



# The Swedish Financial Market

2004

**FOR INFORMATION** about this publication, please contact  
Johan Molin, tel +46 8 787 07 14 eller e-mail: [johan.molin@riksbank.se](mailto:johan.molin@riksbank.se)

**TO ORDER** the publication, please contact  
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## ■ Introduction

The financial system has three main tasks: converting savings into financing, managing risk and providing efficient means of payment.

Households often need to smooth their consumption over life's different phases; they may, for example, need to borrow for housing and education during their early years and save towards a pension and consumption later on in life. At the same time, many business projects require financing in order to be realised and thus benefit society through economic growth and employment. The financial sector assists in channelling people's savings into investments as efficiently as possible. Instead of each individual investor having to find an investment project to assess and monitor, or each individual entrepreneur having to find, convince and negotiate payment terms with potential investors in a project, both can reap rewards by obtaining help from a specialised middleman – a *financial intermediary*.

The best example of such a financial intermediary is a bank. Savers who want to smooth their consumption over their lifetime can deposit money in a bank account and withdraw it (plus interest) at a later stage. In addition, banks can lend money to companies and households looking to invest. Banks are specialists at valuing, monitoring and managing credit risks in the households and companies to which they lend. One can say that the bank enables its customers to both capitalise on *economies of scale* and solve the problem of *asymmetric information*. In the latter case, it is sufficient for borrowers/businessmen to convince the *bank* of their own or their project's creditworthiness; they do not have to assure each individual saver of this. Similarly, savers do not have to assess the creditworthiness of every borrower; it is enough to be satisfied of the *bank's* solvency. The financial sector – simplified here in the shape of a bank – contributes in this way to more efficient movement of capital in the economy. Examples of other financial intermediaries that contribute in a similar way are mortgage institutions and finance companies.

However, the most efficient mediation of financial services is not always achieved through the use of financial intermediaries. An even higher degree of efficiency can sometimes be accomplished if the

service in question can be converted relatively easily into a standardised financial contract that can be bought and sold in a market. Organised trade governed by explicit regulations and a high degree of standardisation creates the conditions for effective pricing of the financial service. When many participants monitor, analyse and trade the instruments offered in the market, total information costs and transaction costs can be reduced. This in turn makes it easier to assess the value of the financial service, i.e. it leads to better pricing. Furthermore, the risks borne by investors decrease as the day-to-day trading activities make it easier for them to sell certain holdings and thereby reduce their risk exposure.

Good examples of the successful securitisation of financial services are equities, bonds and money market instruments. In simplified terms, the issuers of bonds and other interest-bearing instruments can be said to correspond to the banks' borrowers. These agents can obtain cheaper financing for their projects than they otherwise would get by borrowing from a bank, for example, given that there is great demand in the market for their securities. Unlike bonds and money market instruments, equities do not generate a fixed return but represent instead ownership shares in a company for which the return yielded depends on the company's future profits. Given that these profits can vary considerably over time, equity investors usually assume a higher risk than investors in government or mortgage bonds, for example. At the same time, the return can be substantially higher. Thus, unlike the fixed-income market, the equity market is a market for risk capital.

However, not all financial services are as suitable for conversion into standardised contracts that can be traded in a market.<sup>1</sup> This is also why financial markets can not completely replace financial intermediaries. Instead, the intermediaries and organised markets complement one another. Additionally, the markets create a need for a large number of further specialised intermediaries, e.g. securities companies and fund management companies. Fund management companies are an example of intermediaries that help households to manage their savings in an efficient way. By capitalising on economies of scale, the fund management companies are able to construct securities portfolios (mutual funds) in which the risks of each individual security can be diversified.

So the financial sector does not simply improve the intermediation of capital but also contributes to more effective risk manage-

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<sup>1</sup> However, financial techniques are constantly evolving. For example, banks' loan stocks are securitised in several parts of the world.

ment. Companies and households need to protect themselves against different kinds of risks. Individuals, for example, may need to insure themselves against house fire or theft. They can do this with the aid of the property and liability insurance companies' products. They may also need to secure their livelihood in case they should live to a higher age than average, or to secure that of their survivors in the event they should die prematurely. They can do this by signing life insurance or pension insurance policies with life insurance companies. Insurance companies are financial intermediaries specialised in the assessment and management of insurance risks.

Companies also need to protect themselves against different kinds of economic risks such as adverse changes in the future prices of commodities or currencies. The growth of the financial markets has enabled trading in contracts (known as derivatives) that are specially constructed to manage such risks. Such derivatives include options, forwards, and swaps.

In addition to mediating capital flows and managing risks, financial companies create the conditions for more efficient intermediation of payments in the economy. By using the existing financial infrastructure, such as accounts and various routines for transferring funds between financial institutions, the banks can supply payment services for households and companies. Charge cards, credit cards and account transfers are now common, which allows goods and services to be exchanged smoothly and economically. The smooth performance of financial transactions is important if the economy as a whole is to function efficiently.

This publication is an attempt to describe the financial sector in Sweden using available statistics in the field.

It begins with a description of organised trade in financial instruments – *the financial markets*. This is followed by a review of the middlemen – *financial intermediaries*. Finally, we give a description of the *financial infrastructure* used for payments and securities transactions. It is our hope that these descriptions will provide a lucid, pedagogical overview of the financial system as a whole.

# ■ The financial markets

The financial markets have become increasingly important, with annual turnover of several thousand billion kronor. This chapter aims to give an idea of the kind of trade conducted in these markets and how this works in practice – the markets' main purposes, most important participants, trade structure, and not least statistics of volumes and flows.

We begin with a description of trade in the equity market. This is followed by an account of the fixed income market, which in turn has been divided into two submarkets: the bond market and the money market. A special subsection has been devoted to describing the money market segment for the shortest maturities – the overnight market. Finally, the chapter is concluded with an account of the foreign exchange market.

## The equity market

*Equity* is the term for the owners' shares in a company (a public limited company), and the capital contribution made by the owners in return for these shares comprises the company's *equity capital*. A share is essentially a claim on the company's assets and results after the company's "fixed" creditors, primarily the lenders to the company, have received their due. As the value of this claim is dependent on the profitability of the company, equity capital can be regarded as risk capital. However, the shareholders have limited liability for the company's operations in the sense that they cannot lose more than the amount they have invested in the company. Part of the company's profits is usually distributed directly to shareholders in connection with dividends, which are usually paid out once a year, while the rest of the profits are added to the company's equity capital. Holdings of shares also entail rights of determination over the company; each share gives rise to some form of voting rights at the company's annual general meeting.<sup>2</sup>

Companies that are expanding and need injections of capital can either borrow money from a credit institution, issue bonds on the fixed income markets or issue new equity capital. Because of the

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<sup>2</sup> Normally, the principle of one share/one vote applies, but differentiated voting rights are sometimes applied. For instance, a limited company may have A-shares giving 10 votes per share and B-shares giving only one vote per share.

risks associated with lending to expanding businesses, companies' capital requirements can not be met fully in the fixed income and credit markets, or in any case, not at a reasonable cost. At least some of these companies' financing requirements may need to be met by issuing new shares that are sold to investors willing to assume risk.

To ensure that the mediation of risk capital between companies and a broad range of investors occurs as efficiently as possible, it is often advantageous to turn to an organised marketplace for equities – a *stock exchange*. In addition to Stockholmsbörsen, a number of lists have been introduced in recent years for equities that are traded locally through stockbrokers or in smaller marketplaces, e.g. Aktietorget and Nya Marknaden (the New Market). However, the turnover in these new marketplaces is modest and an overwhelming majority of trading in Swedish equity still takes place through Stockholmsbörsen.

#### *Issuers in the equity market – listed companies*

At the end of 2003, there were 283 companies listed on Stockholmsbörsen, which was a net reduction of fourteen companies over the year. Companies seeking a stock exchange listing must first agree to provide the market with information on decisions and events that could have a market-moving effect. The reason for this is that all investors should have access to the same information. There are different requirements imposed on companies seeking a listing, depending on which list they have applied to.

Nowadays, listed companies are included on either the "A" list or the "O" list<sup>3</sup>. Companies on the "A" list are required to have documented profitability and a verifiable history; this does not apply to the "O" list. Decisions regarding listings are made by Stockholmsbörsen's Listing Committee.

The "A" list is divided into the segments *Most traded* and *Other*, while the "O" list is divided into *Attract 40* and *Other*. The determining factors for what segment a company is placed in are the volume of trade in the company's shares and its market capitalisation.

In addition to the "A" list and the "O" list, Stockholmsbörsen has created a list for trade in shares in foreign companies not listed on Stockholmsbörsen; this is known as the Xternal list. Trading here is through the ordinary SAXESS system, and the existing regulations for members apply to this list.

<sup>3</sup> The earlier OTC list is now included in the O list.



New capital can be raised on the stock exchange either through new share issues, i.e. listed companies increase their equity capital by issuing new shares, or through initial public offerings, IPOs. During 2003, 40 new issues were made by listed companies and 10 IPOs were made, to a total value of approximately SEK 6.7 billion.

#### *Investors in the equity market*

Swedish households' direct shareholdings amounted to just over 14 per cent of the total market capitalisation at the end of 2003. However, households have considerable indirect shareholdings through mutual funds managed by financial companies (see the chapter entitled "Financial intermediaries"). At the end of 2003, the proportion of shareholdings held by financial companies came to approximately 29 per cent, while non-financial companies held just over 9 per cent.

The central government's holdings, which include the AP funds, comprised around 10 per cent of the total. Foreign investors held around one third of the total number of listed Swedish shares at the end of 2003. This category's shareholding has gradually declined since 2000.

**Table 1. Shareholdings per sector**  
Per cent

SECTOR	1998	1999	2000	2001	2002	2003
Non-financial companies	6,9	6,8	6,8	8,2	8,5	9,2
Financial companies						
Banks, financial institutions, etc	1,3	1,9	2,4	2,0	2,5	2,3
Investment corporations	6,3	5,9	6,4	6,1	5,6	5,6
Mutual funds	9,1	8,3	8,5	9,8	10,5	11,6
Insurance companies, pension institutions	12,2	12,0	9,8	11,6	10,4	9,2
Financial companies, total	28,9	28,1	27,2	29,5	29,0	28,7
Public sector						
Central government	2,6	1,8	4,9	5,4	5,7	5,5
Local government	0,6	0,3	0,3	0,2	0,2	0,2
Social insurance funds	4,5	4,3	4,1	3,7	4,1	4,1
Public sector, total	7,7	6,4	9,3	9,3	10,0	9,8
Households	15,0	15,0	13,1	13,7	14,3	14,4
Non-profit organisations						
Companies	1,8	2,0	2,1	1,9	1,8	1,8
Households	5,1	2,8	2,6	2,9	2,9	2,9
Non-profit organisations, total	6,9	4,7	4,7	4,7	4,7	4,7
Non-residents	34,6	39,0	39,0	34,6	33,5	33,1
ALL SECTORS, TOTAL	100	100	100	100	100	100

Source: Statistics Sweden

### Trade structure

All trade on Stockholmsbörsen is conducted through its members, and both large and small investors have to go through one of these members in order to buy or sell shares. The members consist of banks and securities companies which are licensed by Finansinspektionen (the Swedish Financial Supervisory Authority) to carry on securities trading and which fulfil the exchange's membership requirements. Stockholmsbörsen currently has around seventy trading members. Of these, approximately 40 are remote members, i.e. members that do not have offices in Sweden. All members that trade in the marketplace are required by Stockholmsbörsen to be competent in the areas of stock exchange legislation, corporate finance and economics. At the end of 2003, Stockholmsbörsen's members had approximately 600 authorised stockbrokers with access to the market. The exchange also has an organisation for supervising trade.

Nowadays, many exchange members provide services that enable their clients to place orders via the Internet. This kind of trade can usually offer lower transaction costs for clients, such as individuals, than securities companies and banks can.

Since 1990 trading in Stockholmsbörsen has been fully automated, which means that trade is conducted directly from terminals at members' offices. Trade is carried on through the electronic trading system SAXESS (Stockholm Automated Exchange). This system consists of a central computer linked to workstations on the members' premises. From these workstations, brokers can

**Table 2. The 10 most active members of Stockholmsbörsen 2003**

EXCHANGE MEMBER	TURNOVER		NUMBER OF CONTRACTS	
	SEKBILLION	%	THOUSANDS	%
Enskilda Securities AB <sup>1</sup>	567	11,4	2 026	10,2
Carnegie AB, D.	438	8,8	915	4,6
Svenska Handelsbanken AB	376	7,5	1 575	8,0
Hagströmer & Qviberg Fondkom. AB	303	6,1	803	4,1
Fischer Partners Fondkommission AB	282	5,7	1 179	6,0
Morgan Stanley & Co. Int. Ltd.	277	5,5	680	3,4
Alfred Berg Fondkommission AB	220	4,4	503	2,5
Nordea Securities AB	220	4,4	1 270	6,4
Kaupthing Bank Sverige AB <sup>2</sup>	218	4,4	811	4,1
FöreningsSparbanken AB	194	3,9	1 428	7,2
<b>Total</b>	<b>3 095</b>	<b>62,0</b>	<b>11 189</b>	<b>56,5</b>
<b>Total turnover</b>	<b>4 994</b>		<b>19 805</b>	

<sup>1</sup> Includes Skandinaviska Enskilda Banken

<sup>2</sup> Formerly Bankaktiebolaget JP Nordiska

Source: Stockholmsbörsen

Note. Includes shares (A- and O-lists), subscription rights, convertible debt instruments, New Market and traded mutual funds. Double counting.

continuously monitor events in the market, such as the deals closed and orders placed by other member companies. The central computer and workstations communicate with one another via direct links.

Once a buyer or seller has placed an order with his/her bank or securities company, the order is forwarded to a broker and entered into an order book in the trading system. The order can be either a "limit" order stating a maximum purchase price or minimum selling price, or a "market" order, where the broker is given the task of trading at the best available price. The orders are sorted in the order book according to price and time. The highest bid prices and lowest ask prices are placed at the top of the list in the order book. If the price of several orders is the same, they are sorted according to the time at which they were registered in the system. The length of time an order remains in the system depends on whether there is a corresponding order with which to close the deal in the order book. As soon as a buyer is willing to pay a higher price or a seller is willing to accept a lower price, a change occurs in the prices in the order book. When a deal is closed, the information is sent to VPC, the Swedish central securities depository and clearing house, where the transaction is settled. Settlement entails the shares being registered in the buyer's VPC account (if the client has a depository with a broker, the transaction is instead registered in the broker's VPC account). At the same time, payment is made via the buyer's and seller's banks. Only when this has been done is the transaction

**Table 3. The 10 most traded shares on Stockholmsbörsen 2003**

COMPANY	BILLIONS		NUMBER OF SHARES		NUMBERS OF TRADES	
	SEK	%	MILLIONS	%	THOUSANDS	%
Ericsson	484	19,7	51 704	62,8	1 593	17,0
Hennes & Mauritz	124	5,1	706	0,9	290	3,1
Nordea	120	4,9	2836	3,4	267	2,9
Nokia	108	4,4	841	1,0	301	3,2
AstraSeneca	108	4,4	335	0,4	222	2,4
Atlas Copco	96	3,9	452	0,5	288	3,1
TeliaSonera	90	3,7	2 798	3,4	286	3,1
Svenska Handelsbanken	88	3,6	678	0,8	169	1,8
Sandvik	86	3,5	404	0,5	213	2,3
Skand. Enskilda Banken	86	3,5	1 029	1,3	188	2,0
Total	1 390	56,7	61 784	75,1	3 818	40,8
A-, O- and Xterna lists, total	2 453		82 305		9 365	

Source: Stockholmsbörsen

Note. All trade in EUR has been converted into SEK.

completed (a more detailed description can be found in the chapter entitled “The financial infrastructure”).

There is also a busy market outside the exchange’s automated system. This includes both manual non-system trading during the exchange’s opening hours and after-hours trade. While the number of non-system transactions is small, they often involve very large amounts.

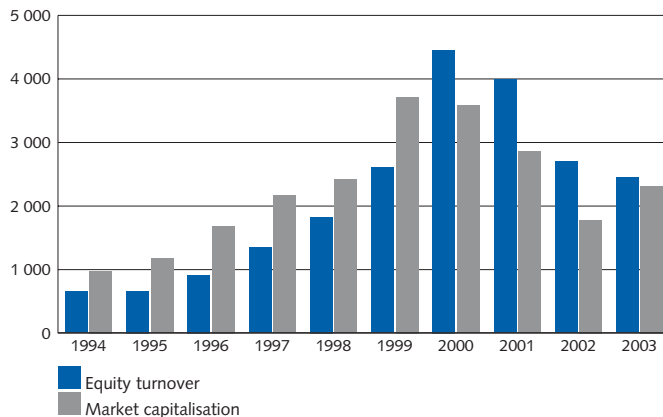
#### *Turnover and index development on Stockholmsbörsen*

The turnover in equity trading in Stockholmsbörsen continued to decline during 2003. In total, the turnover declined by just over 9 per cent, to SEK 2,453 billion, between the end of 2002 and the end of 2003.

This means that the average turnover per day that the stock exchange was open amounted to around SEK 10 billion in 2003. Approximately 20 per cent of the turnover in the equity market during 2003 was attributable to trade in Ericsson shares.

The total market capitalisation amounted to SEK 2,314 billion at the end of 2003. In terms of the Allshare index, share prices increased by almost 30 per cent, from 150 on 30 December 2002, to 194 on 30 December 2003 (100 = 31 December 1995). The IT sector accounted for the larger part of the total increase in market capitalisation in 2003; the exchange’s information technology index (SX45) increased by 83 per cent over the year. Other indices providing a noteworthy contribution to the total increase were financials (SX40), which increased by 34 per cent, industrials (SX20), which

**Chart 1. Equity turnover and market capitalisation on Stockholmsbörsen SEK billion**



Source: Stockholmsbörsen

increased by 26 per cent, and telecommunication services (SX50), which increased by 28 per cent. The energy index (SX10) showed the highest increase in 2003 (101 per cent), but only accounts for an insignificant percentage of total market capitalisation.

#### EQUITY-RELATED DERIVATIVES

The vast majority of equity derivatives traded via Stockholmsbörsen consists of *options* and *forwards*.

An equity option is a contract whereby the holder has the right, but not the obligation, to buy or sell a share at a specified price on a specified date in the future. In turn, the writer of the option has the obligation, but not the right, to exercise the contract. An equity forward is a contract whereby the buyer and seller have undertaken to buy or sell a certain share on a specified future date at a predetermined price.

In addition to derivative contracts for individual equities, trade on Stockholmsbörsen also includes options and forwards that are linked to the exchange's equity indices – OMX options and OMX forwards.

The number of standardised derivatives related to Swedish equity and the OMX index sold on Stockholmsbörsen during 2003 totalled 64 million.

Equity options accounted for the largest proportion (65 per cent), while 23 per cent related to OMX forwards, 10 per cent to OMX options and just over 2 per cent to equity forwards. The contracts are traded in blocks of 100 equities each. In addition, Stockholmsbörsen cleared around 1.3 million non-standardised derivatives (what is known as tailor-made clearing) during 2003. More information on clearing and settlement of financial instruments can be found in the Financial Infrastructure chapter.

#### The fixed income market

Unlike the equity market, the fixed income market is a market for the issuance and trade of instruments that yield a specific predetermined return – an *interest rate*. The fixed income market is often divided into a *bond market* and a *money market*. In general, the bond market comprises trade in securities – bonds – with maturities of one year or longer, while money market trade comprises securities such as Treasury bills and certificates which generally have maturities of less than one year. The money market's shortest segment – with maturities of one week or less – is usually called the *overnight*

market. When maturities are extremely short, as in the overnight market, it is rarely profitable to issue special securities; instead, other contracts have been created, such as repos and deposits (see the specific section further on in this publication).

