The Swedish Financial Market

2010

SVERIGES RIKSBANK

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Production: Sveriges Riksbank
Print: Printfabriken
ISSN 1401-7348

Stockholm 2010

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Preface

The Swedish Financial Market is a description of various roles and functions in the Swedish financial sector. The description is divided into sections on the financial markets, financial intermediaries and the financial infrastructure. It is published once a year and is largely based on annual statistics.

In publishing The Swedish Financial Market, the Riksbank is endeavouring to contribute to increased knowledge of the financial system and its functions. The publication is designed to serve a dual function; as a "reference book" for those needing statistical information and a simple "textbook" for those who wish to learn more about Sweden's financial system. This means that the publication is directed at a broad readership, ranging from professionals to students and members of the general public with an interest in the subject.

The description of the financial markets, which is the first chapter of the publication, is divided into sections on the fixed-income market, the foreign exchange market and the stock market. In addition to an account of how trading takes place, there is a presentation of various marketplaces and the different types of securities traded in these marketplaces, for example shares and bonds. A separate chapter is devoted to important financial intermediaries. These include banks, insurance companies, fund management companies, securities companies and private equity and venture capital companies. There is also a separate chapter that describes the financial infrastructure used for payments and securities transactions in Sweden.

As the title indicates, the descriptions are confined to the Swedish financial sector. This distinction is, at times, difficult to make, as the activities of the financial companies increasingly take place across national borders. However, the report is based on national statistics compiled annually for Swedish financial legal entities. This provides a natural set of Swedish parameters for the publication.

Stockholm, August 2010

Lena Strömberg
Editor

Introduction – The roles of the financial system

The financial system has three main roles: to convert savings into funding, to manage risks and to make it possible for payments to be made efficiently.

CONVERTING SAVINGS INTO FUNDING

Both private individuals and companies need to borrow money. Young people may need to borrow money for investments in housing and education. Companies may need to borrow to fund a project or to realise an invention. At the same time, there are people who want to save for pensions or consumption. There are also companies that want to save for investments.

It would be inefficient if every saver had to seek out and analyse suitable business projects to invest in. It would be equally inefficient if every single entrepreneur had to seek out a large number of potential investors for his or her projects. The financial sector plays a key role in this context by helping to channel savings into investments as efficiently as possible.

The capital market is the supply channel that makes it possible for companies, households, organisations and governments to access capital for investments and operations. Put another way, one could say that this market helps investors to find interesting investment opportunities. The capital market consists of the stock market and the credit market. Governments primarily fund their activities on the credit market, for example by issuing bonds, while companies can also find capital by turning to the stock market. In terms of value, the significance of the stock market in Sweden and many other countries is relatively limited in comparison to that of the credit market. The most usual way for companies and households to gain access to the capital market is to turn directly to a financial intermediary.

A financial intermediary is a specialised middleman, from which all parties can benefit. The clearest example of such a financial intermediary is a bank. Savers who, for example, want to smooth their consumption evenly over their lifetime can deposit money in a bank account and withdraw it (plus interest) at a later date. They can also invest their money in shares or debt securities, or in funds on the global market. This in turn means that the banks must to a greater extent turn to the

global interbank and securities markets to fund their operations. The money that comes into the banks in the form of deposits and other funding is mediated to companies and private individuals that need to borrow. Banks are specialists in valuing, monitoring and managing credit risks for the private individuals and in the companies to which they lend. Banks can make use of *economies of scale*, while, at the same time, solving the saver's problem of *asymmetrical information*,[1] which means that the saver (the lender) and the borrower do not have the same access to information. With a bank as an intermediary, the borrower or entrepreneur does not have to convince the lender of their own or their project's creditworthiness, it is sufficient to convince the bank alone. Similarly, the saver does not need to determine the creditworthiness of every borrower; it is enough to be convinced that the bank can meet its obligations. The financial sector – in this simplified case represented by a bank – thus contributes to a more efficient allocation of capital in the economy. Other examples of financial intermediaries are mortgage institutions and finance companies.

