002. Other credit market corporations have mainly assets in euro, while housing credit institutions primarily have liabilities in euro. Among the banks, it is primarily the four major banks<sup>37</sup> that account for holdings in euro (over 95 per cent), while among other credit market corporations, companies with export-related or other international operations account for the majority of euro exposures.

Of the banks' total lending in December 2002, euro loans accounted for approximately 9 per cent or SEK 207 billion (see Table 3). Of the banks' different

lending items, loans to the foreign general public (mostly non-financial corporations) in other EU Member States accounted for the largest euro proportion, comprising 48 per cent or SEK 77 billion. This represents an increase since the euro was introduced, when euro loans comprised 19 per cent of lending to the foreign general public or SEK 45 billion. Lending to foreign financial institutions, primarily banks in other EU Member States, also consisted of relatively large euro volumes (SEK 56 billion or 22 per cent) at the end of December 2002. This was a clear rise from the SEK 34 billion or 15 per cent seen in January 1999.

As regards the banks' domestic lending activities, lending to non-financial corporations was the item that contained somewhat greater volumes in euro, equivalent to SEK 27 billion in December 2002, or slightly over 4 per cent of total bank lending to companies. All in all, the volume of euro has been unchanged since January 1999 while the proportion of euro in corporate lending has fallen. Household demand for euro loans from the banks has been insignificant (SEK 0.7 billion or 0.2 per cent of household lending in December 2002), and this relationship has changed only marginally since January 1999.

**Table 2.** Balance sheet totals and proportions in euro of different groups of institutions (MFI), SEK billion and per cent

Group of institutions	Date	Assets			Liabilities		
		Balance sheet total	Euro	Proportion of euro %	Balance sheet total	Euro	Proportion of euro %
Banks	Jan-99	2 574	190	7.4	2 574	190	7.4
	Dec-00	2 974	227	7.6	2 974	207	7.0
	Dec-01	3 160	285	9.0	3 160	276	8.7
	Dec-02	3 277	367	11.2	3 277	382	11.6
Housing credit institutions	Jan-99	1 193	1	0.1	1 193	19	1.6
	Dec-00	1 170	0	0.0	1 170	30	2.6
	Dec-01	1 210	0	0.0	1 210	43	3.5
	Dec-02	1 265	0	0.0	1 265	68	5.4
Other credit market corp.	Jan-99	239	14	6.0	239	17	7.1
	Dec-00	280	61	21.9	280	26	9.3
	Dec-01	467	56	12.0	467	41	8.9
	Dec-02	472	63	13.3	472	46	9.7
Total MFI	Jan-99	4 005	205	5.1	4 005	227	5.7
	Dec-00	4 425	289	6.5	4 425	263	6.0
	Dec-01	4 837	341	7.1	4 837	361	7.5
	Dec-02	5 015	431	8.6	5 015	496	9.9

Source: The Riksbank's financial markets statistics

For housing credit institutions there seems to be scant demand for housing loans in euro, and lending in euro was thus negligible. As regards other credit market corporations, lending in euro totalled SEK 8 billion in December 2002 or just over 2.9 per cent of their total lending.

#### *Interest-bearing securities in euro*

Of the banks' total holdings in securities, a total of 19.1 per cent or SEK 90 billion were invested in euro-denominated treasury paper and other interest-bearing securities in December 2002, as shown in Table 3. The trend of a slight year-on-year increase from January 1999 compared with the same period in both 2000 and 2001 has both continued and become stronger.

In December 2002, the group other credit market corporations had invested SEK 47 billion or 51 per cent of its securities assets in euro-denominated interest-bearing securities. This represents a recovery from the SEK 41 billion noted for December 2001 but is less than in December 2000 when SEK 55 billion was invested in interest-bearing euro securities. It is nevertheless a higher proportion than that in December 1999 when SEK 11 billion was invested in interest-bearing securities denominated in euro.