Although the participants are largely the same and the issuance procedure and trade structure are similar in the bond and money markets (with the exception of the overnight market), there are some differences between the two submarkets as regards the purpose of the trade. Put simply, the main purpose of the bond market is to channel long-term savings to entities in need of capital, while the money market's principal task is that of liquidity management, where the overnight market comprises liquidity management in the very short term, i.e. the management of actual, known payments. The participants in the fixed income market are usually large agents, such as the central government, mortgage institutions and banks.

As a complement to the basic instruments in the fixed income market, *derivative instruments* are also traded with interest-bearing securities as the underlying asset. These derivatives help the participants in the fixed income market to diversify and manage risk. They also enable the participants to synthetically create more or less whatever maturities they want in their fixed income portfolios. As a result, investors are not as dependent in practice on whether a security was originally issued with a short or long maturity. Any attempt to explain the division of the fixed income market into a bond market and a money market on the basis of investors' different aims regarding liquidity requirements or long-term investment horizons should therefore be regarded as a pedagogical simplification; in reality, the agents' aims on the sub-markets may differ from this simplification.

## THE BOND MARKET

The bond market is a market for the issuance and trade of interest-bearing securities with maturities of one year or longer. A bond is a debt instrument which usually comprises a series of coupon payments<sup>4</sup> and a final repayment of principal. Bonds are issued by the central government, mortgage institutions, municipalities or companies and can be transferred relatively easily between holders. The bond market brings together managers of long-term savings with entities that need to borrow capital.

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<sup>4</sup> Interest payments and any amortisation. Bonds that do not entail making interest payments during their term are called discount bonds or zero coupon bonds. The central government also issues inflation-linked bonds, where interest payments and the final payment are adjusted for inflation.

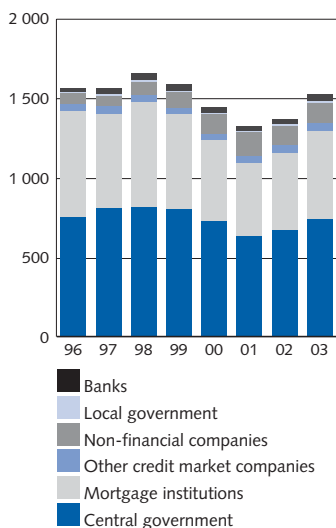
The bond market can be divided into a primary market for new bond issues, and a secondary market where investors can buy and sell bonds that have already been issued. A sale in the primary market gives a direct payment to the issuer of the bond. Thus, the issuer is a borrower in the market.

The dominant borrowers in the bond market are the central government and mortgage institutions. Bonds tend to be issued by entities with long-term capital requirements. Often, the investors in the bond market are also interested in longer-term holdings. Investors that have bought bonds in the primary market may also choose to sell them on in the secondary market. If the secondary market is efficient, liquidity will be satisfactory, thus making the bonds more attractive for investors. This in turn reduces the borrowing costs for issuers in the primary market.

### *Issuers in the bond market*

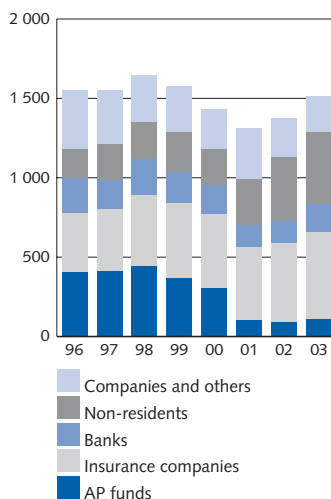
The total outstanding amount in the bond market at the end of 2003 was higher than in the previous year (see Chart 2), which was due to all issuer categories increasing their borrowing during the period. The central government and the mortgage institutions accounted for the largest increase in terms of amount, while the banks' issuing of bonds showed the largest percentage increase.

**Chart 2. Issuers in the bond market**  
SEK billion



Source: The Riksbank.  
Note: Outstanding nominal amounts.

**Chart 3. Investors in the bond market**  
SEK billion



Source: The Riksbank.  
Note: Outstanding nominal amounts.

The largest issuer in the bond market is the central government. The government borrows in the bond market via the Swedish National Debt Office (SNDO) to finance deficits in its budget. At the end of 2003, government bonds accounted for just below half of the outstanding stock in the bond market, which corresponded to SEK 730 billion. This was an increase of almost SEK 70 billion, compared with the end of the previous year.

The next largest group of issuers is the mortgage institutions. The mortgage institutions issue bonds mainly to finance lending to households looking to buy property. At the end of 2003, total borrowing by mortgage institutions had increased by almost SEK 60 billion in comparison with the previous year, to SEK 550 billion, thus accounting for just over one-third of the total outstanding stock in the bond market.

Non-financial companies can also raise capital by issuing bonds. Borrowing by non-financial companies in the Swedish bond market accounted for just over SEK 120 billion at the end of 2003, which was largely unchanged from the previous year. Many companies, primarily large listed companies, turn to international corporate bond markets in EUR or USD to gain access to capital. Derivatives, mainly foreign exchange swaps, are usually used to convert loans in foreign currency to SEK (see further the section on the foreign exchange market).

Only a small number of municipalities and county councils (9 municipalities and 2 county councils) had outstanding listed bonds at the end of 2003. Of these, the Stockholm County Council had by far the largest outstanding stock. Among the municipalities, the municipality of Sundsvall and the City of Stockholm had the largest outstanding stocks. In addition to these, a further 141 municipalities and 4 county councils had outstanding bond loans in cooperation with Kommuninvest, a credit market company. Borrowing by municipalities amounted to SEK 14 billion at the end of 2003, which was largely unchanged compared with the end of the previous year.

Banks and "other credit market companies" also increased their borrowing via the bond market during 2003. For the banks, this entailed an increase of just over one quarter, to approximately SEK 45 billion. Borrowing by other credit market companies corresponded to just over SEK 50 billion.

#### *Investors in the Swedish bond market*

Among the investors in the bond market, the category "non-residents"<sup>5</sup> and insurance companies had the largest holdings at the end



of 2003 (see Chart 3). At the same time, insurance companies increased their holdings in the bond market by SEK 50 billion, compared with the previous year, to just over SEK 540 billion, which corresponds to just over one-third of the total outstanding amount.

Non-residents also increased their holdings in the bond market at the end of 2003, compared with the previous year, by approximately SEK 50 billion, to just over SEK 450 billion. This corresponded to 30 per cent of the total outstanding amount.

The banks' holdings in the bond market increased by one quarter, to just over SEK 175 billion at the end of 2003, compared with the corresponding period in 2002. The category "companies and others"<sup>6</sup> further reduced its holdings in the bond market, to around SEK 230 billion at the end of 2003.

The AP funds' holdings of Swedish bonds have decreased considerably over the years, but had at the end of 2003 increased slightly in comparison with the previous year. These holdings corresponded to just over SEK 110 billion.

### *Issuance process*

In the primary market, government bonds are issued through auctions in which the authorised dealers of the Swedish National Debt Office (SNDO) participate. These dealers comprise a number of banks and securities companies with which the SNDO has concluded agreements. At present, there are six to seven such dealers depending on the kind of security to be auctioned. Under the agreements, the dealers undertake to act as *market-makers*. The role of market-maker involves an undertaking to make bids on all issues and to quote prices on government securities to customers.

Mortgage institutions also issue bonds via authorised dealers, which consist of banks and securities companies. There is no auction procedure in the primary market for mortgage bonds, however, where bonds are issued to dealers regularly and according to the borrowing requirements of the mortgage institutions (on-tap issue). Companies often have an agreement with one or more banks regarding a loan programme according to which the companies issue bonds on specific predetermined terms. As mentioned earlier, companies also issue securities abroad and then convert the loans into SEK with the aid of derivatives. As the conversion to SEK is not

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<sup>5</sup> There are no further details on the type of foreign investor contained in the category "non-resident". Large foreign pension foundations probably comprise a substantial part of this category.

<sup>6</sup> The category "companies and other" comprises a residual item in the estimates of bond market investors and is obtained from the difference between the outstanding stock of securities in the bond market and the bond holdings of large investors.

taken into account when calculating the statistics, these in practice underestimate corporate borrowing in SEK.

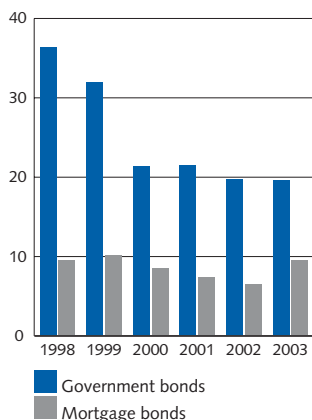
In addition to the corporate issues aimed at a larger circle of investors, a market also exists for *private placements*. Most often, these are bonds which are sold entirely to one or a few investors. The terms are subject to negotiation and the issue is customised to a large extent to the investors' requirements. This kind of bond borrowing has become increasingly popular with companies.

#### Trade structure

In the secondary market, trade is mainly conducted in government and mortgage bonds, as investors in corporate bonds usually retain them until maturity. Government bonds have the highest turnover of all securities in the bond market, due to their large volumes and low credit risk.

The market for government bonds is still very much an OTC market. There is, however, a slight trend towards a more electronic market (see the box "Electronic marketplace"). OTC stands for "over the counter" and refers to trade between two parties that is not conducted on an exchange. Market-makers quote both bid and ask prices in trade with each other as well as with customers. The trade between market-makers is usually called "interbank trade",

**Chart 4. Average turnover per day in the bond market  
SEK billion**



Source: The Riksbank.

Note. Spot turnover in the bond market including new issues. The term "spot" refers here to an immediate purchase or sale close to the day of delivery (in contrast to derivative contracts). Payment and delivery for bonds are made three business days after completion of the trade.

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## Electronic marketplace

In May 2001, an electronic marketplace was launched for interbank trade in certain Swedish government bonds. At present, there are three *benchmark bonds* that are traded electronically. These are the most frequently traded government bonds, with maturities of two, five and ten years. Electronic trading in benchmark bonds is currently only available to market-makers. This is because there are too few participants to guarantee liquidity in a purely order-dri-

ven market. This in turn has meant that other market players do not have access to this trading information. However, a recent decision of the inter-dealer market's *Advisory Board*, in which each market-maker as well as the SNDO and Stockholmsbörsen are represented, has allowed better transparency in trade in the 10-year government bond. As yet, only a small proportion of the total turnover in the bond market occurs on the electronic platform.

while other trading is termed "customer trade". All customer trade, even trading where neither the final buyer nor the seller is a market-maker, is with a market-maker as counterpart.

The majority of market-makers in government bonds also act as market-makers in mortgage bonds. As trade in corporate bonds is not very extensive in Sweden, it is unusual for both ask and bid prices to be quoted for these.

#### *Turnover in the bond market*

Turnover in the bond market increased slightly in 2003, compared with the previous year, to an average of around SEK 29 billion a day (see Chart 4). This increase can be attributed to a rise in the average turnover in mortgage bonds, from SEK 6.5 billion in 2002, to just over SEK 9.5 billion a day in 2003. The average turnover in government bonds of just over SEK 19 billion a day was largely unchanged from the previous year.

Of total turnover in government bonds in 2003, over 97 per cent was attributable to the secondary market. Turnover in the primary market, i.e. through new issues, was only about SEK 120 billion (less than 3 per cent).

On the Stockholm bond exchange, SOX, which is affiliated to Stockholmsbörsen, it is mainly private individuals who trade in bonds. For example, there are *private bonds* issued by mortgage institutions, which are primarily aimed at private individuals and other smaller investors. Turnover in the SOX market totalled just over SEK 3 billion in 2003 and was largely unchanged on the previous year. However, over the past five years, the turnover in the SOX market has gradually declined.

### The money market

The expression "money market" is a collective term for markets for interest-bearing assets that are issued with maturities usually up to one year. One important task of the money market is to facilitate liquidity management in the economy. For example, banks need to maintain a state of preparedness for future deposits and payments. The banks invest assets according to their assessments of future payments, which in turn requires that these investments can easily be converted into liquid funds when the payments fall due.

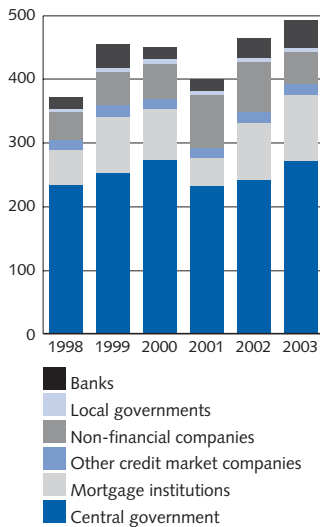
The procedure for issuing and trading securities in the money market is largely the same as for the bond market. The market for short-term paper comprises one-quarter of the total value of outstanding securities in the fixed income market.

*Issuers in the money market*

The central government borrows in the money market through the issuance of *Treasury bills*, while borrowing by other institutions is secured by issuing *certificates*, e.g. bank certificates and mortgage certificates. A Treasury bill<sup>7</sup> is a debt instrument which represents a short-term claim on the state and which can be bought and sold in the money market. A certificate is the same kind of debt instrument as a Treasury bill but the issuers include for example banks and companies.

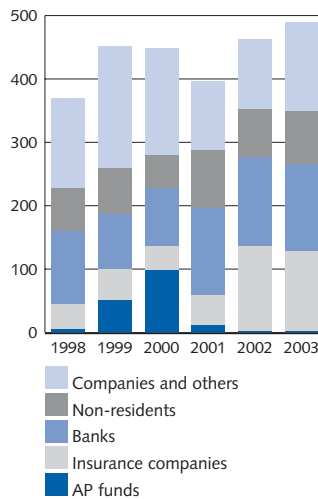
The Treasury bills issued by the SNDO hold a dominant position in the money market. The amount of outstanding Treasury bills increased by almost SEK 30 billion in 2003, and totalled around SEK 270 billion at the end of the year, which corresponded to just over half of the outstanding stock of short-term securities (see Chart 5). The SNDO issues Treasury bills partly to facilitate its management of changes in the central government's short-term borrowing requirement. It also holds on-tap auctions of Treasury bills. These are used for short-term liquidity management (up to six weeks) and the SNDO can customise the bills' maturities by choosing issue dates and maturities according to its requirements.

**Chart 5. Issuers in the money market**  
SEK billion



Source: The Riksbank.  
Note: Outstanding nominal amounts.

**Chart 6. Investors in the money market**  
SEK billion



Source: The Riksbank.  
Note: Outstanding nominal amounts.

<sup>7</sup> The treasury bill is constructed like a zero coupon bond, i.e. as a security with no interest payments during the term of the bill.

The banks and mortgage institutions also increased their borrowing in the money market in 2003. With regard to the banks, this entailed an increase of just over 40 per cent from the end of 2002 to SEK 45 billion at the end of 2003. At the same time, the mortgage institutions' borrowing increased by one-sixth, to just over SEK 100 billion at the end of the year. Mortgage institutions borrow short-term funds mainly with a view to achieving balance with their lending to customers and thereby to minimise their interest rate risks.<sup>8</sup>

The non-financial companies' borrowing in the money market declined by one-third from the previous year, amounting to just over SEK 50 billion.

Borrowing by other credit market companies and municipalities has been relatively constant in recent years. At the end of 2003, their borrowing totalled just over SEK 15 billion and SEK 5 billion, respectively. The total outstanding stock of securities in the money market amounted to SEK 490 billion at the end of 2003, which was an increase of just over SEK 25 billion compared with the previous year.

#### *Investors in the Swedish money market*

The investors with the largest holdings in the money market are the category "companies and others"<sup>9</sup> and banks. At the end of 2003, these institutions held approximately 30 per cent each of the outstanding stock of short-term debt securities (see Chart 6).

Companies and others increased their holdings in the money market by just over one quarter, to SEK 140 billion, while the banks' investments amounted to just over SEK 135 billion, which is a slight decline on the previous year.

The insurance companies slightly reduced their holdings in the money market in 2003, to just over SEK 125 billion at the end of the year, which corresponded to one quarter of the total outstanding stock of securities in the money market. However, in 2002 the insurance companies had almost trebled their holdings, compared with the end of 2001.

The category "non-residents" increased its holdings during 2003 to SEK 85 billion at the end of the year, corresponding to one sixth of the total outstanding stock.

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<sup>8</sup> The mortgage institutions' borrowing via certificates is relatively small, however, in relation to their short-term fixed rate lending. In order to match the fixed-rate periods of mortgage institutions' financing and their lending to households, the institutions issue bonds and subsequently enter into swap contracts to obtain short-term interest obligations. Mortgage institutions also borrow from their parent banks. For more information, see the description of swap contracts in the section "Derivatives in the fixed income market".

At the end of 2003, the AP funds' money market investments were largely unchanged, compared with the previous year, and corresponded to a relatively modest holding of approximately SEK 2 billion (0.3 per cent of the total outstanding stock).

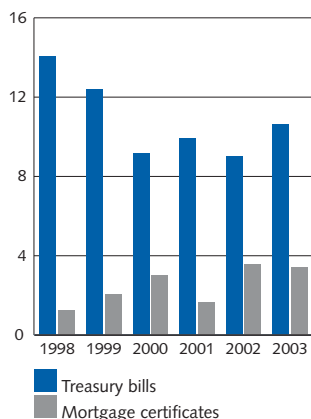
#### *Turnover in the money market*

In 2003 the average turnover in Swedish Treasury bills amounted to just under SEK 11 billion a day, which entails an increase on the previous year. Of total turnover in 2003 as a whole, just under SEK 2,200 billion was attributable to the secondary market and only SEK 400 billion (about 15 per cent) to the primary market, i.e. through new issues, of which a large proportion is likely to have been to replace matured bills.

Turnover in mortgage certificates totalled just over SEK 3 billion a day during 2003, which was largely unchanged from the previous year (see Chart 7).

Thus, the total turnover in the money market in 2003 showed a slight increase on 2002.

**Chart 7. Average turnover per day in the money market**  
SEK billion



Source: The Riksbank.

Note. Spot turnover in the bond market including new issues. The term "spot" refers to an immediate purchase or sale close to the day of delivery (in contrast to derivative contracts). Payment and delivery for Treasury bills and mortgage certificates are made two business day after completion of the trade.

<sup>9</sup> The category "companies and other" comprises a residual item in the estimates of money market investors and is obtained from the difference between the outstanding stock of securities in the money market and the holdings of large investors.

## THE OVERNIGHT MARKET – THE MONEY MARKET SEGMENT FOR THE SHORTEST MATURITIES

The money market segment for trade in the shortest maturities is referred to as the *overnight market*. In this market, the banks in particular can borrow and place deposits from one day to the next, i.e. overnight, for periods up to a week or so. The purpose of this trade is primarily to manage the incoming and outgoing payments that result from the settlement of large-value payments (see the chapter entitled "The financial infrastructure").

The Riksbank occupies a key position in the overnight market insofar as it determines the terms and conditions for overnight lending to the participant banks in the central payment system, RIX. It is in RIX that payments between the Riksbank and the banking system are managed as well as payments between the participant banks in the system. At the end of the day and before the close of the payment system, the participants' accounts, which reflect the incoming and outgoing payments made during the day, must be balanced. Institutions that do not have direct access to RIX, e.g. insurance companies, the majority of mortgage institutions and non-financial companies, are required to balance their account at their bank. In turn, the banks have to offset any deficits or surpluses that arise as a result of these payment flows. This can be done either in the overnight market or by making use of the Riksbank's standing facilities, i.e. by placing overnight deposits in, or obtaining overnight liquidity from, the Riksbank at a set rate of interest. As the banks have to pay a relatively high price for making use of the Riksbank's standing facilities (75 basis points above or below the repo rate), most of this liquidity equalisation is achieved in the overnight market. Thus, the payment transactions in the banking system have necessitated the management of very short-term liquidity, which in turn has given rise to the overnight market.