However, it is not always the financial intermediaries that are the most efficient means of distributing funding. Companies can also turn directly to the capital market. By issuing bonds and other money market instruments, companies can borrow capital on the fixed-income market. Funding can be provided even more efficiently by using these standardised securities that can be easily bought and sold on a market.[2] Organised trading in securities with clear regulations and a high degree of standardisation contributes to an efficient market and effective pricing. When many participants monitor, analyse and trade in the instruments sold in the market, the overall level of information and transaction costs can be reduced. This in turn makes it easier to assess the value of a financial service, such as a loan, and thus set a price for it. At the same time, the risk borne by investors decreases because day-to-day trading makes it easier to sell securities.

Some common examples of standardised securities are shares, bonds and money market instruments. In simple terms, the *issuers* of bonds and other debt instruments correspond to the banks' borrowers. By issuing various securities they can obtain cheaper funding for their projects than would have been available by borrowing from a bank.

Unlike bonds and other fixed-income instruments, shares do not generate interest. Instead, they represent shares in a company and

[1] Asymmetrical information arises when a lender does not have sufficient information to make a rationally based decision on lending money to a borrower.
[2] Securities is an overall term for shares, bonds and other financial instruments that represent an economic value and that can be traded.

the return is determined by the future profits of the company. Given that these profits may vary considerably over time, those who invest in shares normally accept a higher risk than investors in, for example, government bonds. At the same time, the return can be substantially higher. Thus, unlike the fixed-income market, the stock market is a market for venture capital.

MANAGING RISKS

Financial intermediaries perform an important function in an economy's capital supply system, partly in their role as credit institutions and partly as investors where to a great extent they manage money on behalf of others. Credit institutions, such as banks are, unlike companies and households, specialists at assessing credit risks.

Both companies and private individuals need to protect themselves against different kinds of risk. Individuals, for example, may need to insure themselves against fire or theft. They can do this by using the products offered by property and liability insurance companies. They may also need to secure their livelihood after retirement or provide for their survivors in the event of premature death. They can do this by taking out life assurance and pension insurance policies with life assurance companies. Insurance companies are financial intermediaries specialising in the assessment and management of insurance risks.

Companies may also need to protect themselves against different types of financial risk. These may relate, for example, to undesirable changes in commodity prices or in exchange rates. Financial companies that fund their operations on the global securities market need to protect themselves against interest-rate or exchange-rate risks. On the financial markets it is therefore possible to trade in contracts that are specially designed to manage risks of this kind, so-called derivatives. These derivatives include options, forwards, and swaps.

A fund management company is an example of an intermediary that helps households to manage their savings efficiently. By capitalising on economies of scale, fund management companies can construct portfolios of securities (mutual funds) where the risks of each individual security can be spread (diversified). The financial sector does not thus simply play a role in the mediation of capital, but also contributes to more effective risk management.

EFFICIENT AND SAFE PAYMENTS

In addition to mediating capital flows and managing risks, the financial companies create the conditions for the more efficient processing of

payments in the economy. By using the existing financial infrastructure, the banks can support private individuals and businesses with different types of payment service. Such services include accounts and different routines for making payments between different financial institutions. Charge cards, credit cards and transfers between accounts are now common, enabling 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.

THE INTERACTION OF INTERMEDIARIES, MARKETS AND AUTHORITIES

It is in the interest of society that the financial markets as a whole function safely and efficiently for private individuals, companies and other market participants. The interaction between intermediaries and markets is fundamental for this. The commercial banks, in their role as intermediaries, are central to the financial system. However, the operations of the banks are special in several ways. As banks in Sweden normally fund their operations at short maturities on the securities market and lend money at longer maturities, liquidity risks arise as a natural part of their operations. This means that liabilities fall due more frequently, and must therefore be rolled over more frequently, than assets. Banks are accordingly very dependent on the availability of funding. As a large part of the funding is secured via the financial markets, the banks are also dependent on liquid markets.