**Table 3.** A selection of asset items for different groups of institutions (MFI), SEK billion

Group of institutions	Date	Lending			Interest-bearing securities		
		Balance sheet total	Euro	Proportion of euro %	Balance sheet total	Euro	Proportion of euro %
Banks	Jan-99	1 673	122	7.3	469	30	6.4
	Dec-00	2 037	146	7.2	387	34	8.9
	Dec-01	2 252	180	8.0	428	47	11.1
	Dec-02	2 244	207	9.2	469	90	19.1
Housing credit institutions	Jan-99	1 153	0	0.0	7	0	0.0
	Dec-00	1 134	0	0.0	10	0	0.0
	Dec-01	1 185	0	0.0	4	0	0.0
	Dec-02	1 241	0	0.0	3	0	0.0
Other credit market corp.	Jan-99	144	3	2.1	80	11	13.3
	Dec-00	150	5	3.1	116	55	48.0
	Dec-01	249	6	2.6	104	41	39.6
	Dec-02	265	8	2.9	92	47	51.1
Total MFI	Jan-99	2 970	126	4.2	555	41	7.3
	Dec-00	3 321	151	4.5	513	90	17.5
	Dec-01	3 685	187	5.1	536	88	16.5
	Dec-02	3 751	215	5.7	564	137	24.2

Source: The Riksbank's financial markets statistics

A probable cause of these fluctuations could be the interest-rate relationship between the Swedish krona and the euro.

#### *Liabilities in euro*

As can be seen from Table 4, the banks' total deposits/borrowing in euro in December 2002 was SEK 231 billion, which was 10.8 per cent of total deposits/borrowing. This represents a continued increase from December 2000 when deposits/lending amounted to SEK 126 billion or 6.5 per cent and is a clear rise on 2001 when SEK 155 billion or 7.2 per cent of borrowing was in euro. In terms of the banks' liabilities, transactions between banks themselves, primarily deposits/borrowing with banks in other EU Member States, constituted the largest euro volume – SEK 132 billion in December 2002 or 32 per cent of the total item. Deposits/borrowing from other counterparties in other EU Member States, mostly businesses, included SEK 30 billion in euro, which was 25 per cent of the total item. Deposits/borrowing from Swedish non-financial companies is one of the items with slightly larger amounts in euro, equivalent to SEK 21 billion, which is more than 5 per cent of Swedish companies' bank deposits.

In December 2002, *housing credit institutions* had borrowing in euro corresponding to SEK 1 billion or 0.4 per cent of their balance sheet totals.

The group *other credit market institutions* had SEK 15 billion in borrowing in euro in December 2002, which was 8.3 per cent of their total borrowing. This borrowing has mainly been obtained from banks in other EU Member States, with the euro constituting 37 per cent of their total bank borrowing.

#### *Issued interest-bearing securities*

The banks' stock of interest-bearing securities issued in euro amounted to SEK 49 billion in December 2002, which was 13 per cent of the total stock of issued securities (see Table 4). Of the various instruments issued in euro, certificates constituted the greatest volume, totalling SEK 32 billion.

The outstanding stock of securities in euro at *housing credit institutions* was somewhat larger than that of the banks, corresponding to SEK 67 billion in December 2002. Euro-denominated securities comprised 8.2 per cent of the total stock of issued securities. Unlike the banks, the dominant instrument for housing credit institutions was, as expected, bonds (equivalent to SEK 61 billion).

The stock of securities issued in euro at *other credit market corporations* amounted to SEK 28 billion in December 2002, which was just under 14 per cent of the total stock of issued securities. Even here it is almost exclusively bonds that are issued in euro (SEK 27 billion).

In addition to the above-mentioned items in the balance sheets of monetary financial institutions, there are also a number of other items that contain sizeable euro volumes. For example, the item *other assets* had a proportion of euro of 13 per cent or SEK 46 billion, while the proportion of euro in *other liabilities* comprised 12 per cent or SEK 62 billion. Both these items include the market value of outstanding derivative instruments, which accounted for between 59 and 79 per cent of the amounts.