The instruments that are used most in the overnight market, but which are also traded with other maturities in the money market, are deposits and repos.

Deposits are interbank instruments that do not require any collateral. Technically, a deposit is not a security; it is rather a standardised conventional loan, although it functions in certain respects in a similar way to a security. The term "deposits" reflects the fact that participants can deposit money at a predetermined agreed rate of interest for a specific length of time. The most common deposit maturities run from one day to one week, although some also have longer maturities of up to one year. However, the



majority of market participants prefer other instruments for their liquidity management at such long maturities.

Repos<sup>10</sup> are sale and purchase agreements whereby one party agrees to sell a security to another party and to repurchase the same security at an agreed price on a given date in the future. Repo instruments function in much the same way as secured loans (over the term of the repo) and are an alternative or complement to deposit instruments in particular. On the other hand, repos can be regarded as securities loans against collateral in liquid funds. Most of the repos are short-term loans that run up to two weeks. Repos comprise a large part of the overnight market. Swedish participants probably use foreign deposit markets to a greater extent, and then use derivatives to convert the foreign currency to SEK.

Thus, a repo involves a market participant temporarily lending a security in exchange for liquid funds and agreeing to repurchase the same security at a predetermined price. The opposite position involves borrowing a security in exchange for capital, i.e. a reverse repo. A repo transaction is therefore composed of two parts: a sale (spot) and an agreement to repurchase on a later date (forward).<sup>11</sup> Repos can in principle be carried out with all instruments that are traded in the fixed income market; the most common form of underlying collateral, however, is government bonds, mortgage bonds and Treasury bills. The price of a repo is represented by the repo rate, i.e. the lending rate over the term of the repo.

Repos are traded OTC with market-makers who quote the prices either by telephone or electronically.

Turnover in repo transactions backed by government and mortgage securities is very high, reaching just over SEK 123 billion a day in 2003. This can be compared with the total turnover in Treasury bills and mortgage certificates, which amounted on average to around SEK 14 billion a day in 2003, that is to say, only slightly more than one tenth of the turnover in repos. However, the turnover in repos declined slightly during 2003 in comparison with the previous year (see Chart 8).

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<sup>10</sup> The term "repo" is short for "repurchase agreement".

<sup>11</sup> A spot transaction entails payment and delivery taking place shortly after the buy and sell decision. A forward transaction entails an agreement to buy (or sell) a product at a point in the future. The price of the product to be bought (or sold) in the future is predetermined at the time of the deal and is therefore not affected by the future delivery date.

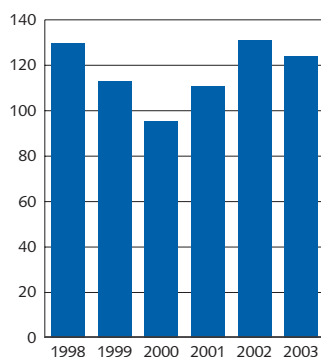
## DERIVATIVES IN THE FIXED INCOME MARKET

The fixed income market includes different kinds of derivative contracts: *interest rate forwards*, *interest rate swaps* and *interest rate options*.

A forward is a contract whereby the parties have undertaken to buy/sell a financial asset on a specified future date at a predetermined agreed price. The most frequently used interest rate derivatives in the Swedish fixed income market are IMM-FRAs (International Money Market Forward Rate Agreements). These are standardised interest rate forwards that have deposits as the underlying financial asset and specific maturity dates (IMM days).<sup>12</sup> Turnover statistics for IMM-FRAs is insufficient and covers only trade on Stockholmsbörsen. Turnover in IMM-FRA contracts on Stockholmsbörsen was on average SEK 17 billion a day in 2003, which is an increase of just over 25 per cent on the previous year. However, this is estimated to be less than half of the actual turnover in IMM-FRA contracts.

Other forwards in the Swedish fixed income market include forward contracts on bonds and T-bills. These contracts are binding agreements to buy or sell treasury bonds, mortgage bonds or treasury bills on a specified date in the future. In relation to the estimated turnover in IMM-FRA contracts, the market for bond and

**Chart 8. Average turnover per day in repos  
SEK billion**



Source: The Riksbank.

Note. With underlying Treasury bills and mortgage certificates.

<sup>12</sup> However, when an IMM-FRA contract falls due, the underlying instrument (the deposit) is not exchanged. Instead, there is a cash settlement between the rate agreed when the contract was signed and the market rate applying when the contract matures.

T-bill forwards is not especially large. The average turnover in bond forwards with underlying government bonds was around SEK 6 billion a day during 2003, which was largely unchanged on the previous year. The turnover in bond forwards with mortgage bonds as underlying instrument averaged just under SEK 2 billion a day in 2003, which is a slight increase on the previous year. Turnover in Treasury bill forwards has steadily declined in recent years, and was on average around SEK 1 billion a day in 2003. The drop in turnover in Treasury bill forwards over the years is more than likely attributable to the fact that IMM-FRAs have gradually taken a larger share of the market.

Another important kind of derivative in the fixed income market is swaps. An interest rate swap is an agreement between two parties to exchange interest payments over a specific period of time. For example, one party can choose to pay a fixed rate of interest in exchange for a variable rate. In practice, a swap instrument functions like a portfolio of forward contracts. The interest rate swaps with long maturities that are used in Sweden are called by their international name IRS and involve the exchange of interest payments over several years. Shorter-term interest rate swaps are known as STINA (Stockholm TomNext Interbank Average). A STINA contract is an agreement lasting up to one year to pay/receive the difference between an agreed fixed rate of interest and a variable overnight rate for the same period. Unfortunately, no current statistics for turnover in interest rate swaps are available. However, according to the latest of the surveys<sup>13</sup> carried out every three years by the Bank for International Settlements (BIS), the average turnover in Swedish interest rate swaps was just under SEK 12 billion a day in 2001.<sup>14</sup>

An interest rate option is a contract whereby the holder has the right, but not the obligation, to buy or sell a debt security at a specified price on a specified date in the future. In turn, the writer of the option has the obligation, but not the right, to exercise the contract. In Sweden trade is conducted in government bond options, for which the underlying financial asset is a government bond. Turnover in government bond options has fallen sharply over the years and amounted in 2003 to only around SEK 40 million a day, which was rather modest in relation to the turnover in the other interest rate derivatives.

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<sup>13</sup> Triennial Central Bank Survey, Foreign exchange and derivatives market activity in 2001, March 2002.

<sup>14</sup> The reported statistics cover the average daily turnover during April 2001.

### *Trade structure*

Derivatives can either be traded directly between a buyer and seller, i.e. OTC trade, or on an organised exchange. Exchange-based derivatives trade is standardised and involves known maturity dates and contract sizes. Derivatives that are traded OTC can either be standardised or customised to suit the buyer's or seller's requirements. Liquidity is generally better in exchange-traded derivatives. In Sweden, derivatives in the fixed income market are traded OTC only and are most often standardised. Some of these OTC derivatives are cleared by Stockholmsbörsen, which acts as counterparty for the buyer and seller.<sup>15</sup> Trade in derivative instruments is carried out through a number of market-makers quoting prices by telephone or electronically.

## The foreign exchange market

To understand the fixed income market as a whole, it is also necessary to have some knowledge of the foreign exchange market.<sup>16</sup> This is because there is a strong link between these markets, through the foreign exchange derivatives market. One of the consequences of this link is that major Swedish participants can, at the same interest cost, choose between issuing securities in Sweden or issuing them abroad and then using foreign exchange derivatives to convert the loan in foreign currency to SEK. A more detailed description of this link is given later in the section on derivatives in the foreign exchange market.

Foreign exchange trade has been conducted for a long time, with the aim of obtaining liquid funds for the purchase of goods and services from different countries, as well as to match future inward and outward payments in foreign currency.

### *Trade structure*

Trade in the Swedish FX market is characterised by a large number of participants, low transaction costs and rapidly available price information. Payment and delivery in the foreign exchange spot market are usually made two business days after completion of the trade.<sup>17</sup> In the derivatives market, payment and delivery take place at a delivery date agreed in advance.

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<sup>15</sup> See also the description in the chapter "The financial infrastructure".

<sup>16</sup> Foreign exchange market refers to the part of the foreign exchange market managing SEK, unless otherwise stated.

<sup>17</sup> For a more detailed description of foreign exchange settlement, see the chapter "The financial infrastructure".

The largest *number* of foreign exchange transactions do not normally occur on what we usually refer to as the foreign exchange market, but through banks utilising the accounts they have in foreign currency with banks abroad, known as “correspondent banks”. Between them, banks can use these accounts in foreign banks to balance incoming and outgoing payments in different currencies without having to exchange currency in the foreign exchange market. In addition, the bank often has credit in its account in foreign currency. If, for instance, a bank customer wishes today to exchange SEK for USD to make a payment to a customer in the United States, the Swedish bank can commission the US bank where it has its account (the correspondent bank) to make the payment on behalf of the Swedish customer. The Swedish bank’s internal exchange rate (SEK/USD) will in turn determine the size of the amount in SEK that the customer needs to pay for the dollars. If, however, the Swedish bank is expecting a payment into its dollar account with the US bank, the Swedish bank can partly or wholly neutralise the foreign exchange deals outside the foreign exchange market.

The majority of transactions in foreign currency involve small amounts. However, the banks exchange transactions involving large amounts in the foreign exchange market. Even when the banks need to reduce or increase the amount of foreign currency in their accounts with foreign banks, they do this through the foreign exchange market. Turnover in the foreign exchange market thus consists of exchanging large volumes, and changing the level of holdings of currency in banks’ accounts with foreign banks.

Although the largest number of foreign exchange transactions is made outside of the foreign exchange market, it is assumed that the largest volume, in terms of amount, is traded in the foreign exchange market. Because of foreign exchange risk, the banks do not wish to take on excessively large amounts, but exchange currency directly in the foreign exchange market.

Large corporations can also manage currency outside of the foreign exchange market. Companies with operations in different countries can neutralise income and expenditure in different currencies internally. For instance, sales in EUR can be balanced against purchases of goods in EUR. In this way, companies can reduce the need for hedging.

The largest share of trading in the foreign exchange market consists of interbank trade.<sup>18</sup> This trading most often arises as a result of customer transactions, where the banks wish to neutralise

their positions. If, for instance, a Swedish company needs EUR to make a payment today, it will turn to its bank to buy EUR for SEK in a spot transaction. The bank will offer the company EUR at a price determined now. At the same time, to neutralise this position, the bank will buy EUR for SEK in a spot transaction with another bank. This transaction between two banks can in turn give rise to further transactions with more banks involved. Approximately two-thirds of trading in the foreign exchange market consists of interbank trade.

Pricing of currency is determined largely in the interbank market, where bid and ask prices are regularly noted for different currencies in relation to SEK. The prices Swedish customers face are thereby usually the result of pricing in this market. The spread between the ask and bid prices is affected by the volatility and turnover for each currency pair. As the turnover in SEK is relatively low, the spread between the ask and bid prices between SEK and foreign currencies is usually greater than between the dominant currency pairs in the foreign exchange market.<sup>19</sup>

Trading in currency is usually via one of the larger currencies. With regard to SEK, this means that the spot market price for SEK in terms of other currencies is set via EUR. Thus, pricing of SEK against, for instance, GBP is achieved by first establishing the price of SEK against EUR and then the price of EUR against GBP. This is usually called "cross trading". This cross trading is practical, as the banks would otherwise need to price SEK against every imaginable currency. On efficiently-functioning markets, it is unimportant which currency is used for pricing, if the transaction costs are low. The reverse would otherwise entail arbitrage possibilities, i.e. risk-free potential profits where the participants could sell SEK expensively against one currency and buy them back cheaply against another. In contrast to spot trading, forward trade in SEK against other currencies, is conducted via the USD, not the EUR.

Trade in the Swedish foreign exchange market is carried on through market-makers, who quote ask and bid prices for foreign currencies on request either by telephone or via electronic systems. However, foreign exchange trade is currently moving towards a more order-driven trade via various electronic platforms and systems. In the spot market, 80 per cent of the interbank trade and 20 per cent

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<sup>18</sup> Interbank trading consists of trading between participants (i.e. market-makers) who are dealers in different instruments, that is to say, banks and securities companies. Customer trading consists of trade between dealers and customers. The customers comprise almost all participants (apart from the dealers).

<sup>19</sup> One example that can be mentioned is that the spread between the ask and bid prices for the Swedish krona against the euro in 2003 was almost double that of the euro versus the dollar, which is the biggest currency pair in the global foreign exchange market.

of the customer trade is through electronic systems. As with interest rate derivatives, foreign exchange derivatives are traded OTC only.

The major banks often have electronic platforms for foreign exchange trading developed in-house, but they also use multibank platforms, where several banks are members. The banks' own platforms often include all types of asset, while the multibank platforms are aimed at individual asset types (for instance foreign currency).

#### *Derivatives in the foreign exchange market*

Derivative instruments are used to diversify and manage risk, and the choice of instrument depends on their purpose. Derivative instruments traded in the foreign exchange market include foreign exchange forwards, foreign exchange options, foreign exchange swaps and currency swaps.

Forward and option transactions in the foreign exchange market are constructed in the same way as in the fixed income market, with the exception that the underlying asset is a currency pair. Foreign exchange forwards are used by companies to hedge against foreign exchange exposure when managing cross-border payments.

The foreign exchange forward market also constitutes an important link between the fixed income market and the foreign exchange market. The reason for this is that the pricing of currency on the spot and forward markets is affected by interest rates in the respective countries for each currency pair. In other words, the interest rate spread between two countries is reflected in the price difference between the spot and forward price for the two countries' currency pair. This relationship is usually called "Covered Interest Rate Parity" (CIP). If, for instance, a Swedish company has an outward payment in USD in three months' time, the company has two equally viable alternatives: it can either exchange SEK for USD today and invest the dollar amount for three months at a US rate of interest (e.g. by buying US Treasuries), or it can invest the Swedish amount for three months at a Swedish rate of interest while also buying a USD forward contract, i.e. with delivery and payment in three months at a prespecified price in SEK.

If there were any price difference between these two alternatives, it would entail arbitrage opportunities. However, these could not endure long before the prices in the fixed income and foreign exchange markets adapted to create a balance once again.

This covered interest rate parity also means, as we have previously mentioned in brief, that large Swedish agents can borrow

(issue securities) abroad and then, with the aid of currency derivatives, (primarily foreign exchange swaps) convert the loan in foreign currency into SEK. Covered interest rate parity essentially eliminates the difference in interest costs between borrowing abroad and borrowing in Sweden.

A foreign exchange swap is an agreement to buy a currency today and to sell it back on a later date. The swap transaction thus consists of a combination of two transactions, a spot transaction and a forward transaction. A foreign exchange swap is not a pure derivative instrument, but can rather be seen as an equivalent to the money market repo (see the section on the overnight market in this chapter). Foreign exchange swaps are pivotal instruments in banks' pricing of interest rate spreads for different currency pairs.

Foreign exchange swaps can be divided up according to maturity: short swaps with maturities up to two days and long swaps with maturities longer than two days and (usually) up to one year. The swap contracts are used partly for liquidity management, i.e. managing regular payments between SEK and foreign currency. Trade in short swaps can be said to be the foreign exchange market's equivalent of the fixed income overnight market and is used mainly to manage liquidity requirements in the very short term.

A currency swap corresponds to a foreign exchange swap; where the latter is usually used for hedging up to one year ahead, the former is mainly used in a longer term.

A currency swap entails exchanging interest flows in two currencies, for instance Swedish interest against euro interest, and, where necessary, exchanging capital (at the beginning and end of the period). These swap contracts usually have a maturity of more than one year and are thus foreign exchange derivatives with inbuilt interest-rate components.

#### *Turnover*

Turnover in SEK is respectable, considering its use in relation to the dominant currencies. It has also increased in recent years, while turnover in the global foreign exchange markets is considered to have declined. During 2003, turnover in the foreign exchange market amounted to an average of SEK 210 billion a day (see Chart 9), which was in principle unchanged from the previous year.

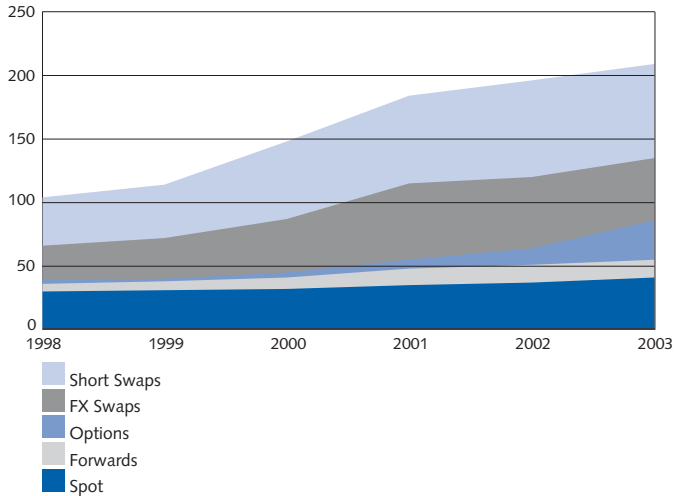
In total, the turnover in foreign exchange derivatives amounted to almost SEK 170 billion a day in 2003. Of total turnover in foreign



exchange derivatives, foreign exchange swaps accounted for just over SEK 120 billion, forwards for almost SEK 15 billion and options for around SEK 30 billion. This can be compared with the turnover in spot trading, which amounted to an average of just over SEK 40 billion a day in 2003.

There are no statistics for turnover in currency swaps for 2003, but according to the BIS survey mentioned earlier, the average turnover was around SEK 1.5 billion a day in 2001.<sup>20</sup>

**Chart 9. Average turnover per day in the Swedish foreign exchange market  
SEK billion**



Source: The Riksbank.

<sup>20</sup> The reported statistics cover the average daily turnover during April 2001.

## ■ Financial intermediaries

The financial system includes various kinds of middlemen known as *intermediaries*. These can be classified in different ways. We have chosen to divide them into *credit institutions*, in the shape of banks and credit market companies, *investors*, in the shape of insurance companies, pension funds and fund management companies, and *securities companies*, which act partly as brokers and market-makers in the financial markets.

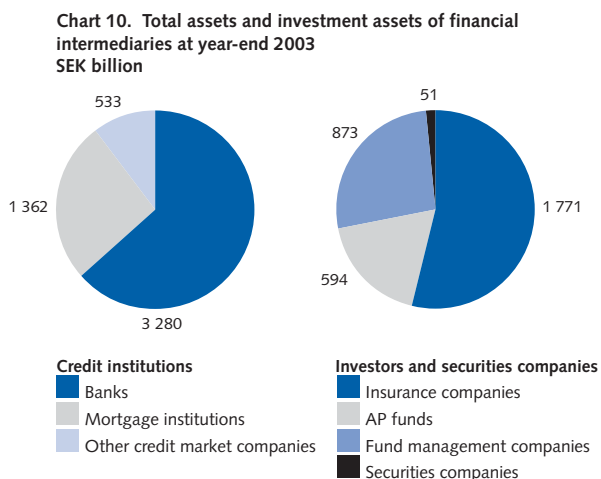
Before providing a more detailed description, it is worth noting that several different kinds of intermediary are often included in one and the same corporate group. For example, it is quite common for a financial group to include a bank, a mortgage institution, an insurance company and a fund management company. This is because the major Swedish banks have long sought to attain a position as universal banks. The basic idea of a universal bank is to be able to provide products and services in the entire financial field.