Liquidity shortages arise on the securities market when the assets become illiquid, that is when the value of the assets traded on the market has become so uncertain that the market participants hesitate to quote prices, and in some cases refrain from doing so. In other words, it becomes problematic to convert securities into liquid funds. This in turn may lead to funding problems for companies and banks that are dependent to obtain market funding. Market participants may have problems adjusting their financial positions and valuing their holdings, which complicates their portfolio and risk management.

Banks also fund their operations by borrowing from each other. This means that problems at one bank can easily spread to other banks. Uncertainty about the creditworthiness of a bank's loan portfolio may therefore make it difficult for the bank to get funding. A bank can reduce its credit risk by choosing its borrowers carefully. However, the liquidity risk is more difficult to manage as it is dependent on the market at large and on the depositors' confidence in the bank. The

banks' increased dependence on markets for their risk management and funding means that they are also more sensitive to liquidity problems in these markets.

Liquidity shortages have arisen on a number of occasions. This happened, for example, during the stock exchange crash of 1987, when the hedge fund LTCM failed in September 1998 and in conjunction with the terrorist attack on the World Trade Center on 11 September 2001. Uncertainty on the market has periodically been very high since the current financial turbulence started during the autumn of 2007. This has led to great strains being placed upon liquidity and to trading on a number of markets ceasing entirely, at least temporarily — thus leading to a shortage of liquidity.

The stability of the financial system is based on the confidence of both companies and private individuals. A loss of confidence can make it difficult for the banks to undertake their operations, in which case the system will be in danger. The basic requirements for confidence are sound institutions and efficient markets.

A serious crisis in the financial system is liable to entail extensive economic and social costs. The authorities have an important role to play in the financial system in avoiding or, when necessary, managing such situations. One of the Riksbank's main tasks is to "promote a safe and efficient payment system", the Riksbank therefore continually analyses risks and threats to the stability of the financial system, both as a preventive measure and in crisis situations. The interaction between various authorities is critical both in this preventive work and in crisis management. The Riksbank therefore cooperates closely with Finansinspektionen (the Swedish Financial Supervisory Authority), the Ministry of Finance and the Swedish National Debt Office. The same applies to international cooperation as financial companies increasingly operate across national borders.

The financial markets

The chapter below describes the financial markets categorised as the fixed-income market, the foreign exchange market and the stock market. Nowadays, Swedish banks and companies operate to a great extent on global financial markets, but in this chapter the description is limited to the Swedish financial markets alone. The chapter describes how trading on the different markets works and the securities and instruments that are traded on the respective markets.

The fixed-income market

Unlike the stock market, the fixed-income market is a market for trading instruments that yield a specific predetermined return, an *interest rate*. Considerably fewer transactions are conducted on the fixed-income market than on the stock market, but they usually involve substantially larger sums.

The fixed-income market is often divided into a bond market and a money market. The bond market comprises trade in securities – bonds – generally with maturities of one year and longer. Trading on the money market comprises, for example, treasury bills and certificates, usually with maturities of up to one year.

The participants are largely the same on these two markets, primarily central governments, mortgage institutions, banks and large investors such as insurance companies. Issuance and trading are also conducted in a similar way, except for the instruments with the very shortest maturities.

On the other hand, the purposes underlying trading in the various submarkets for bonds and money market instruments differ somewhat. In simple terms, the main purpose of the bond market is to channel long-term savings from certain participants to others in need of capital. The most important function of the money market is instead to facilitate the investment of surpluses and to mediate short-term funding. In the most short-term segment of the money market (maturities ranging from one day to one week), the instruments are used to carry out daily adjustments of deficits and surpluses in the transaction accounts of the market participants. As a large part of the turnover takes place in this segment, often with special contract arrangements, this area of the money market is described in more detail later in this section.

Debt instruments are traded on the *spot market for debt instruments*, where payment and delivery take place immediately or within a few days of agreement on the transaction. As a complement to the instruments in the spot market, *derivative instruments*[3] are also traded with debt securities as the underlying asset. These derivative instruments help the participants in the fixed-income markets, for example, to diversify and manage risks. They also enable the participants to change the maturities of their fixed-income portfolios. As a result, investors are, in practice, unconstrained by whether a security was originally issued with a short or long maturity. This publication, however, makes a simplification for illustrative purposes. The description of the bond and money markets is divided up on the basis of the original maturities that characterise the securities described.