#### *Euro accounts in Swedish banks*

The number of euro accounts in March 2003 totalled 21,000, of which 18,000 were held by businesses and 3,000 by private persons. The number of euro accounts held by private persons was unchanged compared with March 2002, while the number held by businesses rose by approximately 3,000. The number of euro accounts held by businesses comprised less than two per cent of the total number of corporate accounts at banks. For private persons, the number of euro accounts constituted a marginal share compared

**Table 4.** A selection of liabilities items for different groups of institutions (MFI), SEK billion

Groups of Institutions	Date	Deposits/borrowing			Issued securities		
		Balance sheet total	Euro	Proportion of euro %	Balance sheet total	Euro	Proportion of euro %
Banks	Jan-99	1 760	118	6.7	239	34	14.4
	Dec-00	1 944	126	6.5	329	41	12.5
	Dec-01	2 150	155	7.2	390	45	11.7
	Dec-02	2 148	231	10.8	378	49	13.0
Housing credit institutions	Jan-99	246	0	0.0	812	18	2.2
	Dec-00	294	0	0.0	758	29	3.8
	Dec-01	368	2	0.5	731	40	5.4
	Dec-02	339	1	0.4	816	67	8.2
Other credit market corp.	Jan-99	51	3	5.0	150	13	8.5
	Dec-00	45	4	9.2	194	17	8.9
	Dec-01	160	14	8.7	211	24	11.4
	Dec-02	181	15	8.3	203	28	13.8
Total MFI	Jan-99	2 057	120	5.8	1 200	65	5.4
	Dec-00	2 283	130	5.7	1 282	88	6.8
	Dec-01	2 679	170	6.4	1 332	109	8.2
	Dec-02	2 668	248	9.3	1 396	144	10.3

Source: The Riksbank's financial markets statistics



with the total number of accounts (in the region of 0.01 per cent).

### THE EURO IN THE SWEDISH FOREIGN EXCHANGE MARKET

The largest agents in the Swedish foreign exchange market are the Riksbank's foreign exchange counterparties, the primary dealers (PD), which consist of the four major Swedish banks and six foreign banks. These ten primary dealers deal as a group mainly with foreign banks that are not counterparties to the Riksbank, but also within the PD sphere and with Swedish banks that 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 performed directly with customers. Practically all spot transactions in the interbank market are made in kronor for euro, while forward and swap transactions are made in kronor for US dollars.