For analysts of financial companies – regardless of whether the perspective is that of an equity analyst or supervisory authority – it is often expedient to assess the corporate group as a whole. For those wishing to get an idea of a group's lending, for instance, it is not sufficient simply to look at the lending activities of the group's banking arm, but also that carried out via its mortgage institution. However, financial groups organise their businesses in different ways. For example, two of the four major banking groups<sup>21</sup> have their brokerage businesses in separate subsidiaries, while the others do not. Table 4 gives an overview of the businesses within the six most important financial groups operating in Sweden.

However, this publication aims to describe the intermediaries based on their functions in the financial system. For this reason, and because statistics in the field are most often compiled according to legal classifications, the description here is not based on the groups themselves but on their separate business areas. Consequently, this section discusses banks, mortgage institutions, insurance companies, securities companies, etc. separately. To obtain an idea of the four major banking groups' dominance in the Swedish financial market, the number of assets and investment assets respectively are stated for each of the different business areas.

<sup>21</sup> Föreningsparbanken, Handelsbanken, Nordea and SEB.

Figure 10 gives an idea of the size of the financial intermediaries' businesses. It shows the credit institutions' total assets, i.e. the total book value of their assets, and the value of the assets managed by investors.



Note. The diagrams show the total assets for banks, mortgage institutions, other credit market companies and securities companies, while for insurance companies and AP funds they show investment assets and for securities funds they show the funds managed. For more detailed description, please see the statistical appendix.

**Table 4. Major financial groups' Swedish operations in separate companies**

PARENT COMPANY	BANK	MORTGAGE INSTITUTION	FUND MANAGEMENT COMPANY	INVESTMENT BANK	LIFE INSURANCE COMPANY	FINANCE COMPANY
Nordea AB	Nordea Bank Sverige AB	Nordea Hypotek AB	Nordea Fonder AB	Nordea Securities AB	Nordea Liv AB	Nordea Finans AB
Svenska Handelsbanken AB	Svenska Handelsbanken AB	Stads-hypotek AB	Handelsbanken Fonder AB	Handelsbanken Securities, not separate company, business area within the group	Handelsbanken Liv AB/ SPP AB	Handelsbanken Finans AB
Skandinaviska Enskilda Banken AB	Skandinaviska Enskilda Banken AB	SEB Bolån AB	SEB Fonder AB	Enskilda Securities AB	SEB Trygg Liv AB	SEB Finans AB
Förenings-sparbanken AB	Förenings-sparbanken AB	Spintab AB	Robur AB	Swedbank Markets, not separate company, business area within the group	Robur Försäkring AB	Förenings-sparbanken Finans AB
Danske Bank A/S	Danske Bank A/S*	Conducted through the bank Bokredit AB	Firstnordic Fonder AB	Conducted through the bank	Danica AB	–
Skandia AB	Skandia-banken AB	Conducted through the bank	Skandia Fonder AB	–	Skandia Liv AB Skandia Link AB	–

\* with subsidiaries Östgöta Enskilda Bank and Provinsbankerna.

Source: The banks' annual reports.

Note. The above corporate groups do not group their companies according to the table, which is why certain companies may be responsible for more than one line of business. They also have a larger number of companies than shown above.

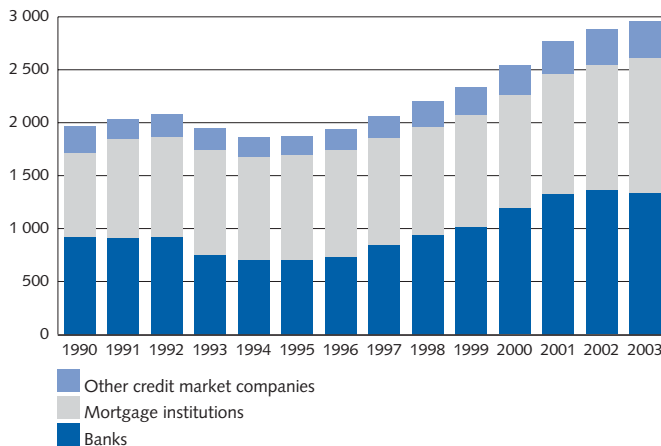
## Credit institutions

The credit institutions are specialists at assessing and monitoring credit risk thanks to the often long-term relationships they have with their customers. Consequently, they play an important part in ensuring the supply of capital in the economy. Credit institutions include *banks* and what are known as *credit market companies*.

The banks have long played a key role among credit institutions. For instance, the banks have traditionally had a monopoly on accepting deposits. These deposits, which can be converted very quickly into cash or used for payments, mean that the banks contribute to the supply of liquidity in the economy. However, the banks' monopoly on accepting deposits will be removed in connection with new legislation that comes into force on 1 July 2004. This entails giving credit market companies the possibility to accept deposits from the general public. As with the banks, these deposits will be covered by the deposit guarantee.<sup>22</sup> The new legislation will mean that banks and credit market companies will also have joint operating regulations in other aspects (you can read more about this in the box on financial legislation).

The most critical function of the banks, from society's point of view is their role in the payment system (you can read more about the payment system in the chapter on the financial infrastructure). The banks supply the accounts through which many payment

Chart 11. Credit institutions' lending to the public  
SEK billion



Source: The Riksbank.

<sup>22</sup> According to the new act, other companies than banks and credit market companies will be given the opportunity under certain conditions to accept deposits from the public. However, these deposits will not be covered by the government deposit guarantee.

transactions are made, as well as carrying out many other payment services. The new act links the definition of banking operations more closely to the banks' role in the payment system. According to the new legal definition, an institution must be a mediator of payments accepting short-term funds and part of a general payment system in order to be classified as a bank, that is to say, it must be open to both a large number of payers and payees.<sup>23</sup>

Credit market companies, which were thus not allowed to accept deposits from the general public prior to 1 July 2004, are usually specialised in lending within a special field. Credit market companies of particular significance include *mortgage institutions* and *finance companies*. Chart 11 provides an illustration of the breakdown of lending to the general public, into banks, mortgage institutions and other credit market companies.

## BANKS

The banks are the largest group of lenders among the credit institutions. They account for almost half of the credit institutions' total lending to the public, which corresponds to just over SEK 1,300 billion (see Chart 11). In the Swedish market, the four largest banking corporations, Föreningssparbanken, Handelsbanken, Nordea and SEB, together account for around 80 per cent of the banks' total assets (see Table 5).

Besides limited liability banks, the Swedish market includes savings banks and co-operative banks.<sup>24</sup> There is a large number of independent savings banks in Sweden. These are usually small,

**Table 5. The 10 largest banks and bank branches, total assets at year-end 2003**  
SEK billion

Handelsbanken	950
SEB	774
Föreningssparbanken	500
Nordea Bank Sverige	478
Danske Bank <sup>1</sup>	247
Skandiabanken	38
Länsförsäkringar Bank	31
GE Capital	26
Dexia <sup>1</sup>	22
ABN Amro <sup>1</sup>	18
<b>Total 10 largest</b>	<b>3 084</b>
<b>All banks</b>	<b>3 280</b>

<sup>1</sup> Foreign branch

Source: The Riksbank.

<sup>23</sup> According to the new legal definition, banking business will refer to business that includes both mediation of payments via general payment systems and accepting funds that will be made available to the creditor within a maximum of 30 days after notice of withdrawal has been given.

<sup>24</sup> In the Swedish market there are also subsidiaries and branches of foreign banks.

operating in regional or local markets. Unlike limited liability banks, savings banks lack equity capital and therefore have no shareholders. The profits of the business are therefore not distributed but are instead retained as reserves in the bank. A co-operative bank is an economic association with the aim of conducting banking activities on behalf of its members. The members of the bank are involved in the decisions that affect the bank's activities. Co-operative banks do not have shareholders; the profits are re-invested in the business and can to a certain extent be distributed to their members in the form of dividends.

At the end of 2003, there were a total of 125 banks established in Sweden. These comprised 31 limited liability banks, 76 savings banks, 16 foreign-owned branches and 2 co-operative banks.

The banks' assets consisted largely of loans to the public, which at the end of 2003 amounted to SEK 1,337 billion (see Chart 12). Almost half of these loans were granted to non-financial companies and just over 20 per cent were made to households (see Chart 13). In recent years, banking groups have been expanding their businesses to other countries by setting up subsidiaries or branches there. As a result of these foreign operations, lending to borrowers abroad has also become a more important part of banks' business activities. At the end of 2003, around one-quarter of total lending to the public constituted loans to the foreign public. The banks also had large claims on Swedish financial institutions.<sup>25</sup> These claims comprised 15 per cent of the banks' assets. In addition, the assets consisted to around 15 per cent of bonds and other debt securities.

Deposits from the general public with the banks amounted to almost SEK 1,300 billion at the end of 2003. This comprised around 40 per cent of the banks' liabilities (see Chart 14). Swedish households accounted for 40 per cent of deposits from the public and Swedish non-financial companies for 30 per cent (see Chart 15). The banks' liabilities to the foreign public were just over 20 per cent. In addition, the banks had liabilities to both Swedish and non-resident financial institutions, in the form of securities issued and equity capital.

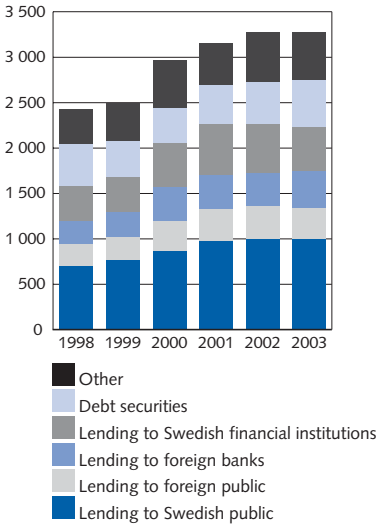
#### MORTGAGE INSTITUTIONS

The mortgage institutions' primary operations comprise real estate financing, in particular for residential property. Loans are secured mainly by real estate mortgages or municipal sureties. State credit guarantees are also used. Lending by mortgage institutions constitutes approximately 40 per cent of credit institutions' total lending.

<sup>25</sup> The financial institutions include banks, finance companies and stockbrokers.

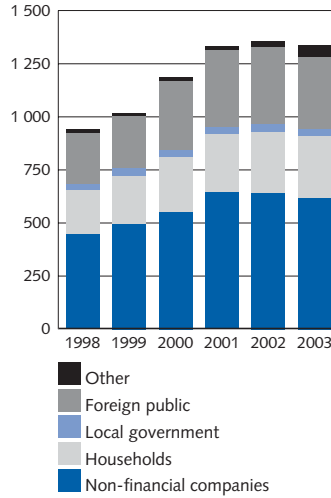
There are eight mortgage institutions in total in the Swedish market. Six of these are part of a banking group<sup>26</sup>, while two are owned by the state – SBAB and Venantius AB.

**Chart 12. The banks' assets  
SEK billion**



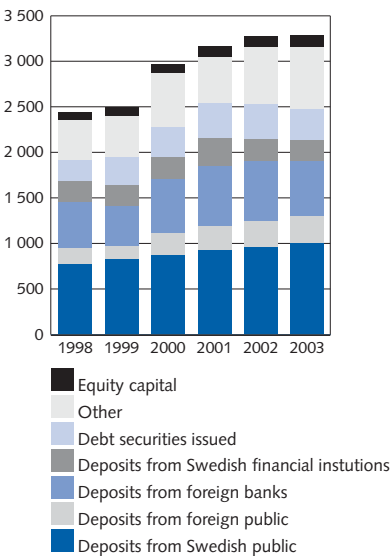
Source: The Riksbank.

**Chart 13. The banks' lending to the public by borrower category  
SEK billion**



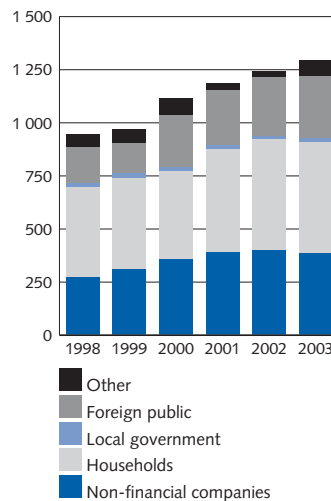
Source: The Riksbank.

**Chart 14. The banks' liabilities and shareholders' equity  
SEK billion**



Source: The Riksbank.

**Chart 15. The banks' deposits from the public by depositor category  
SEK billion**



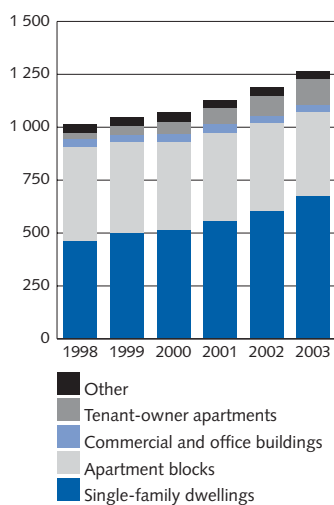
Source: The Riksbank.

<sup>26</sup> The four major Swedish banks and Danske bank.

Stadshypotek and Spintab, which are owned by the Handelsbanken and Föreningsparbanken groups respectively, are the largest institutions, accounting together for around 60 per cent of the total assets held by mortgage institutions (see Table 6).

At the end of 2003, lending by mortgage institutions to the general public amounted to SEK 1,267 billion. Lending to single-family dwellings and multi-family dwellings together comprised the largest part – 85 per cent (see Chart 16). Lending to tenant-owner apartments has more than trebled since 1998. Contributory factors here have included higher market prices and the conversions of rental properties to tenant-owner properties that have occurred during the

**Chart 16. Mortgage institutions' lending to the public**  
SEK billion



Source: The Riksbank.

**Table 6. Total assets and lending of mortgage institutions in Sweden at year-end 2003**  
SEK billion

	TOTAL ASSETS	%	LENDING	%
AB Spintab (Föreningsparbanken)	434	32	374	30
Stadshypotek AB (Handelsbanken)	393	29	386	31
Nordea Hypotek	221	16	212	17
SEB Bolån	156	11	148	12
SBAB	132	10	126	10
Venantius AB	18	1	13	1
Bokredit i Sverige AB	7	0,5	7	0,6
Bofab	0,3	0,02	-	-
<b>Total</b>	<b>1 362</b>	<b>100</b>	<b>1 267</b>	<b>100</b>

Source: The Riksbank.



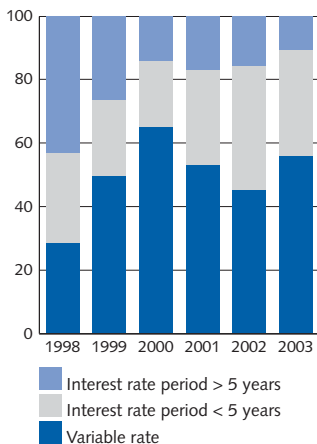
period. This has also resulted in a reduction in loan demand for multi-family dwellings.

Interest rates on loans can be fixed, with different terms, or variable. The term chosen for a fixed-rate loan is affected by customers' expectations of how short-term and long-term interest rates will develop. In December 2003, the percentage of new loans granted at variable rates amounted to 56 per cent. Fixed-rate loans with terms of at least five years, and fixed-rate loans with shorter terms, comprised 11 per cent and 33 per cent respectively of total new loans (see Chart 17).

Of mortgage institutions' total loan stock, the percentage of variable-rate loans had increased up to 2003, mainly at the expense of fixed-rate loans with terms of more than five years. However, during 2003 the increase in variable-rate loans came to a halt, and the number of fixed-rate loans with shorter terms than five years increased (see Chart 18).

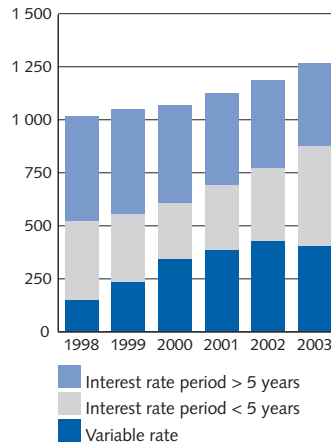
The mortgage institutions mainly finance their credit granting by issuing bonds and certificates (see Chart 19). Their borrowing is obtained primarily from large asset managers, such as the AP funds, the insurance companies and the banks. Borrowing by the bank-owned mortgage institutions largely comprises loans from their parent bank. They also borrow from domestic companies and households, through private bonds and in foreign markets.

**Chart 17. The mortgage institutions' lending to the public by original interest rate period**  
Per cent



Source: The Riksbank.

**Chart 18. The mortgage institutions' loan stock by original interest rate period**  
SEK billion



Source: The Riksbank.

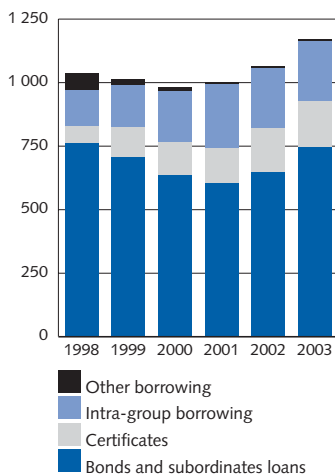
Borrowing by issuing certificates has increased in recent years, but showed a more modest rate of increase in 2003. When the percentage of lending at a variable rate rose in the banks' loan portfolios (see Chart 18) up to 2002, their borrowing by issuing certificates also rose. This is because the mortgage institutions endeavour to match the durations of their assets and liabilities in order to limit interest rate risks. While the mortgage institutions' lending at a fixed rate increased in 2003, their issues of bonds with a longer duration also increased.

#### OTHER CREDIT MARKET COMPANIES

Other credit market companies include finance companies and corporate- and municipality-financing institutions. Their lending constitutes approximately 10 per cent of credit institutions' total lending. Of the total assets of just over SEK 530 billion, approximately one quarter is with the four major banking groups (see Table 7).

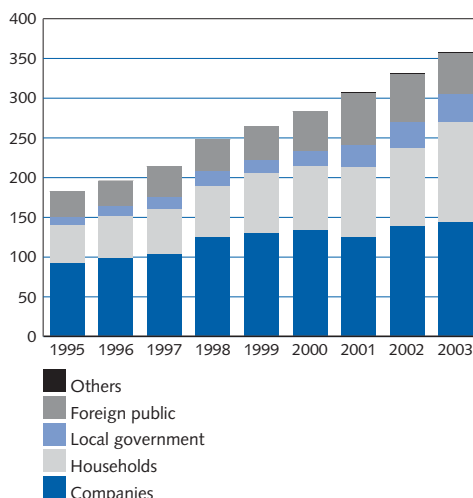
Finance companies were first established as a response to the lending restrictions that were in place prior to 1985 and which limited the banks' lending activities. By setting up finance companies, which were not subject to the restrictions, it became possible to increase lending. At present, the companies typically have specialist competence in various kinds of financing, such as leasing and factoring services for companies and promissory note loans and credit

**Chart 19. The mortgage institutions' borrowing**  
SEK billion



Source: The Riksbank.

**Chart 20. Other credit market companies' lending to the public**  
SEK billion



Source: The Riksbank.

card accounts for households. For administrative reasons, they still operate as independent companies within the banking groups.

Finance companies are also owned by non-financial companies, serving as a complement to the companies' ordinary business through the financing opportunities they can offer to its customers. For example, large car manufacturers often provide financing opportunities to their customers.

Corporate- and municipality-financing institutions focus on granting loans to a particular sector or, as in the case of Kommuninvest i Sverige AB, to municipalities. The largest of these institutions by far is the Swedish Export Credit Corporation, which is a state-owned company with the task of fostering growth in the Swedish export industry. In addition, Kommuninvest i Sverige AB was formed by a number of municipalities and county councils with a view to arranging financing for its members as cost-efficiently as possible. Similarly, Landshypotek AB aims to provide its members (agricultural and forestry companies in Sweden) with financing on favourable terms.