THE BOND MARKET

The bond market brings together managers of long-term savings with those that need to borrow capital. Trading takes place in debt securities – bonds – usually with maturities of one year and longer.

A bond is a debt instrument in the form of an agreement to lend money that is subsequently repaid with interest. It may be simply transferred between holders. A bond with several part payments[4] (coupons) over its term is known as a coupon bond. Bonds that do not have any coupon 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 linked to developments in the inflation rate.

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 provides capital directly to the issuer of the bond. Thus, the issuer is a borrower in the market.

The predominant borrowers in the bond market are the central government and the mortgage institutions, but municipalities and companies can issue bonds too. Bonds tend to be issued by those with long-term funding requirements. Investors on the bond market are also often interested in longer-term holdings (savings).

[3] "Derivative instruments are contracts that are linked to various securities as underlying assets, and that are entered into (and traded) by the participants in the secondary market. The most common derivative instruments traded on the fixed-income market include interest forwards, interest options and interest swaps." *Termer i Nationalekonomi*, Dickson, Luukkainen and Sandelin, 1992.

[4] Interest payments.

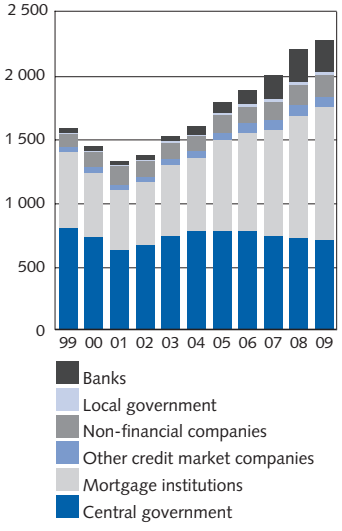
Investors who have bought bonds at issue can choose to resell them in the secondary market. On an effective secondary market turnover is high and it is easy to buy and sell various securities. High turnover on the secondary market also makes these bonds more attractive to investors on the primary market. A high demand for bonds on the primary market in turn reduces the borrowing costs of the issuers as it means that the interest rate will be lower.

Bonds are also used in so-called repo transactions, in which the holder aims to acquire liquidity by lending the bonds. The market for these repo transactions is actually larger than that for spot transactions in the same securities (see the section on repos).

Issuers on the bond market in Sweden

At year-end 2009, the total volume on the Swedish bond market amounted to SEK 2 265 billion, which was SEK 80 billion more than the previous year. The term Swedish bond market refers to the market for bonds issued by Swedish issuers in SEK. Swedish participants can also turn to the international markets to gain access to capital. In these

Chart 1. Issuers in the bond market in Sweden
SEK billion



Note. Outstanding nominal amounts.
Sources: Statistics Sweden and the Riksbank

cases, issuance is conducted in other currencies and are then converted into SEK.[5]

The largest issuers on the Swedish bond market are the central government and the mortgage institutions. They represent 31 and 46 per cent respectively of the total volume issued. Central government borrowing is used to finance the national debt.[6] At year-end 2009, the outstanding stock of government bonds consisting of nominal and real bonds amounted to approximately SEK 703 billion, a decrease of approximately SEK 14 billion compared with 2008 (see Chart 1). The decrease in the government's borrowing in SEK is mainly explained by the fact that borrowing in other currencies has increased.

The mortgage institutions primarily issue bonds to fund the loans (mortgages) provided to Swedish households in connection with the purchase of housing. Total borrowing by the mortgage institutions[7] in 2009 rose by around SEK 83 billion, to SEK 1 035 billion by year-end. A large part of the outstanding stock of mortgage bonds consists of so-called covered bonds. Covered bonds give the holder priority right to compensation in the event of the issuer being declared bankrupt (for further information, see the box Covered bonds in Sweden).