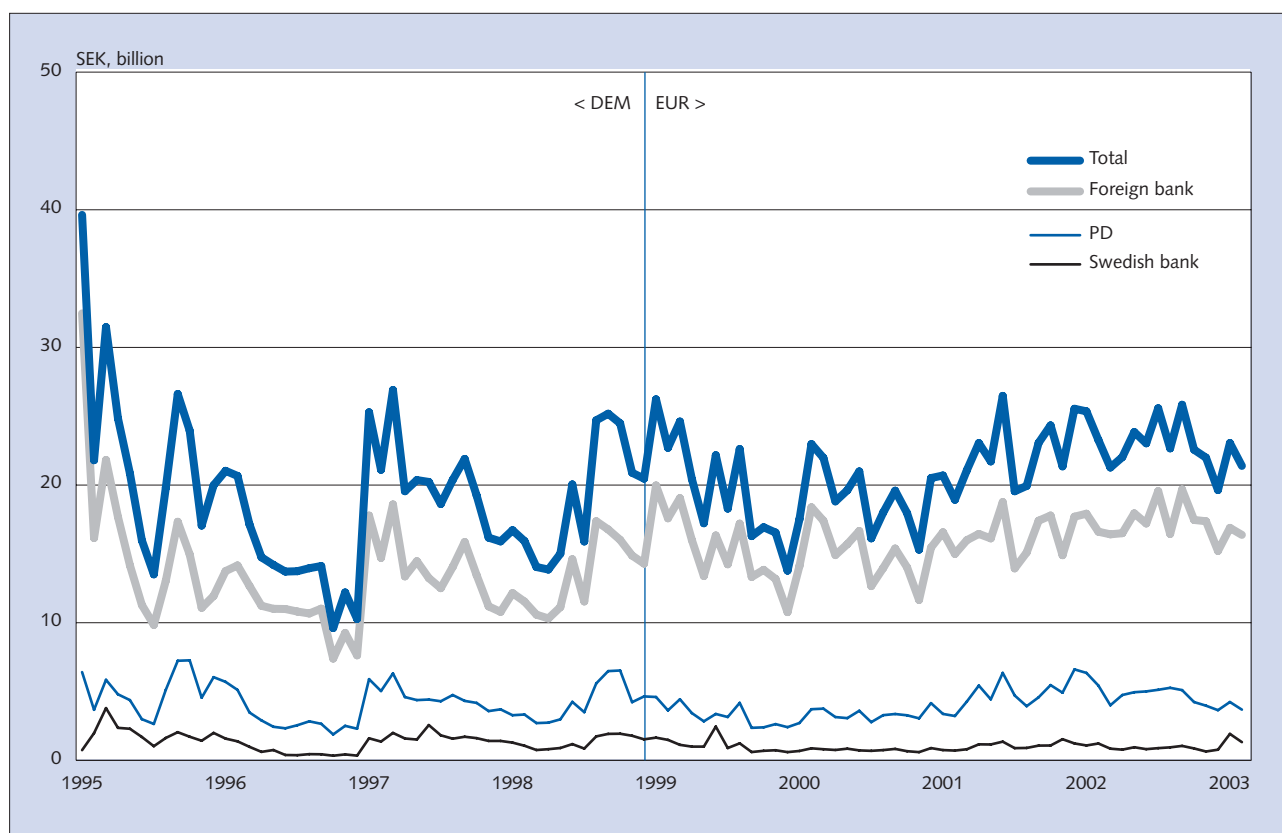
Figure 13 below shows how the interbank spot turnover in the Swedish foreign exchange market has

developed since the introduction of the euro, compared with the period prior to 1 January 1999 (when the krona was spot traded for the D-mark). As the diagram shows, the daily spot turnover (interbank) has fluctuated around SEK 20 billion since 1995. The majority of the interbank spot transactions are performed with foreign banks as counterparty. The average daily turnover in kronor for D-mark during the period 1995-1999 was SEK 19.2 billion, and the corresponding figure for the period from 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 31 December 2002, the average daily turnover totalled SEK 20.4 billion. This is somewhat lower than the average for the period 1 January 2001 to 28 February 2002. This means that the slowly rising trend observed from 1999-2001 tapered off in 2002.

### PAYMENTS IN EURO

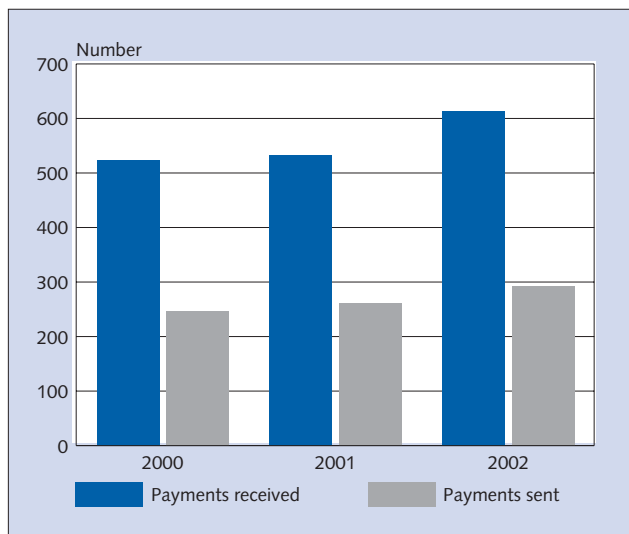
Within the Eurosystem, there is a common payment system, TARGET, which links together the national