The finance companies fund their operations mainly through loans from other financial institutions, in particular the banks. Some of the larger companies also obtain financing by issuing certificates in the securities market. The corporate- and municipality-financing institutions fund their activities by issuing bonds, certificates and promissory notes.

Outstanding loans to the public by other credit market companies amounted to SEK 357 billion at the end of 2003 (see Chart 20). Around 40 per cent of these loans were granted to

**Table 7. The ten largest companies in the category Other credit market companies, total assets at year-end 2003**  
SEK billion

Svensk Exportkredit AB	157
Kommuninvest i Sverige	62
Landshypotek AB	36
Nordea Finans Sverige AB	31
Handelsbanken Finans AB	40
SEB Finans AB	25
Föreningssparbanken Jordbrukskredit	25
Aktiebolaget Volvofinans AB	24
Föreningssparbanken Finans	18
Länsförsäkringar Hypotek	16
<b>Total 10 largest</b>	<b>434</b>
<b>Total other credit market companies</b>	<b>533</b>

Source: The Riksbank

companies, while 35 per cent went to households. Approximately 15 per cent of the lending was to the foreign public. There are 74 other credit market companies operating in the Swedish market, 66 of which are finance companies.

### Insurance companies, pension funds and fund management companies – the investors

Financial intermediaries also include a number of middlemen whose activities are not primarily focused on lending. Examples of these are insurance companies, pension funds and fund management companies. While these serve different purposes in the financial system and the economy, they all have an important role as *investors* in the financial markets. As investors, they concentrate more on managing others' money than their own.

The insurance companies supply the general public with life insurance and property and liability insurance and invest the premiums they receive in the securities market. They are specialists at managing and diversifying different types of risk. Property and liability insurance policies enable the general public to manage risks related to property, while life insurance and pension policies enable individuals to secure their livelihood if they should live to a greater age than the average and the livelihood of their survivors if they should die prematurely. The life insurance companies' products are therefore often regarded as a form of long-term savings.

Other forms of long-term savings are provided by the state pension funds and private fund management companies. The state pension funds manage the assets the government has allocated to cover its pension obligations, while the fund management companies manage the general public's savings in mutual funds.

#### THE INSURANCE COMPANIES

There are 440 insurance companies in Sweden, of which most are small local companies offering non-life insurance. However, the market is concentrated to a number of large companies. In the markets for life and non-life insurance, the five largest insurance companies/groups together account for approximately 80 per cent of the market (see Table 8). Around one quarter of the investment assets in the life insurance market belong to the four largest banking groups.

The insurance companies are either limited liability companies that distribute their profits or companies run according to mutual

principles. The latter type of company does not pay dividends; any profits are distributed to the policyholders.

Insurance companies are divided into life insurance companies and non-life insurance companies. It is not permitted to carry on these types of business in one and the same company, although it is common to have both kinds of business in the same corporate group. One thing life insurance and non-life insurance companies have in common is that they insure against risk, although they insure against completely different risks.

Depending on the kind of insurance product, life insurance companies can pay out compensation when an insured person becomes injured, dies or reaches retirement age. The products can be seen partly as insurance, but also as a kind of long-term savings whereby the policyholder has a claim on the capital managed by the insurance company. Life insurance can be divided up into traditional life insurance and unit-linked insurance. Traditional life insurance pays a guaranteed return, while the return yielded by a unit-linked policy is determined by the performance of the individual funds. Saving in unit-linked insurance works essentially in the same way as saving in mutual funds (see the section on mutual funds).

Non-life insurance companies compensate damage to property and pay third-party damages. Policyholders pay a premium to the companies in order to receive compensation for damaged property in the event of an accident. Unlike life insurance, non-life insurance policies are not a form of savings. The non-life insurance companies' activities in the securities market are aimed at managing the companies' own funds.

**Table 8. The ten largest life insurance and non-life insurance companies in Sweden, investment assets at year-end 20003**  
SEK billion

LIFE INSURANCE COMPANY	INVESTMENT	NON-LIFE INSURANCE COMPANY	INVESTMENT
	ASSETS		ASSETS
Alecta	313	AFA	137
Skandia (Liv + Link)	305	If Skadeförsäkring	52
AMF Pension	195	Länsförsäkringar	43
SEB Trygg Liv (Nya + Gamla)	175	Trygg-Hansa	19
Handelsbanken Liv + SPP	125	Folksam	19
Länsförsäkringar (Liv + Fondliv)	108	FPG	12
Folksam (Liv + LO + Fond)	63	Sirius Inter	12
Robur (Föreningsparbanken)	39	SEB	3
KPA (Livförsäkring + Pension)	22	Brandkontoret	2
Nordea Liv (I och II)	16	Assuransföreningen	1
Others	83	Others	27
<b>Total</b>	<b>1 443</b>	<b>Total</b>	<b>329</b>

Sources: The Swedish Insurance Federation and Statistics Sweden.

Employed individuals can also take out so-called collective insurance policies, which are based on labour market agreements. These provide additional cover in the event of sickness, occupational injury or retirement.

The assets of dividend-paying limited liability life insurance companies comprise so-called investment assets, while their liabilities mainly consist of shareholders' equity and technical provisions. The technical provisions should be equivalent to the amount required by the company to ensure that it can meet all the commitments that may arise from its existing insurance policies.<sup>27</sup> The difference between a dividend-paying company and a company run according to mutual principles is that in the latter the policyholders bear the financial risk and "own" the capital. Shareholders' equity consists therefore of bonus funds, which are the insurance company's accumulated profits. In a dividend-paying limited liability insurance company, equity is owned by the shareholders.

The total investment assets of nationwide life insurance and non-life insurance companies amounted to SEK 1,770 billion at the end of 2003. Of these, approximately 80 per cent was accounted for by life insurance companies (see Chart 21).

The investment assets of insurance companies comprise mainly equities and bonds (see Chart 22). The percentage of assets invested in equity declined during 2002, but began to increase again during 2003. In December 2003, equity accounted for almost 40 per cent of the capital managed. Holdings of bonds and short-term investments comprised 44 per cent and 10 per cent respectively of the investment assets, which remained largely unchanged on the previous year. Investments in property comprised only a minor part. Approximately 30 per cent of the investment assets were foreign investments.

#### *Insurance associations and pension foundations*

In addition to insurance companies, there are also insurance associations and pension foundations. Compared with insurance companies, these have only a small share of the pension insurance market. Insurance associations are associations which aim to carry on insurance business for employees in one or more companies, occupational categories or members of certain interests. The majority of these associations provide pension insurance only, although some provide health insurance.

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<sup>27</sup> The size of these technical provisions is calculated using a number of variables, including expected return, life expectancy, future operational costs and premium income for policies entered into as well as "the maximum rate of interest", which is the discount rate used when calculating the present value of the company's future commitments.

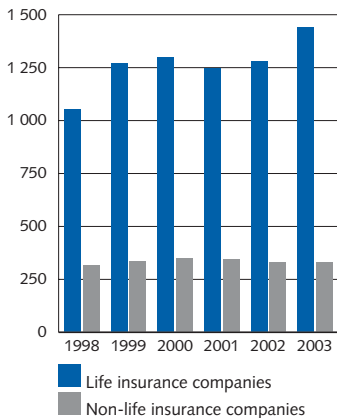
The total assets of insurance associations amounted to approximately SEK 88 billion at the end of 2003.<sup>28</sup> Pension foundations are another form of pension savings. An employer can choose to set up a pension foundation and transfer an amount to it each year which is then paid out to the employees later on in the form of a pension. A pension foundation is a legal entity in itself. The assets in the pension foundations amount to around SEK 100 billion.<sup>29</sup>

#### FUND MANAGEMENT COMPANIES

Fund investment in Sweden totalled just over SEK 870 billion in managed capital at the end of 2003.

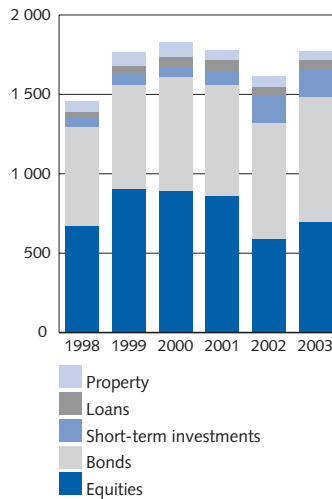
The funds are managed and administered by fund management companies. Generally, each fund management company can offer a large number of funds with a different investment focus. The bank-owned fund management companies dominate the Swedish market. The four largest companies, owned by the largest banking groups, together account for around 75 per cent of the fund market. For these fund management companies, the banks' branches or Internet services function as distribution channels (see Table 9).

**Chart 21. The insurance companies' investment assets SEK billion**



Source: Statistics Sweden.

**Chart 22. The insurance companies' allocation of investment assets SEK billion**



Källa: Statistics Sweden.

<sup>28</sup> Most insurance associations manage their own assets, although some outsource these operations. This outsourcing can result in some double reporting of data, as these assets are also included in the investment assets of fund management companies.

<sup>29</sup> This figure refers to 2002. It should also be pointed out that a large portion of the pension foundations' assets are managed externally and thus, as with the insurance associations, they are included in the investment assets for fund management companies.

Besides equity funds, other kinds of funds include fixed income funds, which invest in interest-bearing securities, and so-called mixed funds, which invest in both equities and interest-bearing securities. There are also hedge funds, which differ in investment terms in that their management entails a relatively large amount of freedom regarding both investment strategy and financial instruments used, such as derivatives.

Fund management companies that are affiliated to insurance companies have increased substantially their share of the fund market in recent years due to the growing interest in choosing funds for pension savings. This is partly due to the pension reform of 2000, which enabled the general public to select the funds in which their pension savings are invested through the premium pension system. According to this system, the amounts paid towards the premium reserve pensions are invested in mutual funds. For private forms of pension savings, there are also a number of fund-based options (see the section on insurance companies). These kinds of savings are basically similar, the differences being their forms of ownership and taxation. Consequently, mutual funds today compete to some extent with the life insurance companies.

The percentage of equity funds rose between 1998 and 2000, accounting for almost 65 per cent of total mutual fund wealth at the end of 2000. However, in 2001 and 2002 this percentage declined as a result of the stock market fall. During 2003, the stock market began to recover, which led to an increase in mutual fund wealth. Equity funds comprised around half of the total mutual fund wealth at the end of 2003, fixed income funds comprised almost one third and other funds around one fifth (see Table 10).

**Table 9. The 10 largest fund management companies, managed assets at year-end 2003  
SEK billion**

Robur	245
SEB	148
Nordea	145
Handelsbanken	111
Länsförsäkringar	34
Skandia	32
Sjunde AP-fonden Premiespar	30
Folksam	23
Brummer & Partners	20
AMF Pension	14
<b>Total 10 largest</b>	<b>782</b>
<b>Total</b>	<b>873</b>

Source: Newsletter "Fond & Bank".



## STATE-OWNED PENSION FUNDS

The Swedish public pension system consists of two parts: a collective part and an individual part. The collective part is a "pay-as-you-go" system whereby pensions paid out are financed by current charges. The individual part is a premium reserve system whereby pension disbursements are financed with money paid into funds during the policyholders' working lives and where the policyholders themselves choose the fund management company. Of the guaranteed pension, equivalent to 18.5 per cent of a policyholder's income, 16 per cent is managed under the "pay-as-you-go" system and 2.5 per cent under the premium reserve system.

The task of the state-owned AP funds is primarily to manage pension funds within the framework of the "pay-as-you-go" system. This task is carried out by the First, Second, Third, Fourth and Sixth AP funds. The Seventh AP fund manages the capital in the premium reserve system, in competition with private fund management companies. This fund also includes the pension capital of those people who did not choose a particular fund management company for their premium reserve pension.

The First, Second, Third and Fourth AP funds are bound by identical investment regulations, which *inter alia* entail that the pension capital may be invested in all capital market instruments and that some of the assets may be invested globally. One restriction is that at least 30 per cent of the funds' assets shall be invested in low-risk debt securities. The Sixth AP fund has the most flexible investment regulations with regard to choice of instrument, but is not allowed to invest abroad. Like the first four funds, the Seventh AP fund can invest its assets abroad.

At the end of 2003, the AP funds' total investment assets amounted to just over SEK 590 billion. This can be compared with the life insurance companies and the mutual funds, whose investment assets amounted to just over SEK 1,440 billion and SEK 870 billion respectively in December 2003.

**Table 10. Mutual fund wealth  
SEK billion**

	1998	1999	2000	2001	2002	2003
Equity funds	365	592	595	522	343	445
Fixed income funds	104	116	123	162	205	244
Mixed funds	121	169	205	154	119	141
Hedge funds	–	–	–	28	36	43
<b>Total</b>	<b>591</b>	<b>877</b>	<b>924</b>	<b>867</b>	<b>702</b>	<b>873</b>

Source: The Swedish Investment Fund Association

## SECURITIES COMPANIES

A third group of intermediaries consists of the securities companies or brokers, whose primary task is to act as intermediaries in the financial markets in general and the equities market in particular. By bringing together buyers and sellers of securities, and by acting as market-makers, securities companies help to create liquidity in the securities market and thus make it function more efficiently.

There are some fifty securities companies in the Swedish market. Their primary functions include conducting securities trading in their own name on behalf of their customers, and engaging in proprietary trading in their capacity as market-maker. Being a market-maker involves quoting two-way prices (ask and bid prices), i.e. being prepared to buy or sell securities, thereby guaranteeing liquidity in the market, which in turn improves pricing.

Companies that want to trade on commission on behalf of their customers or engage in proprietary trading require a licence from Finansinspektionen (the Swedish Financial Supervisory Authority). The companies are also able to extend credit to customers in conjunction with securities purchases and administrative services, and to accept deposits, to a limited extent, for these services. In addition, they take part in new issues of securities in the market.

As the securities companies mainly focus on trading and short-term positions, their total assets are relatively small; at the end of 2003 these amounted to SEK 51 billion.

## The laws and corporate forms in the financial sector

**O**N 1 JULY 2004 the new **act on banking and financial business** comes into force. This will replace both the Banking Business Act and the Financing Operations Act, which have so far regulated the operations of both banks and credit market companies. Until July 2004 the decisive difference between banks and credit market companies was that the former had the right to accept deposits from the general public, while the latter did not have this right. The new act will introduce a new definition of banking business that concentrates on the banks' function as mediators of payments.

According to the new definition, banking business will refer to business that includes both mediation of payments via general payment systems and accepting funds that will be made available to the creditor within a maximum of 30 days after notice of withdrawal has been given. This differs from the earlier definition, which was aimed at deposits in accounts where the balance is determined nominally and is available to the depositor at short notice.

Banks can be run as limited *liability banks*, *savings banks* and *cooperative banks*. The operations of all forms of bank, that is to say, what they are and are not allowed to do and supervision of the banks, are governed by the new act on banking business and financial operations. In addition, it contains special regulations for limited liability banks, while the establishment and organisation of savings banks and cooperative banks is regulated in separate acts.

The new act abolishes the banks' monopoly on accepting deposits. This opens the way for credit market companies to accept deposits from the general public. A *credit market company* is a limited

liability company or an economic association that is licensed to pursue financing operations. The definition of financial operations in the new act entails business aimed at both accepting repayable funds from the general public, either directly or via a company with which there are close links, and providing credit, issuing guarantees for credit or acquiring claims or leasing personal property for the purpose of financing.

This new legal definition of financing operations differs from the earlier definition, which did not include accepting deposits. The new definition also means that both banks and credit market companies are more closely linked to the EC law definition of credit institutions. Another consequence of the change is that the providers of credit that do not accept funds from the general public will no longer automatically come under the supervision of Finansinspektionen. These companies will instead be governed by more stringent rules on money laundering and other crimes. In addition, consumer protection will be increased through certain changes in the Consumer Credit Act.

The new act also contains a renewal of the business regulations for banks and credit market institutions. This includes introducing new regulations on solvency and liquidity, risk management and transparency.

One of the most important acts governing the activities of banks and credit market companies is **the Capital Adequacy and Large Exposures (Credit Institutions and Securities Companies) Act**. This stipulates the size of the capital buffer a credit institution must hold in relation to the risks it undertakes. The capital adequacy rules are the result of research

and negotiations conducted at international level under the auspices of the G10 and the EU.

Examples of other legislation that has a bearing on banks and credit market institutions include **the Consumer Credit Act**, which primarily regulates the marketing of credit services, and **the Act on Deposit-Guarantee Scheme**, which aims to safeguard customers' deposits up to SEK 250,000.

Private insurance operations are regulated in two fundamental legislative blocks. **The Insurance Business Act** lays down the regulatory framework that governs insurance business while **the Insurance Contracts Act** regulates the relationship between insurance companies and policyholders. **The Insurance Business Act** contains regulations on the formation of insurance companies in Sweden, their operations and supervision. The commercial regulations distinguish between life insurance and non-life insurance business, operations that in principle must be conducted in separate companies. Policyholders are protected through a requirement to provide information and a clear demarcation between shareholders' equity and policyholders' capital, as well as a contractual right to profits. Since 1 July 1995, Swedish insurance business legislation has been adapted to the EC Council Directives regarding life insurance and non-life insurance, and with effect from 1 January 1996 the EC regulations for annual reports and consolidated reports have been incorporated into Swedish law. As of 2000, the opportunities for Swedish insurance companies to hold shares in other companies have been liberalised and adapted to EC law.

The Insurance Contracts Act regulates the legal relationship between insurance companies and policyholders – as well as others who are to be covered by the

insurance. The act applies to life insurance, accident insurance and health insurance, but not to non-life insurance. The most common forms of non-life insurance for individuals are instead governed by **the Consumer Insurance Act**, which was introduced in 1981 to strengthen consumers' rights in relation to insurance companies.

A *securities company* is a limited liability company that is licensed to conduct securities activities in accordance with **the Securities Business Act**. Securities activities encompass, for example, proprietary trading in financial instruments or trading on behalf of customers in the company's name, mediating contacts between buyers and sellers of financial instruments, managing other parties' financial instruments, providing guarantees, or other participation in the issue of shares or similar. Like credit institutions, securities companies are subject to **the Capital Adequacy and Large Exposures (Credit Institutions and Securities Companies) Act**. Trade in securities is also regulated in **the Financial Instruments Trading Act and the Insider Act**.

A *mutual fund* is a fund that consists of securities and other financial instruments, the fund being formed by means of capital contributions from the public and owned by those so contributing. A mutual fund is neither a limited liability company nor economic association which acquires and manages financial instruments. Instead, a mutual fund is managed by a *fund management company*, as is the sale and redemption of the mutual fund shares. Fund management companies' operations, as well as mutual funds, are regulated in **the Mutual Funds Act**. The assets of a mutual fund are kept by a *depository*, which also administers incoming and outgoing payments. The depository is usually a bank or other credit institution. Fund management companies and depositories operate independently of one another.

# ■ The financial infrastructure

One of the financial system's most important functions is to create the right conditions for safe and efficient payments and securities transactions. The financial sector supplies an extensive infrastructure consisting of different systems, routines and instruments that facilitate the execution of payments.

This chapter first provides a general description of the instruments and the infrastructure needed to make payments and transactions in a modern economy. This is followed by a discussion of the use of different payment instruments in Sweden. The chapter concludes with a description of the most important components of the Swedish financial infrastructure.

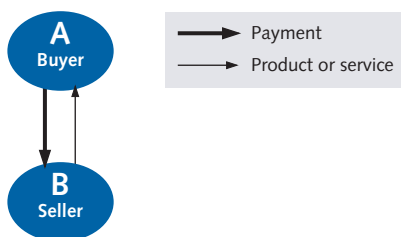
## Different types of payment – a general description

All market transactions consist in principle of two parts. The first part arises when the seller supplies the buyer with a product, a service or a financial instrument. The second part consists of the payment, that is, a flow of money from the buyer to the seller. The two parts can occur simultaneously or at different points in time.