The banks' borrowing on the bond market was marginally lower at year-end 2009 compared to 12 months previously. The outstanding volume amounted to SEK 256 billion at the end of the year.

[5] As a rule, issuance conducted in other currencies are converted into SEK via derivatives, primarily currency swaps (see the box Covered interest rate parity). Balance of payment statistics from Statistics Sweden show that the volume issued in foreign currencies amounted to over 52 per cent of the total lending volume at the end of 2009. The equivalent figure for the money market is 56 per cent. It is primarily financial institutions that secure funding in foreign currencies.

[6] The Swedish National Debt Office manages central government borrowing on the bond market.

[7] Most banks have mortgage institutions that manage borrowing in the form of mortgage bonds. The exception is SEB. SEB bolån was merged with SEB in 2007 and the mortgage bonds issued by the bank thus also fall within the "banks" category.

Covered bonds in Sweden

Swedish banks' primary source of funding to meet the public's mortgage requirements are so-called covered bonds. These have been issued by Swedish banks and credit market companies since 2006 in order to offer the public mortgages, in particular, at a competitive rate.[8] However, traditional mortgage bonds have been issued by the Swedish mortgage institutions since the second half of the 1980s. The difference between traditional and covered bonds is that the holder of a covered bond has a priority claim to specially-selected collateral, the so-called Cover Pool. This Cover Pool consists of various types of mortgages and of loans to central governments and municipalities.

Seven Swedish banks or their mortgage institutions have permits from Finansinspektionen to issue covered bonds. The outstanding volume is approximately SEK 1 035 billion. The issuing institution continually issues bonds on the Swedish market for covered bonds under the terms and conditions that apply to the respective bond loans. This issuing procedure is known as *"on-tap"* and also occurs in other countries, for example Denmark.

Covered bonds represent 30 per cent of the four major banks' total amount of outstanding issued securities in SEK and easily comprise the greatest source of funding for mortgages.[9] There are several advantages with covered bonds.

First, they are governed by a modern and well-defined regulatory framework that ensures that the Cover Pool is of high quality. This regulates, for instance, the maximum loan-to-value ratios in the Cover Pool, what types of collateral can be included in the Cover Pool and how this may be composed (see Table 1). In addition, the issuer must keep a register of the covered bonds and the

[8] It has, however, been possible to issue covered bonds since 2004. For more information see The Swedish Financial Market, 2009.

[9] If the major banks' borrowing in currencies other than kronor is included, the percentage of covered bonds amounts to 40 per cent. Approximately 80 per cent of the banks' borrowing via covered bonds is in kronor, while most of the remaining 20 per cent is in euro. In addition to the borrowing mentioned in this publication, Swedish banks borrow within the framework provided by similar regulations in other countries. Borrowing under the Swedish regulations for covered bonds can, however, take place in currencies other than kronor, for example euro.

assets in the Cover Pool. This register must be updated daily. The regulations also require that an independent examiner, appointed by Finansinspektionen, oversees the operations and ensures that the Cover Pool meets the requirements. It is essential that the Cover Pool is of high quality to meet the purpose of the covered bonds. At present, work is underway to increase transparency and comparability between the way the institutions calculate average leverage in the Cover Pool.[10]

Secondly, the holder of a covered bond has a priority claim on a specific pool of assets (the Cover Pool) if the issuing institution should suspend payments. This means that covered bonds differ from traditional corporate bonds where the holder only has a claim on the issuer.

Thirdly, the Cover Pool linked to the covered bond is dynamic. This means that collateral that is not up to standard is removed from the Cover Pool and can be replaced with new.[11]

Fourthly, covered bonds have the characteristic that the credit risk remains on the balance sheet of the institution that issued the original loan, which naturally increases the incentive to carefully assess the credit risk in the Cover Pool.

There is thus good reasons to regard the creditworthiness of covered bonds as high. As the holder of a covered bond has a priority claim on a specific Cover Pool, it is reasonable that the credit risk is primarily assessed on the basis of the credit quality of the Cover Pool and not on the basis of the issuing institution's credit rating. For the same reasons, the current price differences between covered bonds issued by different institutions can mainly be justified by differences in the liquidity risk relating to bonds from the different institutions.