**Figure 13.** Interbank spot turnover in the Swedish foreign exchange market 1995-2003, SEK billion.



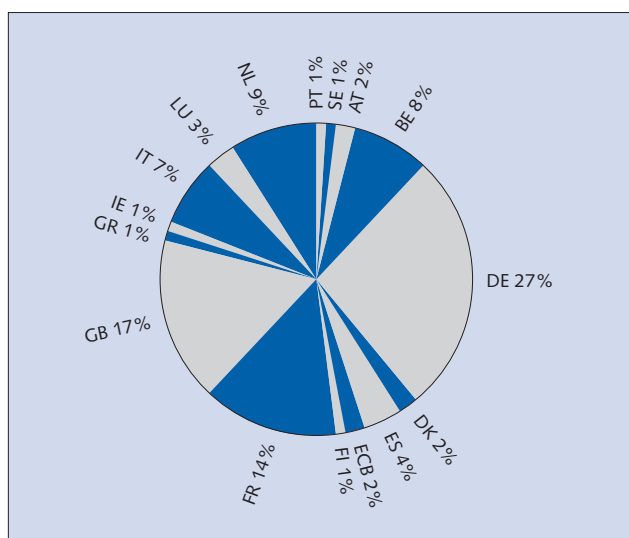
**Note.** The Riksbank has ten foreign exchange counterparties (Swedish and foreign banks), known as Primary Dealers (PD). Total interbank trade in the Swedish foreign exchange market includes spot trade within the PD sphere and counterparty trade with Swedish and foreign banks that are not counterparties to the Riksbank.

**Figure 14.** Payments sent and received via TARGET to and from Sweden per day



Sources: The ECB and the Riksbank

**Figure 15.** Breakdown of the value of the cross-border payments between the central banks in TARGET



Sources: The ECB and the Riksbank

settlement systems of the EU Member States. TARGET is operated by the ECB and the national central banks within the EU. It is the largest system for transfers of large payments within the EU area. Next in size is the EBA's payment system Euro1<sup>38</sup>, which is intended for commercial payments. It is used to a large extent by the four major Swedish banks. Euro payments in Sweden are also made in the bank giro system. For more information about the payment systems in the EU, see Fact Box 7 in this report entitled 'The Swedish financial market – challenges and development opportunities in the event of full EMU participation'.

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 account is held. E-RIX is open for different types of payments, both interbank payments and customer payments, and there is no limit on the amounts that can be transferred. Interbank payments are made between banks, while customer payments are made at the request of a bank customer.

The Riksbank's regulatory framework for settlement in E-RIX<sup>39</sup> is based on the principles laid down by the ECB. The system is open for credit institutions, certain securities companies, clearing organisations and certain government authorities.

#### Payments in E-RIX

It is mainly cross-border payments that are settled in E-RIX, i.e. payments that go to or from other central banks in the EU. The number of cross-border payments from Sweden averaged 294 per day in 2002 (see Figure 14). Compared with 2001, this represents an increase of approximately 14 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 greater than the number of payments from Sweden. In 2002, a daily average of 586 payments were received, which was an increase of 10 per cent compared with 2001. As regards euro payments within Sweden, i.e. between two Swedish banks, a small number of payments are made per day, usually just over 30 in total.

The value of cross-border payments made from Sweden in E-RIX in 2002 averaged approximately

<sup>38</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 (EBF), which is an association of all the national banking associations in Europe. See also the section on other euro payments.

<sup>39</sup>Sveriges Riksbank, Regelverk för betalningsavveckling i RIX, januari 2001 (Rules for payment settlement in RIX, January 2001, in Swedish)

EUR 5.5 billion per day, which in principle was unchanged from the previous year.

Sweden accounts for approximately one per cent of cross-border payments in TARGET (see Figure 15). 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, particularly small banks that do not participate in Euro1, use TARGET to a greater extent to send cross-border customer payments.

Since payments that are sent from Sweden are almost exclusively interbank payments, the average cross-border payment from Sweden is relatively large compared to the average TARGET payment (see Figure 16).