### A SIMPLE PAYMENT

All payments essentially entail a transfer of money between two parties, a payment sender and a payment recipient. The way in which this transfer is made is determined by which *payment instrument* is used and which *channel* the parties choose to make the payment through. For a cash payment, the claim is extinguished and the payment completed at the actual time of payment in connection

Figure 1. Example of a cash transaction



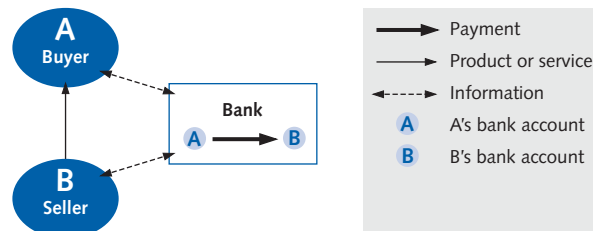
with the exchange of the payment instrument, that is to say, banknotes and coins. No intermediaries are required here. Figure 1 provides an example of a cash transaction. A and B can be individuals, companies or authorities. A buys a product or service from B and pays for it by giving B cash.

Examples of other payment instruments are credit transfers, cards, cheques and money orders. Unlike cash payments, payments using these instruments are not finalised at the time of payment. Instead, they entail a transfer of money between two accounts at one or more banks, which then act as payment intermediaries. They are therefore said to be *account-based instruments*. Such instruments can often be used in different *channels*. A bank card, for instance, can be used for payments in a shop, payments via the Internet or by telephone. The payment channel thus states which route has been chosen to send the information on the transaction.

#### A PAYMENT USING AN INTERMEDIARY

The main difference between cash payments and account-based payments is that the latter require intermediaries, that is to say, more participants than those directly involved in the transaction.<sup>30</sup> There is thus often a time lag for account-based payments from the time that the payment is initiated until it is finalised. The payment sender initiates the payment by giving the bank an order to transfer the funds. The bank transfers the funds from the sender's account to the recipient's account and informs the recipient that his/her account has been credited. When the money has been transferred from the sender's account to the recipient's account, the payment has been *settled*, that is to say, finalised. Figure 2 illustrates the same transaction between A and B. The difference is that A now pays with an

Figure 2. Example of a payment using an intermediary



<sup>30</sup> However, cash also requires an infrastructure for storing and distribution to post offices, banks and the public.

account-based instrument. Both A and B have accounts with the same bank. The bank receives the information on the transaction, debits A's account and credits B's account with the same amount.

As the banks supply the accounts through which households and companies make their payments, they are central participants in the payment system. In addition, the banks supply their customers with the actual instruments of payment. A could have paid B in cash, as in Figure 1, or by card, cheque, or credit transfer as in Figure 2. All of these are payment instruments to which A receives access via a bank or, as is often the case with cash, via a bank-owned cash dispenser. In other words, there is a market, where the banks offer different payment services to companies and households.

#### A PAYMENT USING MORE THAN ONE INTERMEDIARY

The picture becomes more complicated if A and B have accounts with different banks. It is then necessary to have a more developed *financial infrastructure*, where information on the transaction and the actual payment can be transferred between the parties concerned. Such an infrastructure covers all of the systems, routines and rules required to manage an account-based payment from beginning to end. It also creates a two-tiered market. In this market, payment intermediaries act as buyers of infrastructure services but also supply parts of these services, as banks often jointly own many of the systems in the payment infrastructure. The financial infrastructure manages not only payments, but also transactions in financial assets, for instance, securities (see the separate section further on).

The processes managed within the financial infrastructure can usually be summarised in three stages. Firstly, the payment must be *checked* and *authorised*.<sup>31</sup> This stage often arises at the actual transaction point and refers to a check of the parties identities and the validity of the payment instrument, as well as a check that there are sufficient funds to cover the transaction amount.

After this, the transaction is *cleared*, that is to say, instructions are compiled on transferring the payment to the recipient's account. The transaction is cleared by a *clearing organisation*. In Sweden, it is Bankgirocentralen BGC that clears most payments, such as card

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<sup>31</sup> These three sub-processes also occur when the payment sender and payment recipient have accounts with the same bank, but are instead managed by the bank's internal systems. These transactions are not included in the statistics on transactions between banks.

payments and credit transfers.<sup>32</sup> In this example, clearing involves a compilation of the transactions between the two parties, A's and B's banks, and is therefore known as *bilateral* clearing. If there are more accounts and payment intermediaries involved, and if the compilation of the transactions takes place between all of the parties at the same time, we would instead call it *multilateral* clearing.

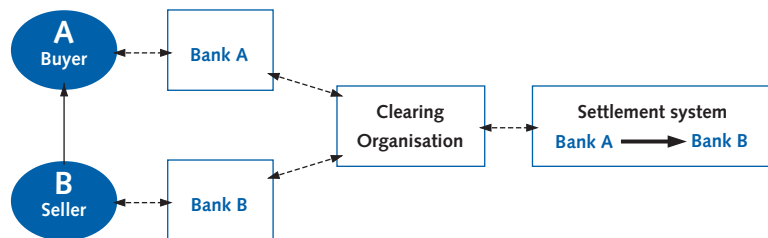
In addition, clearing positions can be calculated as either gross amounts or net amounts. A's bank could, for instance, pay B's bank SEK 100, while B's bank has to pay A's bank SEK 50. The clearing positions can then be calculated as gross amounts, that is to say, total amounts. In this case it means that A's bank pays SEK 100 and B's bank pays SEK 50.

Alternatively, the clearing organisation can use bilateral netting. This consists of two parties offsetting their debts and claims against one another. It reduces the size of the parties' exposures and their liquidity requirement. In this case, the clearing positions are compiled so that A's bank pays SEK 50 to B's bank.

Multilateral netting involves all participants' debts and claims being offset against one another. Each participant then has one single claim or debt to the other participants.<sup>33</sup> In some cases, the clearing can instead be done through a central counterparty. This participant then becomes counterparty in every transaction. The recipient then has a claim on the central counterparty and not on the payment sender, while the central counterparty has a claim on the sender. It is also possible for the central counterparty to use netting.

A payment with an account-based instrument from A to B, given that A and B have accounts with different banks, requires an infrastructure as illustrated in Figure 3.

Figure 3. Example of a payment where the sender and recipient have different banks



<sup>32</sup> Postgirot is not a clearing system, but an internal system within Nordea. Although it is possible to pay to an account with Postgirot from another bank, these are cleared by BGC or bilaterally between the banks.

<sup>33</sup> If we instead assume that there are three participants, where A will pay 100 to B and 120 to C, where B is to pay 50 to A and 20 to C and where C is to pay 150 to B, the net positions that arise are as follows: for A -170, for B +180 and for C -10. The payment flows can then be simplified so that A pays 170 to B and C pays 10 to B.



The process after clearing is *settlement*, when the amount is transferred from the sender's account to the recipient's account. If the payment sender and payment recipient have accounts in different banks, settlement takes place in the accounts the banks themselves hold for this purpose in a *settlement system*. A settlement system can thus be likened to a bank for the banks. The payment leads to the sender bank's account being debited and the recipient bank's account being credited with the amount transferred. The sending (receiving) bank in turn debits (credits) the respective customer's account. In Sweden, this settlement process takes place in the accounts that the banks, and certain other financial companies, such as clearing organisations, have with the Riksbank. The system that manages the settlement process is called RIX. This is used for settling payments that require the transfer of funds between different banks and clearing organisations (you can read more about RIX in the section on the infrastructure for payments in Sweden further on in this chapter).

The nature of the payments made between the banks and clearing organisations is different to the payments made by individual companies and households. The former type of payment is usually termed a *large-value payment*, while the latter is called a *retail payment*.

The large-value payments are usually for substantial amounts, often between SEK 10 million and SEK 100 million. However, they are much fewer in number than the retail payments. As a result of their size, they also require more rapid settlement.

Retail payments encompasses a large number of payments for relatively small amounts. They include both recurring payments, such as monthly bills, company invoices and salary payments, and less urgent one-off payments, which are made by cash, cheque or card, for instance.

Retail payments often have one or more banks as intermediary. However, in some cases company payments may cover sufficiently large amounts to be classified as large-value payments, even if the banks act as intermediaries in these cases.

## TRANSFERS WHEN TRADING FINANCIAL INSTRUMENTS

Financial instruments have many characteristics that create the need for an infrastructure for transactions in financial instruments similar to that for ordinary payments. It is therefore also natural to integrate as far as possible the infrastructure for transfers of financial instruments between two parties with that for transfers of payments.

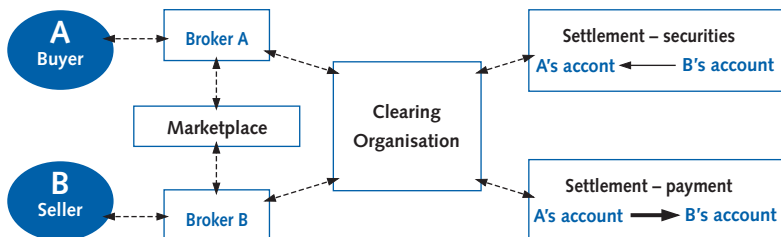
In a transaction using financial instruments, such as securities in the form of equities or bonds, the process is therefore similar to the example above, with the difference that the securities trade entails two flows: in addition to the payment leg, that is to say, the transfer of the payment for the security from the buyer to the seller, there is also a transfer of the actual security from the seller to the buyer, the security leg. A chart showing securities trading is provided in Figure 4.

A securities transaction consists of the following parts. When A and B have given their buy and sell orders respectively to the marketplace, and these have been matched, a transaction is created. Given that securities trade involves large amounts of money, the safety aspect is especially important; any misunderstanding during such a deal could have serious consequences. For this reason, prior to clearing and settlement a check is first made that the brokers on both sides have the same perceptions with regard to amounts, products and times.

The next stage involves clearing, which follows the same procedure as for ordinary payments, with checks and authorisation. The clearing organisation checks the parties' identities and whether the two transfers are possible, and then compiles the instructions for the transfers. The deal is finally settled only when the transfers are made in both the payment leg and the securities leg.

In Sweden, Värdepapperscentralen AB, VPC, is responsible for clearing and settling transactions from the equity market and the fixed income market, while Stockholmsbörsen clears derivative transactions. Settlement of the payment stage is executed, as for other payments, through the RIX system.

Figure 4. Example of a transaction using a financial instrument



## FOREIGN EXCHANGE TRANSACTIONS

The infrastructure for foreign exchange trading is essentially similar to the structure for trading in financial instruments. There are also two flows to be cleared and settled here. The difference is that here two payments are exchanged for one another, one in each currency. Some of the foreign exchange trading is settled in an international system, CLS, which is linked to the national settlement systems (you can read more about CLS in a later section).

We shall now leave the general description of payment instruments and the financial infrastructure and provide a more detailed account of the use of different payment instruments in Sweden. The Swedish financial infrastructure is also discussed in more detail in a later section.

### Use of various instruments of payment

The previous section provided an outline of the channels between participants in different types of payment. This section goes into greater detail as to how and to what extent the different payment instruments are used in Sweden. As pointed out in the general discussion, payments can be divided up according to the type of payment instrument used. A rough classification can be made between *cash payments* and *account-based payments*. Another classification can be made between *retail payments* and *large-value payments*. Large-value payments are now only made through transfers between accounts. Retail payments, on the other hand, can be made using different instruments of payment, both account-based and cash.

#### *Cash payments*

From the point of view of risk, cash payments have the advantage that they do not cause any time lag between the conclusion of the deal and the settlement of the payment. The seller supplies the product or service at the same time as the buyer hands over cash and both sides of the transaction are thus finalised. In addition, banknotes and coins, as they are issued by the Riksbank, are claims against the central government that can always be redeemed by the banks. Holders of banknotes therefore run no credit risk. However, other types of risk arise with cash, such as theft, robbery or counterfeiting.

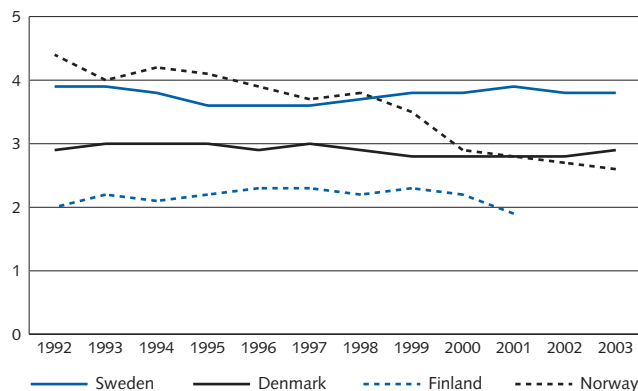
Cash also gives rise to expensive management. Ensuring that cash can be used as a means of payment requires the involvement of a large number of participants, for instance, *the Riksbank* which

issues banknotes and coins, *the banks* which buy banknotes and coins from the Riksbank, provide ATMs and count daily takings from shops, the *companies* that distribute cash and fill the ATMs and also the *shops* that count their own daily takings. As a result of the substantial theft risk, organising the distribution and storage of cash is expensive.

Cash is primarily used in transactions involving small amounts, where the seller and buyer meet directly. Cash payments still account for a large proportion of the number of transactions, although this proportion has decreased in recent years in favour of the use of cards. As there are no overall statistics on cash usage, this can only be estimated. Measuring the value of currency in circulation ("M0" in economic terminology) in relation to gross domestic product (GDP) can give an indication of cash use (see Chart 23). Over time, this measure has declined in Sweden. The value of banknotes and coins as a percentage of GDP has been more than halved since 1950, from ten per cent to four per cent. This reflects the emergence of alternative instruments of payment, particularly card payments. Given the rapid rise in the use of cards, especially at the end of the 1990s, it could have been expected that the use of cash, measured as the ratio of M0 to GDP, would continue to fall. This has not been the case, however; the trend of falling demand for cash has stopped in recent years. The public's holdings of banknotes and coins in December 2003 amounted to SEK 99 billion in Sweden.

As the payment systems in the Nordic countries have a similar structure, it is interesting to compare how the use of cash in these

**Chart 23. Banknotes and coins in circulation in relation to GDP in the Nordic countries**  
Per cent



Source: The respective countries' national bank

Note: Finland's figure after 2001 is not included, as the Eurosystem's reporting of the euro banknotes affects the amount of the banknotes in circulation since January 2002. This has meant that Finland's banknote figure is not comparable with previous years.

countries has evolved over time. In the other Nordic countries, the ratio of currency to GDP has been stable or declining, but also considerably lower than in Sweden. The average Swede uses more cash than his or her Nordic neighbours, despite the fact that the payment patterns are otherwise very similar in these countries. One reason for this may be differences in the fee structure in the different countries. Banks in the other Nordic countries take out a fee for ATM withdrawals<sup>34</sup>, which may reduce the incentive to use cash.

However, estimates derived using other methods suggest that the use of cash in Sweden has also continued to decline in recent years. A study carried out by the Riksbank<sup>35</sup> shows that the percentage of cash payments in registered trade fell from just over 75 per cent at the beginning of the 1990s to almost 60 per cent at the end of the 1990s. It appears that around 50 per cent of cash demand cannot be explained. Part of the explanation lies in the nature of cash – it is often the most appropriate instrument when making payments between people who meet physically. The fact that transactions between individuals selling and buying second-hand goods are not registered makes it difficult to estimate their real scope. Cash is also used as a means of payment in the black market and in illegal activities. The scope of cash use for these purposes is, of course, difficult to estimate with any precision.

#### *Account-based payments*

The expression “account-based payments” is a collective term for different kinds of transaction such as, credit transfers, direct debits, cheques, debit cards, charge cards and credit cards. Cards and cheques are mainly used for one-off payments that are made at the actual time of the transaction. Credit transfers are used more for long-distance payments, both recurring payments such as monthly bills and one-off payments, such as final settlement of credit card payments. See also the fact box for explanations.

Regardless of whether the payment is made before, after or during the transaction, there arises a time lag with account-based transactions, between the conclusion of the deal and the settlement of the payment. In addition, these payments create a need for intermediaries. As a result, *settlement risks*, that is to say the risk

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<sup>34</sup> The fee structure differs between the countries. In Denmark and Finland the bank charges a fee if the withdrawal is made through an ATM owned by another bank. In Norway, a fee is charged even if the withdrawal is made through the bank's own ATMs.

<sup>35</sup> See Andersson & Guibourg (2001). The use of cash at points-of-sale was estimated. The value of cash payments made during a year was calculated as the difference between the total sales in registered trade during that year and the total value of the transactions paid for using cash and cheques.

that one of the parties involved will be unable to meet its obligations in the transaction, arise. These risks may arise as a result of financial problems among intermediaries involved or due to technical problems or security deficiencies in the systems processing the payments.

Account-based payments tend to be more cost-efficient than cash payments. However, this is not always the case. The costs vary substantially, depending on the specific instrument and the efficiency of the channels used for the instrument. It is estimated that the costs of electronic account transfers amount to between one third and one half of those for cheque payments or paper-based payments. Even greater cost savings are claimed for payments over the Internet.

As mentioned earlier, payments are often classified as either large-value payments or retail payments. Although retail payments are often made using cash, the statistics on retail payments only cover the account-based instruments. A breakdown into large-value payments and account-based retail payments by number of transactions and value is contained in tables 11 and 12.

Countries are often divided into credit transfer-based or cheque-based, depending on the use of account-based payment instruments. Sweden, like the other Nordic countries, has a largely credit transfer-based payment system. Charts 24 and 25 show how the use of account-based payment instruments in Sweden has developed in recent years in terms of both number and value of transactions. In terms of value, credit transfers have gained a stronger position during the 1990s and accounted for 91 per cent of the total value mediated in 2003. However, their percentage of total transactions has declined during this period. Credit transfers accounted for 32 per

**Table 11. Transaction value, breakdown into large-value payments and account-based retail payments**  
SEK billion

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Retail payments	6 631	7 035	7 634	7 899	7 539	8 050	9 064	6 830	7 032
Large-value payments	53 591	78 189	82 051	91 701	100 924	107 210	113 381	114 017	112 358

Source: The Riksbank

**Table 12. Number of transactions, breakdown into large-value payments and account-based retail payments**  
Million transactions

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Retail payments	817	863	912	1 014	1 140	1 209	1 267	1 146	1 322
Large-value payments	0,1	0,3	0,3	0,3	0,3	0,5	0,7	1,1	1,3

Source: The Riksbank

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## Account-based payment instruments

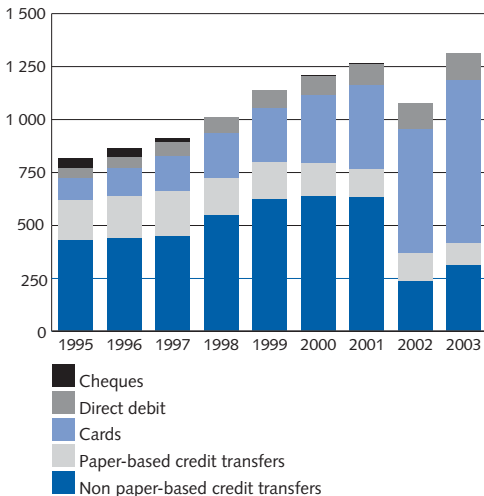
**A CREDIT TRANSFER** involves making a payment by transferring a credit balance from one accountholder to another. In Sweden a distinction is made between "giro payments" and other credit transfers. "Giro payments" utilise a special number to identify the payment sender and the payment recipient, while other transfers use the bank account number. **Direct debit** is an agreement which gives the payment recipient the right to withdraw a certain amount from the sender's account. A **bank card** involves the amount of the transaction being drawn directly from the cardholder's bank account. A **charge card** gives the cardholder credit facilities up to a certain limit. The entire debt is paid off after a specified period. A **credit card** gives the cardholder credit facilities up to a certain limit. Either the entire debt is paid in full, or part of it is repaid, after a specified period. In the latter case, the outstanding debt is rolled over into a new period. Interest is charged on the outstanding

amount. **Cheques** are a written instruction from the writer of the cheque to the redeeming bank to pay a certain amount, usually to the person writing the cheque or a third party indicated by this person. In addition to those already mentioned, there are a few more types of account-based payments, although these have limited use. One such example is the **bank money order**, which is a special type of cheque. It is made out by the bank to the customer wanting to execute a payment. After the customer has paid the bank, he or she is given a promissory note for the amount paid. The customer can then transfer this promissory note to the payment recipient, who can redeem it at the bank. Individuals and companies can also make payments abroad via *Western Union*, which is an international network for mediating transactions. It is represented in more than 190 countries and enables a payment to be sent to a party abroad. The payment shall be made in cash and in advance. Western Union also pays the payment recipient in cash.

cent of the total number of transactions in 2003. In 1995, the corresponding figure was 76 per cent. The decline in the number of credit transfers corresponds to an increase in the percentage of card payments. Their percentage of the number of transactions increased by 46 percentage points during the period 1995-2003.<sup>36</sup> Cards now account for 58 per cent of the total number of transactions. The use of cheques has declined gradually and was very low at the end of 2002, 0.1 per cent of the number of account-based transactions and 0.2 per cent of the mediated value. The banks have reported no use of cheques at all for 2003.