To sum up, covered bonds thus entail a lower risk for the buyer than regular bonds, but also a lower interest rate for the borrower (the mortgage institution). Ultimately this results in a lower interest rate for the end customer, for example a mortgage customer.

[10] This work is partly being conducted within The Association of Swedish Covered Bond Issuers, www.ascb.se.
[11] This is not the case with, for instance, Residential Mortgage-Backed Securities (RMBS), which are securities that also have mortgage loans as underlying collateral. Nor is an RMBS covered by the same standardised regulatory framework; it is regulated by specific agreements between the parties in the transaction. RMBS exist in the US, for example but not in Sweden.

Table 1. Loans that can be included in the collateral volume for a covered bond

TYPE OF COLLATERAL	HIGHEST LOAN-TO-VALUE RATIOS, PER CENT	MAXIMUM SHARE OF THE COVER POOL, PER CENT
Mortgage loans for housing purposes	75	100
Mortgage loans in property for agricultural purposes	70	100
Mortgage loans in property for commercial purposes	60	10
Public loans to local or central government	100	100
Complementary collateral, such as liquid claims on central and local government	100	20

Source: Covered Bonds Issuance Act (2003:1223)

Non-financial companies, for example industrial enterprises, may also raise capital by issuing bonds. At year-end 2009, borrowing by non-financial companies in the Swedish bond market totalled just over SEK 268 billion. This was an increase of around SEK 95 billion compared with the previous year. Municipalities and county councils may also use bonds to fund their operations and investments. However, only a small number of municipalities and county councils (five municipalities and one county council) had outstanding listed bond loans in their own name at year-end 2009. Of these six, the City of Stockholm had the largest outstanding volume, followed by Stockholm County Council, the Municipality of Södertälje, the Municipality of Sundsvall, the Municipality of Uppsala and the Municipality of Täby. At year-end, their total borrowing amounted to approximately SEK 8.5 billion.

The other municipalities and county councils, totalling 241 municipalities and seven county councils, had outstanding bonds loans in association with Kommuninvest, a joint owned credit market company.[12] At year-end 2009, Kommuninvest's lending to the municipalities affiliated to the company amounted to SEK 124 billion. In order to fund its lending to the municipalities, Kommuninvest issues bonds in Swedish kronor. Together with the borrowing of other credit market companies, the outstanding amount of issued bonds totalled SEK 75 billion at year-end 2009.

Investors in the bond market

At year-end 2009, insurance companies were the category of investors with the largest holding in SEK in the bond market. At that point, holdings of bonds by insurance companies had also risen by just over SEK 290 billion to SEK 1 125 billion (see Chart 2). The insurance companies thus accounted for approximately 50 per cent of the total amount outstanding on the bond market at year-end 2009.

At the same time, foreign (non residential) investors[13] had holdings on the bond market totalling almost SEK 466 billion. This is a decrease of more than SEK 30 billion, compared with the previous year. The banks' bond holdings remained relatively constant at just over SEK 470 billion between 2008 and 2009. Companies and others[14] reduced

[12] Credit market companies are finance companies that fund their activities with money from the public. These companies are under the supervision of Finansinspektionen (the Swedish Financial Supervisory Authority) and are covered by the deposit guarantee scheme. More information is available at www.fi.se.
[13] No detailed information exists as to which types of foreign investor make up the category "non-residential" in statistics for the balance of payments issued by Statistics Sweden (SCB). It is likely that major foreign pension funds represent a major share of this category.
[14] The category "Companies and others" is a heading for residual items in the figures provided by Statistics Sweden on investors in the bond market and is derived from the difference between the outstanding stock of securities on the bond market and the holdings of major investors.

their bond holdings by SEK 175 billion between 2008 and 2009 to SEK 74 billion.