#### *Provision of liquidity in E-RIX*

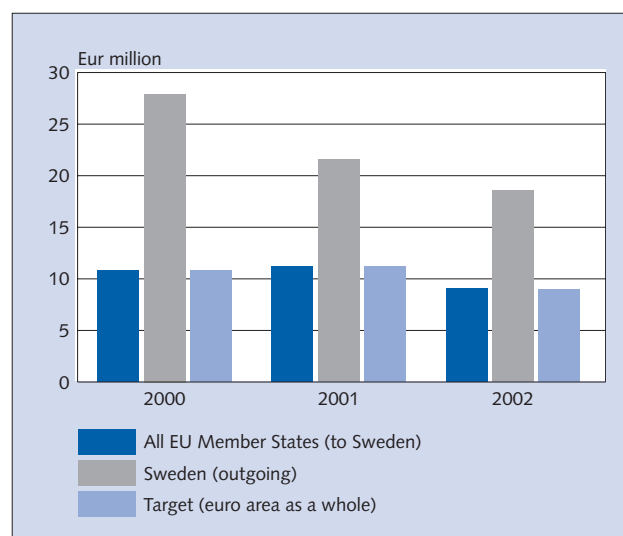
The countries that participate in Monetary Union provide the non-participating countries with euro liquidity. This has been necessary due to the fact that the central banks of the EU Member States that have not joined Monetary Union can not create euro liquidity. For Denmark and Sweden, the maximum liquidity is EUR 1 billion. For the United Kingdom, the corresponding amount is EUR 3 billion.

Initially, this meant that the Riksbank provided participants in E-RIX with intraday euro credit totalling EUR 1 billion against collateral. As the requirements of the E-RIX participants proved to be less than expected, the amount was reduced in stages to EUR 500 million. The cost of the provision of euro liquidity is apportioned by the Riksbank among the participants that use the credit.

One reason that the participants in E-RIX do not have such great demand for the Riksbank to provide 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 euro liquidity from a central bank in the euro area. Another possibility is to arrange an agreement for a credit facility with another bank in the euro area. A third possibility is to use the interbank market.

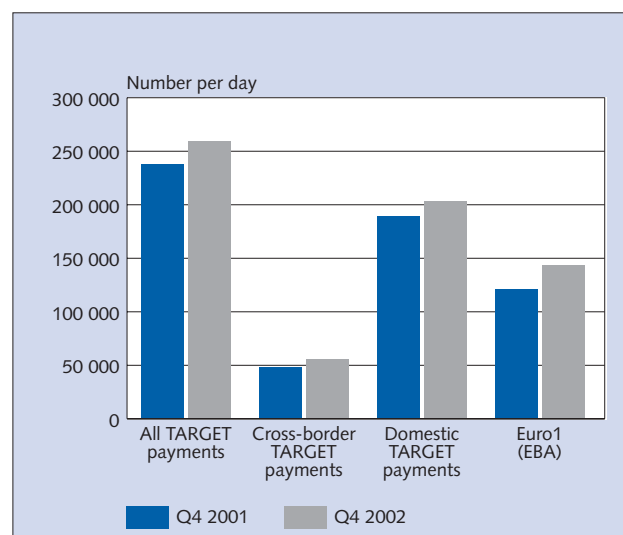
Securities that can be used in the Eurosystem for monetary policy transactions can also be used as collateral for intraday credit. Like other central banks of EU Member States outside the euro area, the Riksbank has its own list of collateral that can be used for intraday credit in euro. The ECB has, with regard to Swedish issuers, and at the request of the Riksbank, generally approved that bonds and other promissory