Although the Swedish card market overall has grown impressively in recent years, the use of cards still lags behind that in the other Nordic countries (see Chart 26). As card payments and cash payments are close substitutes, there is a clear link between the number of card payments per head and the amount of banknotes and coins in relation to GDP; the higher the volume of banknotes, the lower the use of cards (compare Charts 23 and 26).

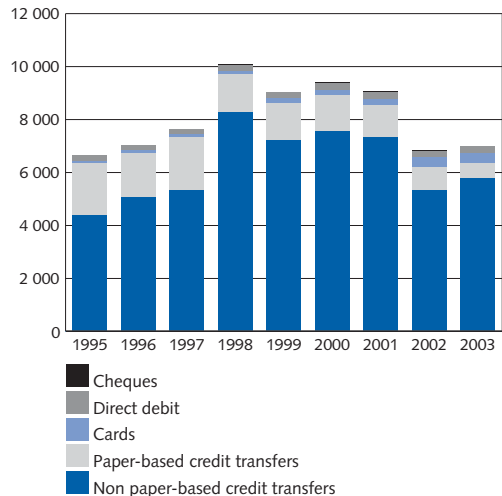
**Chart 24. Use of account-based retail payment instruments**  
Million transactions



Source: The Riksbank.

Note. The decline in the total number of credit transfers since 2002 is explained by the fact that the credit transfers arising between two postal credit transfer accounts are not longer included in the statistics, as these are now regarded as internal transactions within Nordea.

**Chart 25. Use of account-based retail payment instruments**  
SEK billion



Source: The Riksbank.

<sup>36</sup> The Riksbank only gathers card data for the cards accepted as general instruments of payment. These are often issued by banks in collaboration with the large international card companies, such as VISA and Master Card. It also includes cards issued by card companies such as American Express and Diners. On the other hand, it does not include cards issued by petrol companies or businesses that are only accepted by the issuing company.

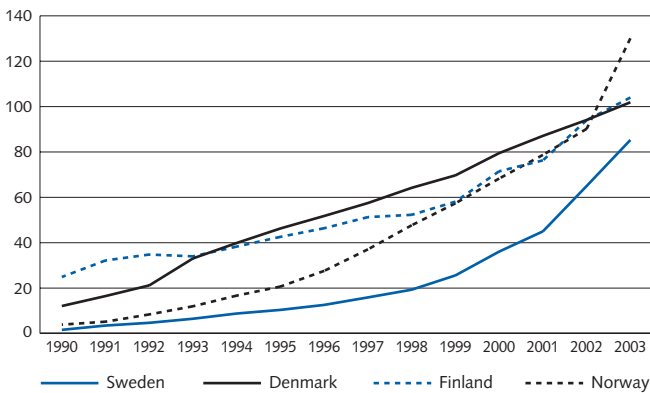


### Internet payments

Use of the Internet is widespread in Sweden. Today around 60 per cent of Swedish households have access to the Internet.<sup>37</sup> There are several reasons for the acceptance of the Internet in Sweden. The deregulation of the telecommunications market contributed positively to the Internet's rapid growth in Sweden. Stiffer competition in the telecommunications market has resulted in lower costs for users, thus encouraging greater Internet use, even in the household sector. Swedish legislation has also facilitated the Internet's advances in the Swedish market. Through the home PC scheme, employers do not have to treat the purchase of home computers for their employees as a taxable benefit, which has resulted in increased access to computers in Swedish homes. This development has also resulted in increased use of the Internet as a new channel for payments. As can be seen in Chart 27, the number of Internet bank customers in Sweden has risen sharply in the past six years.

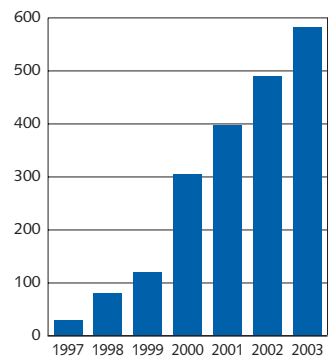
Today's payment solutions for the Internet usually entail an adaptation of traditional payment instruments to the new payment channel, while the other parts of the infrastructure remain the same. A good example of this is credit transfers over the Internet. In some banks, more than 50 per cent of the credit transfers are now Internet-based and this percentage is increasing rapidly. There are

Chart 26. Number of card transactions per capita in the Nordic countries



Sources: ECB: (2004), Blue Book April "Payment and securities settlement systems in the European Union" and Norges Bank (2003), "Annual report on payment systems".

Chart 27. Number of Internet bank customers per 1,000 inhabitants in Sweden



Source: Svensk Fondstatistik

<sup>37</sup> Source: Eurostat.

now electronic bill presentment services linked to the Internet credit transfer service. The payment recipient sends the invoice information directly to the recipient's Internet bank, where the recipient can see the entire invoice and pay it like an ordinary Internet credit transfer, without having to key in all the information about the actual payment.

Very few completely new payment solutions have arisen in recent years.<sup>38</sup> Most banks offer some form of "secure" payment solution for Internet shopping. The most commonly used solution in Sweden is direct payments, a method that enables the shop to link the customer to his/her Internet bank, where he/she can make a credit transfer of the purchase amount from his/her bank account to the shop's account with the same bank. Many Swedish banks also offer different types of "secure" card payments. One such application is called 3D Secure/Secure Payment Application, and is based on the security standards agreed by Visa and Master Card. This method is being installed in Internet shops around the world. At present, however, the method has reached relatively few card customers. The application can be supplemented with simpler variations of e-card that provide greater security for the buyer, even when purchasing from e-retailers that do not accept 3D Secure/SPA.

### The payment infrastructure in Sweden

The first section of this chapter contained a general description of both payment instruments and the payment infrastructure. This general description was followed by a more in-depth review of how the payment instruments are used in Sweden and neighbouring countries. Below follows a more detailed description of the infrastructure for payments and trade in financial instruments in Sweden.

#### RIX

As mentioned earlier, the base of the payment system is the banks' deposit accounts. Customers can use these accounts to make the payments they need to make. The banks can in turn make payments via their accounts in the Riksbank's RIX system, which thereby constitutes a central hub in the infrastructure. The banks' accounts with the Riksbank are used for both the direct payments between

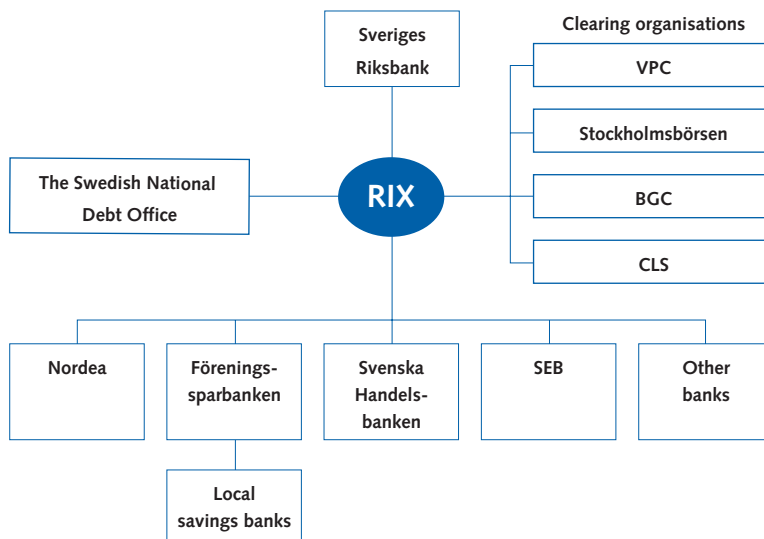
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<sup>38</sup> However, the CASH card is an exception. It was originally launched by a number of Swedish banks in 1998, and is a system for electronic money, e-money, where a prepaid value is stored on a microprocessor embedded in the card. The CASH card was mainly intended as a replacement for banknotes and coins in small-value transactions at small points of sale, where terminal costs are too high. However, the new instrument of payment had no success among Swedish consumers and the plans are to withdraw it from the market in autumn 2004.

the banks and for the final settlement of payment orders from bank customers. This means that all payments involving a transfer from an account in one bank to an account in another bank, including account-based retail payments in aggregate form, are settled through the banks' accounts in RIX. Payments arising from transactions in financial instruments are also settled in RIX. The RIX system consists of two separate systems: K-RIX for settlement of krona payments and E-RIX for settlement of euro payments. Apart from the Riksbank, which owns and runs the systems, all of the major banks and clearing organisations participate in RIX (see Figure 5).<sup>39</sup> Participants in the RIX system can also make payments commissioned by other, mainly smaller, banks.

Settlement in the RIX system is based on the principle of real-time gross settlement (RTGS), which means that payments are settled continuously and individually on the condition that the payer has sufficient liquid funds. This method of settlement entails low settlement risk, but on the other hand requires substantial liquidity.<sup>40</sup> If liquidity at the payer bank is insufficient, the payment is placed in a queue until sufficient liquidity becomes available. In order to ensure the smooth settlement of payments, the banks are able to cover

Figure 5. The Swedish payment system



<sup>39</sup> The participants in the part of RIX managing Swedish kronor, K-RIX, are seven Swedish credit institutions, five branches of foreign bank groups, BGC, VPC, Stockholmsbörsen, CLS, the Swedish National Debt Office and the Riksbank.

<sup>40</sup> Multilateral net settlement involves offsetting all participants' debts to one another. This method requires less liquidity, but at the cost of increased risk, as the entire settlement process is stopped if one participant - regardless of size - cannot meet its obligations.

their liquidity requirements by borrowing intraday funds from the Riksbank. All such borrowing is fully secured.

In 2003 the number of transactions in K-RIX averaged around 5,100 per day, while turnover averaged approximately SEK 408 billion. The payments sent through the RIX system can be compared with the Bankgiro system, which is designed to handle a large number of payment orders but for considerably smaller amounts. In 2003, the average number of payment orders mediated within the Bank giro system each banking day totalled 1.5 million, and these were worth around SEK 17 billion. The turnover in E-RIX averaged just over 380 transactions and EUR 10 billion a day (corresponding to around SEK 92 billion).

Some payments are first netted in one of the clearing organisations. Then only the resulting net amount is settled in RIX. The vast majority of all payments, however, are sent directly from the participants for settlement in RIX.

#### BGC

In Sweden, Bankgirocentralen, BGC, is the main intermediary of retail payments between the banks. BGC is a bank-owned clearing organisation. The system is an open one, that is to say, all payment intermediaries active in Sweden are eligible to apply for membership. 20 banks are currently members of the Bank giro system; 5 of these are foreign-owned. The banks in turn mediate BGC's supply of payment products to their own corporate and private clients. The openness of the system means that a bank customer can make a payment to another customer via BGC even if the latter has a different bank. Companies can also establish direct customer contacts via BGC. BGC offers these customer services where information on cleared and settled transactions is integrated with the customers' internal auditing systems through electronic file transfer.

The transfers between banks are made via a bank giro number. A bank giro number is an address that refers to a bank account. BGC compiles and mediates information to the banks regarding the size of the transfers that are to be made and to which account transfers shall be made. The majority of the transactions are cleared in the BGC system as bilateral net amounts. This means that only one payment obligation arises for each pair of participants. The actual settlement of the net positions occurs through the participants' accounts in RIX. Only a small number of transactions, mainly cash withdrawals and card payments, are netted and settled on a multi-lateral basis. Each type of transaction has one or more predetermined

settlement times during the day. In 2003, there were 381 million payment transactions mediated via the Bank giro system, totalling SEK 4,229 billion.

### *BGC's services*

BGC's system manages many types of transaction, including credit transfers via bank offices or the Internet, supplier payments from companies, normal bank transfers, deposits of salaries, pensions, child benefit, tax transfers, etc. BGC also manages debit transactions, i.e. transactions initiated by the payment recipient rather than the payment sender. This is the case, for instance, with direct debits. Other types of debit transactions, such as cheque payments (including bank money orders) and card payments (both cash withdrawals and purchases) also pass through BGC's system.

Management of transactions in BGC's system differs between pre-debited transactions and other transactions.

Pre-debited transactions have been authorised at the time of the transaction. These transactions thus stem from a number of other systems. BGC then receives information from these systems and is only responsible for clearing and settlement, as well as crediting the customer's account after settlement.<sup>41</sup> There are a number of such systems. For instance, CEKAB is responsible for the authorisation and clearing of cash withdrawals via ATMs and the authorisation of card payments. However, card payments are cleared through Visa's and Europay's international networks. Europay's card payments in Sweden are sent on through BGC for settlement in RIX. Privatgirot manages paper-based credit transfers that are mainly initiated by households. The payment information for these is read by machine, checked and converted into data files before being sent on to BGC and Postgirot. Dataclearing is mainly used for standard bank transfers, salary transfers, Internet payments, that is to say, standard transfers from one account to another not using a bank giro number.

For other transactions, that is to say, BGC's own, not pre-debited, payment services such as supplier payments and direct debits, the BGC system manages all stages of the process, from authorisation to settlement. BGC also sends settlement and credit information to RIX for the distribution of cash to and from banks and post offices.

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<sup>41</sup> Certain types of transaction, such as card purchases and cash withdrawals through ATMs, have also been cleared by other systems before they reach BGC. In these cases, the BGC system only performs the final settlement stage.

Previously, Postgirot was a system that competed with BGC. However, Postgirot was bought up by Nordea in December 2002 and now functions as an internal system for transfers between accounts in Nordea. Postgirot is a participant in BGC, which means that bank giro numbers can now be connected to Postgirot Bank's account numbers and that transactions, with a few exceptions, can be sent between the two systems.

#### TRANSACTIONS USING FINANCIAL INSTRUMENTS

Trade in financial instruments covers transactions with securities, such as equities and bonds, and derivative contracts, such as options and futures. The actual trade in financial instruments is described in more detail in the chapter entitled "The financial markets".

Like other market transactions, trade in financial instruments requires an infrastructure that manages the exchange of payments and information between the parties, that is to say, clearing and settlement of transactions. As mentioned at the beginning of this chapter, transactions with financial instruments, unlike other types of payment, require settlement in two legs: the securities leg and the payment leg. In addition, systems are required to register the financial instruments and keep them in accounts.

In Sweden, there are two systems for clearing financial instruments: VPC for equities and debt instruments, and Stockholmsbörsen for derivatives. Both of these institutions participate in the Riksbank's RIX system, where the payment leg of the deal is settled.

#### *Transactions with equities and debt securities*

In Sweden there are hardly any physical securities at present. Instead, the securities are almost exclusively electronic registrations. The institution which keeps the account in which the various participants' holdings are registered, the central securities depository is therefore very important to the financial infrastructure. In Sweden, VPC acts as central securities depository.<sup>42</sup> VPC registers all transactions arising from issues of, trade in, and pledging of securities. VPC is also the institution that clears and settles transactions in both equities and debt securities.

A transaction using equities or debt securities begins with the investor giving his or her broker an order to buy or sell. The brokers normally trade by acting as counterparty or by seeking a counterparty on a marketplace. When the transaction is completed, the

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<sup>42</sup> Usually designated CSD, which stands for Central Securities Depository.

brokers inform VPC. As part of the clearing process<sup>43</sup>, VPC checks the brokers' identity, that they have agreed on the security, the number, the amount, the payment date, etc. and that the seller can supply the security and the buyer the payment. After this, the information required to make the actual transfers is compiled. Only then can the transfers be made, that is to say, the transaction can be settled.

There are two important ways to avoid unnecessary risks. Firstly, it is important that settlement of both legs of the transaction takes place at the same time. This is known as delivery versus payment.<sup>44</sup> The simultaneity is particularly important in transactions involving debt instruments, for instance, treasury bonds, as there are often large sums involved. Secondly, it is important that settlement should occur in "central bank money", that is to say, that the holdings in the settlement account used to settle the payment stage of the transactions comprise claims on the central bank and not on a commercial bank, which could default.<sup>44</sup>

Since November 2003, each transaction is cleared and settled separately in VPC. The transactions are checked one by one, and settlement occurs by earmarking the seller's securities and the buyer's money in the account and by marking the transaction as ready. There is thus no netting in the VPC system. At this stage, the transfers are irrevocable.

To ensure that settlement of the securities legs and the payment legs occurs simultaneously, and that settlement is in central bank money, VPC administers special accounts in the Riksbank's RIX system. This means that its members can be sure that no credit risks will arise during settlement. To cover the liquidity requirement a clearing member may experience in securities settlement, the member can move liquid funds between the Riksbank accounts that VPC administers and the normal RIX accounts on a number of occasions during the day. The Riksbank can also grant credit on these accounts during the day.

In Sweden the entire process, from a transaction being matched in the marketplace to final settlement, usually takes three days in the equity and fixed income markets. However, for debt securities with maturities of less than one year the entire process only takes two days.

In 2003 the gross figure for equity settlement was around SEK

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<sup>43</sup> Clearing is divided into two separate processes, clearing of equities and clearing of debt instruments.

<sup>44</sup> Usually designated DvP (Delivery versus Payment).

<sup>45</sup> While Sweden, like many other countries, has a government deposit guarantee, this only applies to an amount up to SEK 250,000, which does not cover the risks of professional participants.

15 billion a day. The corresponding figure for the fixed income market settlement was SEK 333 billion. Turnover in the fixed income market is thus much greater than in the stock market. However, there is a much larger number of transactions in the stock market. (See also the chapter "The financial markets").

VPC is owned mainly by the four major banks, each of which owns just less than 25 per cent of the company.<sup>46</sup> The remainder, slightly more than 1 per cent, is owned by other securities institutions. In April 2004, VPC had more than 1,100 affiliated issuers. Of these, around 550 issuers had securities listed on a stock market or other marketplace. VPC registers holdings for approximately 3.8 million investors, who have around 3.9 million VP accounts. There are very few countries where the central securities depository holds accounts for end-investors. In almost all other countries the end-investors must open a custodial account with a broker. In these countries it is only the brokers who have accounts with the central securities depository.