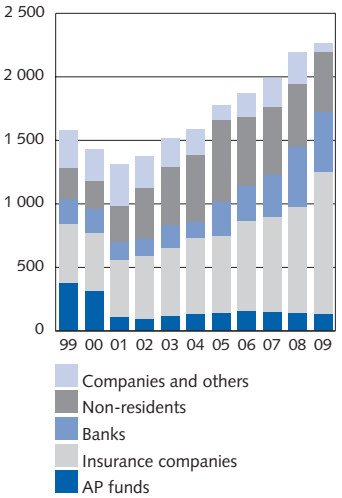
The Swedish bond holdings of the AP funds (the Swedish national pension funds) have decreased considerably over the years. Their holdings on the bond market totalled SEK 129 billion at year-end 2009. Compared with the AP funds' holdings on the bond market at year-end 2000, this is equivalent to a decline of over 50 per cent.

Turnover in the bond market

The Riksbank compiles statistics on the turnover of government bonds and mortgage bonds from its primary monetary policy counterparties[15] (see the box: Riksbank facilities for short-term borrowing and deposit requirements). These counterparties are largely the same as the Swedish National Debt Office's dealers in government bonds.

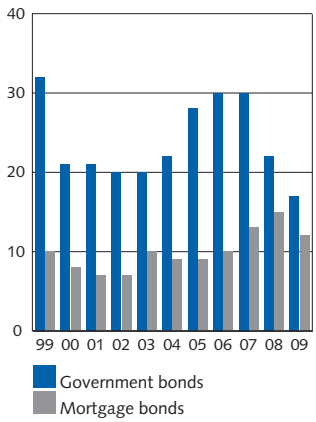
The statistics show that turnover on the bond market decreased from approximately SEK 37 billion per day in 2008 to an average of almost SEK 29 billion per day in 2009 (see Chart 3). It is primarily the turnover in government bonds that declined during the financial crisis in 2008-2009. From a level of around SEK 30 billion per day in 2005-2007, turnover has fallen over the last two years to

Chart 2. Investors in the bond market
SEK billion



Sources: The AP funds, Statistics Sweden and the Riksbank

Chart 3. Average daily turnover in the bond market
SEK billion



Source: The Riksbank

[15] More information on the Riksbank's counterparties is available at www.riksbank.com.

SEK 17 billion per day in 2009. The turnover in mortgage bonds fell by slightly more than SEK 3 billion per day to SEK 11 billion per day in 2009.

The main explanation for the fall in turnover is that many investors chose to retain government bonds in their portfolios due to the financial crisis. The demand for government bonds usually increases during periods of financial turmoil as investments in securities issued by the central government are safer than other bonds.[16]

Government bonds are primarily bought and sold In the secondary market. In 2009, over 90 per cent of all the transactions in government bonds were conducted on the secondary market, while less than one per cent took place on the primary market, that is in the form of new issues.

Alongside the institutional trading in bonds, trading also takes place in private bonds. A private bond is a debt security primarily aimed at private individuals and other small investors. They are listed on NASDAQ OMX Stockholm or NDX (Nordic Derivatives Exchange). Unlike institutional trading, this trading is conducted electronically. The most common private bonds are structured products such as index-linked bonds and subordinated debentures. Even though private bonds are a popular saving strategy among private investors in particular, both the total outstanding volume and turnover of these bonds are minor compared with other debt securities.

THE MONEY MARKET

The *money market* is a collective term for markets for interest-bearing assets that are usually issued with maturities of up to one year.

One important task of the money market is to facilitate liquidity management for the participants in the economy. For example, banks need to maintain a state of preparedness for future deposits and payments. The banks therefore invest in various assets depending on their assessments of future payments. These investments can then easily be converted into liquid funds when the payments fall due.

The money market is smaller than the bond market. Over the last ten years, the outstanding volume in money market securities has, on average, amounted to approximately 30 per cent of the outstanding volume of securities on the bond market.

[16] The phenomenon of increased investments in securities issued by central governments during periods of turmoil is also commonly known as 'flight to quality'.