**Figure 16.** Average value of crossborder payments in TARGET, EUR million



Sources: The ECB and the Riksbank

**Figure 17.** Average number of payments made via TARGET and Euro1 (EBA) per day.



Sources: The ECB and the Riksbank

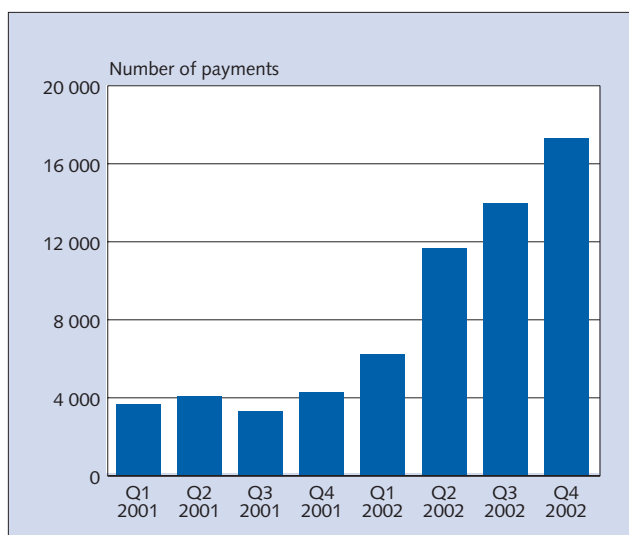
undertakings issued by the Swedish state, as well as bonds issued by Swedish housing finance institutions, be used by the Riksbank as collateral for intraday credit.

#### *Other euro payments*

Swedish banks have to a great extent preferred to channel their customer payments via EBA's payment system, Euro1. Just over 70 European banks belong to the system. As Euro1 is a net settlement system, it requires less liquidity and leads to lower costs for payments than TARGET, in which each payment is settled separately and immediately. For more information about Euro1 and other European payment systems, see Fact Box 7 in this report entitled "The Swedish financial market – challenges and development opportunities in the event of full EMU participation". Figure 17 compares the number of payments made via TARGET and Euro1.

Some domestic payments are made in euro via the bank giro system. The accumulated value of these payments in Sweden is small, although this rose in 2002 to just over SEK 1 billion per quarter. The value of the payments during the second quarter was unusually high, reaching SEK 2.4 billion. As volume is low, large individual payments can have a substantial effect on the statistics. The data above should be compared with the turnover in the entire bank giro system, which amounts to approximately SEK 375 billion per year. The number of payments also rose gradually during 2002, reaching 17,000 in the fourth quarter, which points to greater interest in making domestic payments in euro. Thus, the increase in the

**Figure 18.** Domestic payments in euro via BGC.



Source: BGC

number of euro payments in the first quarter of 2002 compared with the first quarter of 2001 which was noted in the most recent progress report has continued (see Figure 18).

#### **THE IMPORTANCE OF THE EURO AS AN EXPORT CURRENCY**

The introduction of the euro has meant that an increasing number of Swedish export companies have started to use the euro as their invoicing currency. In the Riksbank's system for collecting statistics for the Swedish balance of payments, it is the currency in which Swedish exporters of goods receive payment that is registered. These statistics show that during the initial years of Monetary Union export payments to Swedish companies were still being made to a certain extent in the national currencies of the euro countries, despite the fact that these currencies no longer existed as an electronic form of payment in the European payment system, TARGET. The reason for this was probably that the use of correspondent banks at the time was more widespread than is the case today and that some of these banks had not fully converted their systems for correspondent payments to the euro. In line with the subsequent conversion of these systems to the euro and the increasing number of banks that began to execute customer payments in TARGET, the proportion of export payments made in the national currencies of the euro countries also decreased in favour of payments in the euro. By 2002 all systems had been converted and it was no longer possible to make payments to Swedish export companies in the national currencies of the euro countries.

However, the increased proportion of export payments made in euro is not solely due to the euro having replaced the national currencies as payment currency. Of all payments made from customers in the euro area to Swedish export companies, the euro accounted for approximately 66 per cent, which can be compared with just over 40 per cent in 1999. Even when including payments in the national currencies of the euro area among euro payments, the proportion has risen markedly, from 58 per cent in 1999 to 66 per cent in 2002. In this connection, it can be noted that it is mainly the Swedish krona that has relinquished proportions as an export currency to the euro area. The proportion of krona payments fell during the period in question from 32 per cent to 23 per cent, while the use of the US dollar and the Bri-

tish pound was largely unchanged. In light of the fact that export companies invoice their customers to a great extent in the currency of the customer's choice, the euro appears to have won confidence over a relatively short time as a generally accepted transaction currency. This applies only to export payments from the euro countries, however. When looking at total Swedish exports of goods, the proportion of payments made in the euro also increased. This increase was considerably lower, however, from 26 per cent in 1999 to 29 per cent in 2002. Instead, there was a sharp rise on the part of the US dollar, whose share climbed from 22 to 32 per cent from 1999 to 2002. It seems therefore that outside the euro area the US dollar as opposed to the euro has replaced the krona as the Swedish export currency.