#### *Transactions with derivative instruments*

Transactions with derivative instruments work slightly differently than transactions with equities and debt securities. There are a couple of important differences. Firstly, a transaction with a derivative instrument, unlike an equity or bond deal, does not require a transfer of the right of ownership of any underlying instrument.<sup>47</sup> Instead, a derivative transaction entails the parties entering into a contract whose value is dependent on changes in the value of the underlying instrument. Secondly, a derivative transaction means that the investor has an open position during a longer period of time. There thus arises a risk that the counterparty cannot pay as planned. This risk normally lasts until the derivative contract matures, which may be several months after the contract was signed. It is also only when maturity is reached that the position is settled.

It is precisely to manage the risk that the investor has against the counterparty that Stockholmsbörsen acts as central counterparty in trading standardised derivative contracts and some of the government bond and bills traded via the electronic platform (see also the chapter "The financial markets").

When Stockholmsbörsen acts as central counterparty in the deal between buyer and seller, this means that each transaction is

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<sup>46</sup> At the end of April 2004, VPC and OMHEX agreed to merge VPC with its Finnish equivalent APK. As a result, the four major banks and OMHEX will own almost one-fifth of VPC each.

<sup>47</sup> The underlying instrument can be, for instance, a security, a currency or a commodity.



replaced by two new deals, where the central counterparty is seller to all buyers and buyer to all sellers. As a result of this, the original parties have a claim or a debt, respectively, against/towards the central counterparty instead of each other. Clearing is on a multilateral net basis and the settlement risks the parties would have had against one another are transferred to the central counterparty. This arrangement also entails a concentration of risk on the central counterparty, which must therefore be both financially strong and have risk management routines to be able to deliver securities or cash without delay, even if a member suffers delivery problems.

When derivative contracts are signed, payment flows arise in most cases, such as option premiums. Payments can also arise during the duration of the derivative contract in terms of marginal collateral requirements. These payments are cleared on Stockholmsbörsen and settled in RIX.

When the derivative contract matures, the settlement is either by means of a cash payment or through delivery of the underlying instrument. In the case of cash settlement, the amount is cleared on Stockholmsbörsen and settled directly in RIX. When delivering the underlying security, the security leg of the deal is settled by transferring the financial asset in VPC's system, while settlement of the payment leg is through the accounts in RIX administered by VPC.

#### *Foreign exchange transactions*

Settlement of foreign exchange transactions can give rise to substantial risks. The two legs of a foreign exchange transaction must be settled separately in each currency's home country. As a result, a significant amount of time can elapse between the settlement of the two legs. This causes large exposures between the banks. In order to reduce the risks arising from foreign exchange transactions, Continuous Linked Settlement (CLS) was started in September 2002. CLS enables foreign exchange transactions to be settled on a payment-versus-payment basis, with both legs of the transaction being settled simultaneously. This eliminates the settlement risks.

The system is run by CLS Bank and comes under the supervision of the Federal Reserve Bank of New York. In February 2004, turnover amounted to an average of USD 1,255 billion a day. This is more than four times larger than Sweden's annual gross domestic product, GDP.

Three Swedish banks are direct participants in CLS. The currencies included in the system at present are the euro, the US,

Australian and Canadian dollars, the British pound, the Swiss franc, the Japanese yen, Swedish, Norwegian and Danish kronor and the Singapore dollar. There are plans to increase the number of currencies in the future.

However, not all cross-border payments are made via CLS. A substantial percentage is still made directly between the Swedish banks. It is only the cross-border payments arising directly from foreign exchange deals that are made through CLS. Some of the cross-border payments arises from ordinary payments in a currency other than the domestic one, which requires mediation by banks in other countries. If, for instance, a US bank wants to make payments in SEK on its own behalf or on behalf of customers, the bank opens an account with a Swedish bank, what is known as a correspondent bank. The US bank sends a payment instruction to the Swedish correspondent bank with information regarding the amount and final recipient. The Swedish bank in turn withdraws the stated amount in SEK from the US bank's account. If the recipient of the payment has an account in the same bank as the US bank, the amount is credited directly to this account and the payment has thus been settled. However, if the recipient is another Swedish bank or has his/her account with another bank, the payments must first go through the Swedish payment system and a payment arises in RIX.

#### PAYMENT FLOWS IN THE SWEDISH FINANCIAL INFRASTRUCTURE

After giving an account of the most important systems in the Swedish infrastructure for payments and securities transactions, it is now time to link them all together.

As mentioned at the beginning of the section, RIX is the central hub of the financial infrastructure in Sweden. The daily turnover in RIX amounts to a total of around SEK 450 billion. This means that a week's turnover corresponds to the annual Swedish gross national product, GDP. As also mentioned earlier, the banks account for the largest flows in the RIX system; it is through the banks that households, companies and authorities manage the larger part of their payments. In addition, the banks are major owners in both VPC and BGC.

Figure 6 shows how the payment flows from different types of payment reach RIX, either directly or via clearing in VPC, Stockholmsbörsen, BGC or CLS. The picture shows the payment flows per day in February 2004.

As shown in Figure 6, trade in the fixed income market gives rise to the largest payment flows in the infrastructure. During this period VPC cleared transactions of on average SEK 370 billion a day from the fixed income market and of on average SEK 27 billion a day from the stock market. These amounts were settled in the accounts administered by VPC in the RIX system. The participants in RIX have the possibility to transfer some of their liquidity in the system between the ordinary accounts and the accounts administered by VPC during the course of the day. An average of SEK 48 billion a day passed over this liquidity bridge during February 2004.

Derivatives trading on Stockholmsbörsen generates relatively small amounts. The underlying values can be significant in many cases, but the amount actually settled and thus paid is very limited, compared with other amounts in RIX. The amounts are netted in Stockholmsbörsen's system and only a small part is finally settled in RIX.

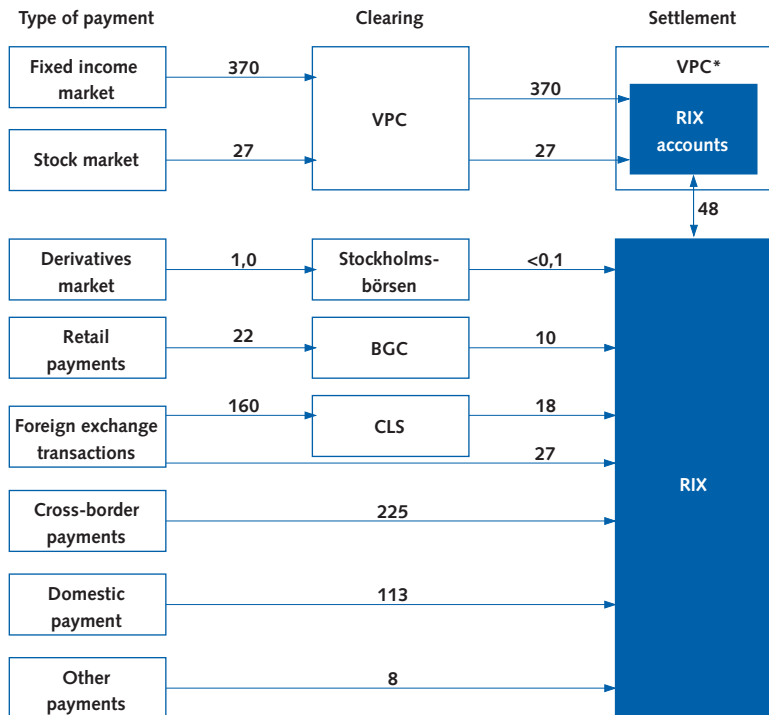
Account-based retail payments are managed through BGC. This covers the majority of all payments to and from individuals and most companies, such as salary payments, card purchases and supplier payments. BGC's system managed an average of SEK 22 billion a day during the period. After netting in BGC, an average of SEK 10 billion remained to be paid between the major banks each day.

Foreign exchange trading can be managed in two different ways, in terms of clearing and settlement. The options are to use CLS, or a bank acting as correspondent bank. The majority of these payments, 160 billion a day during the period, are cleared and netted in CLS. When the amount has been netted, there remains on average only SEK 18 billion a day to be finally settled in RIX. If CLS is not used, the payments go via a correspondent bank. If the payments are passed on to other Swedish banks, they go via RIX. The reported amount for this type of foreign exchange payments was on average SEK 27 billion a day during the period.

One of the largest items in RIX is cross-border payments. These accounted for an average of around SEK 225 billion a day. The correspondent bank model can also be used for these payments. If the recipient Swedish bank has accounts with the foreign bank, no transaction in RIX is necessary. This means that the reported average value of SEK 225 billion a day only covers the payments made between Swedish banks, where one bank has acted as correspondent bank for the other. The total value of cross-border payments is therefore probably much higher.

Domestic payments refer to payments arising in the overnight market as well as purely interbank payments. The overnight market is described in the chapter “The financial markets”. An interbank payment can arise, for instance, when a company needs to make a payment to another company quickly and the sending and receiving companies have different banks. In this case, the payment will go through RIX. An ordinary, smaller payment can go through BGC. If the payment in question is large and of an urgent nature, it can be settled immediately and can then appear in the statistics as a domestic interbank payment.

Figure 6. Payment flows in the Swedish financial infrastructure, SEK billion per day February 2004



\* VPC administers the VPC accounts in RIX for settlement from the fixed income market and the stock market. Sources: The Riksbank, BGC, VPC, CLS, and Stockholmsbörsen.

Note. The statistics in the figure show the flows in RIX. Transactions to and from the clearing organisations employing netting, i.e. CLS, BGC and Stockholmsbörsen, are handled slightly differently in the statistics compared with other payments. A normal gross payment is made as a direct transfer between the two parties. The amount then enters the statistics only once. A payment made via a netting clearing organisation will enter the statistics as two payments; one from the sending bank to the clearing organisation, and one from the clearing organisation to the receiving bank. In order to study the netting effect, i.e. the difference between gross and net flows, the net amounts from the respective clearing organisations to RIX need to be halved, in principle.

**Table A. Total assets and asset composition of financial institutions at year-end 2003**  
SEK billion

	TOTAL ASSETS/ INVESTMENT ASSETS	LENDING TO THE PUBLIC	OTHER LENDING	DEBT SECURITIES	EQUITIES	OTHER
<b>Credit institutions</b>						
Banks	3 280	1 337	897	508	156	383
Mortgage institutions	1 362	1 267	68	5	3	19
Other credit market companies	533	357	34	112	5	26
<b>Total credit institutions</b>	<b>5 175</b>	<b>2 960</b>	<b>999</b>	<b>625</b>	<b>163</b>	<b>428</b>
<b>Investors</b>						
Insurance companies	1 771	39	11	899	696	126
AP funds	594	-	-	215	365	14
Fund management companies	873	-	-	244	445	185
<b>Total investors</b>	<b>3 239</b>	<b>39</b>	<b>11</b>	<b>1 358</b>	<b>1 506</b>	<b>324</b>
<b>Securities companies</b>	<b>51</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>334</b>

Sources: Statistics Sweden, annual reports and the Riksbank.

Note. Column 1 shows the total assets for banks, mortgage institutions, other credit market companies and securities companies, while for insurance companies and AP funds they show investment assets and for securities funds they show the funds managed.

**Table B. Credit institutions' lending to the public**  
SEK BILLION

	TOTAL	BANKS	MORTGAGE INSTITUTIONS	OTHER CREDIT MARKET COMPANIES
<b>1999</b>				
Mar	2 224	952	1 018	254
Jun	2 254	972	1 026	255
Sep	2 264	971	1 033	260
Dec	2 330	1 016	1 050	265
<b>2000</b>				
Mar	2 389	1 073	1 058	259
Jun	2 417	1 094	1 057	265
Sep	2 487	1 149	1 062	276
Dec	2 542	1 189	1 070	284
<b>2001</b>				
Mar	2 644	1 264	1 085	296
Jun	2 717	1 312	1 101	304
Sep	2 786	1 362	1 112	313
Dec	2 765	1 330	1 128	307
<b>2002</b>				
Mar	2 841	1 387	1 141	313
Jun	2 827	1 354	1 156	316
Sep	2 855	1 363	1 169	323
Dec	2 883	1 360	1 188	335
<b>2003</b>				
Mar	2 904	1 359	1 209	336
Jun	2 932	1 352	1 235	345
Sep	2 916	1 321	1 247	348
Dec	2 960	1 337	1 267	356

Source: The Riksbank.

**Table C. Total assets and market shares of credit institutions at year-end 2003**

	TOTAL ASSETS SEK BILLION	MARKET SHARE PER CENT
Banks	3 280	63
Mortgage institutions	1 362	26
Other credit market companies	533	10
<b>Total</b>	<b>5 175</b>	<b>100</b>

Source: The Riksbank.

**Table D. The banks' assets at year-end 2003  
SEK billion**

Lending to Swedish public	993
Lending to foreign public	344
Lending to foreign banks	404
Lending to Swedish financial institutions	493
Debt securities	508
Other	539
<b>Total</b>	<b>3 280</b>

Source: The Riksbank.

**Table E. The banks' liabilities at year-end 2003  
SEK billion**

Deposits from the Swedish public	1 005
Deposits from the foreign public	291
Foreign banks	611
Swedish financial institutions	223
Securities issued	350
Other	675
Shareholders' equity	125
<b>Total</b>	<b>3 280</b>

Source: The Riksbank.

**Table F. The banks lending to and deposits from the public  
SEK billion**

	NON-FINANCIAL COMPANIES	HOUSE- HOLDS	MUNICIPALITIES	NON- RESIDENTS	OTHER INCL. RESIDUAL	TOTAL
<b>Lending</b>						
1998	447	208	28	239	19	941
1999	495	226	35	246	13	1 016
2000	551	259	33	325	21	1 189
2001	644	275	33	359	19	1 330
2002	642	287	33	365	32	1 359
2003	618	292	31	344	53	1 337
<b>Deposits</b>						
1998	271	425	22	169	60	947
1999	313	427	20	141	69	970
2000	360	414	16	247	79	1 117
2001	390	487	18	259	33	1 187
2002	402	520	17	277	26	1 241
2003	387	521	20	291	77	1 295

Source: The Riksbank.

**Table G. The banks' average deposit and lending rates and treasury bill yields**  
Per cent

	LENDING RATE	DEPOSIT RATE	TREASURY BILL YIELD, 6-MONTH
98-12-31	5,94	1,91	3,49
99-03-31	5,47	1,57	2,95
99-06-30	5,27	1,34	3,09
99-09-30	5,23	1,34	3,44
99-12-31	5,53	1,65	3,78
00-03-31	5,76	2,02	4,21
00-06-30	5,71	2,04	4,07
00-09-30	5,79	2,01	4,09
00-12-31	5,82	2,15	4,23
01-03-31	5,80	2,17	3,94
01-06-30	5,84	2,26	4,45
01-09-30	5,72	2,16	3,78
01-12-31	5,55	2,10	3,74
02-03-31	5,65	2,20	4,42
02-06-30	5,94	2,51	4,37
02-09-30	5,95	2,54	4,17
02-12-31	5,63	2,26	3,58
03-03-31	5,44	2,08	3,38
03-06-30	5,03	1,65	2,63
03-09-30	4,81	1,46	2,68
03-12-31	4,79	1,51	2,65

Source: The Riksbank.

**Table H. Mortgage institutions' lending to the public**  
SEK billion

	1998	1999	2000	2001	2002	2003
Single-family dwellings	463	499	511	555	603	673
Apartment blocks	443	428	418	419	415	400
Commercial and office buildings	35	35	37	40	34	33
Tenant-owner apartments	33	44	58	75	96	119
Other	40	42	44	37	40	42
Total	1 014	1 048	1 068	1 126	1 187	1 267

Source: The Riksbank.

**Table I. Mortgage institutions' borrowing**  
SEK billion

	1998	1999	2000	2001	2002	2003
Certificates	66	115	130	136	171	182
Bonds and subordinated loans	762	708	634	604	649	744
Intra-group borrowing	141	169	203	252	237	236
Other borrowing	69	20	14	10	9	9
Total	1 037	1 011	980	1 003	1 066	1 172

Source: The Riksbank.

**Table J. Issuers and investors in the bond and money markets  
SEK billion**

	1998	1999	2000	2001	2002	2003
<b>Issuers in the bond market</b>						
Central government	808	796	719	623	660	732
Mortgage institutions	657	591	505	462	488	549
Other credit market companies	40	38	40	42	45	52
Non-financial companies	85	99	123	146	119	122
Local government	8	8	6	8	26	14
Banks	46	44	39	32	36	46
<b>Total</b>	<b>1 644</b>	<b>1 577</b>	<b>1 432</b>	<b>1 314</b>	<b>1 374</b>	<b>1 516</b>
<b>Issuers in the money market</b>						
Central government	231	250	271	230	240	269
Mortgage institutions	55	88	79	43	88	104
Other credit market companies	16	18	16	16	18	16
Non-financial companies	43	53	55	83	78	51
Local government	5	6	7	7	6	5
Banks	20	36	19	18	32	45
<b>Total</b>	<b>369</b>	<b>451</b>	<b>448</b>	<b>396</b>	<b>463</b>	<b>490</b>
<b>Investors in the bond market</b>						
AP funds	446	370	307	105	93	113
Insurance companies	441	472	462	455	493	542
Banks	231	193	186	141	140	177
Non-residents	231	250	224	290	402	455
Companies and others	295	292	253	323	246	228
<b>Total</b>	<b>1 644</b>	<b>1 577</b>	<b>1 432</b>	<b>1 314</b>	<b>1 374</b>	<b>1 516</b>
<b>Investors in the money market</b>						
AP funds	5	51	98	12	2	2
Insurance companies	40	48	38	46	134	126
Banks	115	88	91	138	141	137
Non-residents	68	72	53	91	75	85
Companies and others	141	192	168	109	111	140
<b>Total</b>	<b>369</b>	<b>451</b>	<b>448</b>	<b>396</b>	<b>463</b>	<b>490</b>

Sources: Statistics Sweden, annual reports (AP funds) and the Riksbank.

**Table K. Use of different payments**

	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Number of transactions, millions</b>									
Cheques	46	40	18	4	4	2	2	1	-
Credit card	42	44	48	53	57	65	74	70	98
Debit card	59	88	121	160	198	256	326	509	668
Paper-based credit transfers	189	196	208	175	171	154	128	132	108
Non paper-based credit transfers	431	441	452	549	626	639	636	239	318
Direct debit	50	54	65	74	85	91	98	119	131
<b>Total</b>	<b>817</b>	<b>863</b>	<b>912</b>	<b>1 014</b>	<b>1 140</b>	<b>1 207</b>	<b>1 264</b>	<b>1 071</b>	<b>1 322</b>
<b>Transactions value, SEK billion</b>									
Cheques	-	-	-	43	30	22	16	14	-
Credit card	38	44	47	52	55	66	71	67	75
Debit card	48	57	77	97	119	143	185	297	286
Paper-based credit transfers	1 946	1 656	1 973	1 407	1 388	1 330	1 190	854	557
Non paper-based credit transfers	4 405	5 076	5 344	8 282	7 231	7 580	6 233	4 140	5 840
Direct debit	194	202	193	210	227	257	261	250	274
<b>Total</b>	<b>6 631</b>	<b>7 035</b>	<b>7 634</b>	<b>10 090</b>	<b>9 050</b>	<b>9 399</b>	<b>7 956</b>	<b>5 621</b>	<b>7 032</b>



**Table L. ATMs and payments terminals**

	1998	1999	2000	2001	2002	2003
<b>ATMs (Bankomat and Minuten)</b>						
Number of ATMs	2 485	2 580	2 617	2 567	2 647	2 676
Number of transactions, million	333	310	321	335	321	328
Transactions value, SEK billion	287	257	271	282	269	280
<b>Payment terminals</b>						
Number of terminals	74 400	81 135	87 133	87 223	102 021	108 055
Number of transactions, millions	171	227	256	326	445	542
Transaction value, SEK billion	92	127	143	185	203	241