One effect of the euro's apparent replacement of the Swedish krona as payment currency, at least in connection with exports to the euro area, is that Swedish companies in their financial administration must be capable of managing the exchange rate risk that arises from the payment flows. Together with a more distinct trend towards the merging of companies in Sweden with companies in the euro area and the outsourcing of production units to other countries, this could contribute to an increasing number of Swedish companies in the near future deciding to use the euro as their accounting currency, something that limited companies, among others, have been permitted to do for a couple of years now. Thus far, however, this possibility has only been taken advantage of by a small number of companies, most of which have been large international enterprises. One of the main reasons that companies have delayed a change of accounting currency is the difficulty involved in estimating the economic advantages and disadvantages of such a change, in particular given the current uncertainty that surrounds a future Swedish participation in Monetary Union.

#### **THE EURO IN THE STOCK MARKET AND FIXED INCOME MARKET**

The original eleven euro countries coordinated their transition to the euro as early as their entry into Monetary Union on 1 January 1999. In spite of the fact that three years would pass before the introduction of euro banknotes and coins, all share prices were converted to euro from the first day of trade in 1999. This routine then continued without commotion until

the old currencies were phased out at the beginning of 2002. There were several reasons for the rapid changeover. Firstly, the stock exchanges were hoping that liquidity would increase due to more extensive trade within the euro area. Secondly, the currency is only of importance for pricing in the stock market as customers can always settle in the convertible currency of their choice. Finally, the majority of transactions are not settled against cash but against a bank account.

Nevertheless, very few institutional or private customers chose to open euro accounts for their securities transactions during these three years. However, this should be seen in light of the fact that the exchange rates were already fixed and that no foreign exchange risk existed. In reality, accounts in Belgian francs, D-marks, French francs, Italian lira, etc. were euro accounts denominated in another subunit. As payments were made in the old national currencies, however, it was necessary to quote two prices for the shares being traded, etc. This was done in different ways in the various euro countries.

The general routines for shares can be compared with the more blurred picture in the fixed-income market. Frequently-traded treasury bonds and other highly-liquid securities changed over to trade in the euro at an early stage. However, many bond loans in which turnover was low remained in the old currency until they were redeemed or until conversion became compulsory in 2002.

In the stock market, the euro made a quick, strong impact. As early as the first year, the eleven euro countries accounted for 60 per cent of share trading in Europe, while 30 per cent took place in London and 10 per cent in Switzerland, Sweden, Denmark, Norway and Greece. Of the trade in London, however, it was reported that around one-third was carried out in euro, due to the fact that it was shares from euro countries that were traded. Normally, foreign shares in London are traded in the respective country's currency to avoid the foreign exchange rate providing a mixed picture of prices. All in all, share trading in the euro amounted therefore to just over two-thirds of the total volume as early as 1999.

The changes that have taken place since then have mainly mirrored other structural changes in the European stock markets. The stock exchanges in Germany, Holland, Belgium and Portugal have been merged into a common stock exchange system

known as "Euronext", which accounted last year for 21 per cent of trade in Europe. Together with the strong regional exchanges in Germany, Italy and Spain, as well as those in the smaller euro countries, these exchanges accounted for 49 per cent of the European market in 2002. This can be added to the above-mentioned share of trade in London, which has probably increased given that London accounted last year for 41 per cent of trade in Europe. Share trade in the euro countries has therefore remained close to two-thirds of total share trade in Europe, and no major change can be expected in this regard unless the United Kingdom joins Monetary Union or Switzerland (6 per cent) joins both the EU and EMU.