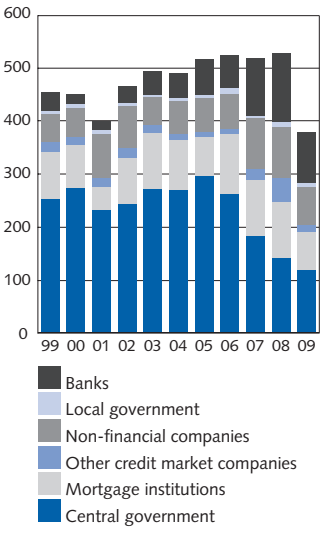
Issuers in the money market in Sweden

The value of the total outstanding stock of securities in the money market was almost SEK 375 billion at year-end 2009. Thus is equivalent to a decrease of as much as SEK 150 billion, compared with last year. All of the categories of issuers reduced their volumes.

The issuers on the money market are the same as those on the bond market. Central government borrowing on the money market takes place through treasury bills. Other institutions borrow by issuing certificates such as bank certificates and mortgage certificates.

A treasury bill[17] is a debt instrument that represents a short-term claim on the state that can be bought and sold on the money market. Treasury bills are issued by the Swedish National Debt Office. Among other uses, treasury bills are used to manage fluctuations in the government's short-term borrowing requirement. They play a dominant role in the money market, even though the outstanding volume has decreased in recent years. In 2009, treasury bills accounted for over 30 per cent of the outstanding stock of short-term securities (see Chart 4), compared with 27 per cent in 2008. However, the outstanding volume decreased by SEK 24 billion and amounted to approximately SEK 115 billion at year-end 2009. In early 2009, there were more out-

Chart 4. Issuers in the money market
SEK billion



Sources: Statistics Sweden and the Riksbank

[17] The treasury bill is constructed as a zero-coupon bond, i.e. a security without interest payments during the term of the bill.

standing treasury bills than motivated by the government's lending requirement. This is because the Swedish National Debt Office offered additional treasury bills due to the financial crisis however these matured in March 2009.

A certificate is the same kind of debt instrument as a treasury bill but is issued by banks and companies, for example. The short-term borrowing of banks, mortgage institutions and non-financial companies decreased in 2009.

The banks' short-term borrowing fell by SEK 33 billion to SEK 96 billion in 2009, after increasing for two consecutive years. The short-term borrowing of the mortgage institutions also declined. In 2009, borrowing through certificates amounted to SEK 72 billion. The corresponding sum in 2007-2008 was approximately SEK 105 billion. The primary aim of the mortgage institutions' short-term borrowing is to match their lending to customers and thus manage their interest rate risks.[18] The borrowing of the non-financial companies also fell between 2008 and 2009. Their borrowing amounted to SEK 73 billion at year-end 2009.

The borrowing volume for "other credit market companies" fell substantially, that is by approximately 73 per cent, in 2009. The outstanding volume amounted to SEK 12 billion at year-end 2009 compared to SEK 45 billion at the end of 2008. The municipalities' borrowing amounted to SEK 6 billion at year-end 2009, which represents a fall of SEK 3 billion since 2008.

Investors in the money market

Investments in the money market declined among all categories of investors between 2008 and 2009. Banks, for example, reduced their holdings in money market securities by over SEK 14 billion to SEK 119 billion. Nevertheless, the banks' holdings constituted one third of the total money market at year-end 2009 compared to one quarter 12 months previously. The insurance companies' share of the market was approximately 9 per cent. Their investments decreased by approximately SEK 9 billion in 2009 to just over SEK 33 billion compared with the end of the previous year.

[18] 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' funding and their lending to households, the institutions issue bonds and subsequently enter into swap contracts to obtain short-term interest bonds. Mortgage institutions also borrow from their parent banks. For further information, see the description of swap contracts in the sections Derivatives in the fixed income market and Frequently used instruments in the Swedish foreign exchange market.

The AP funds are also almost entirely absent from the money market. At the end of 2009, the funds had only SEK 4 million invested on this market. It is worth noting that the AP funds have greatly reduced their holdings in short-term fixed income securities since 2000, while the other sectors have increased their holdings.

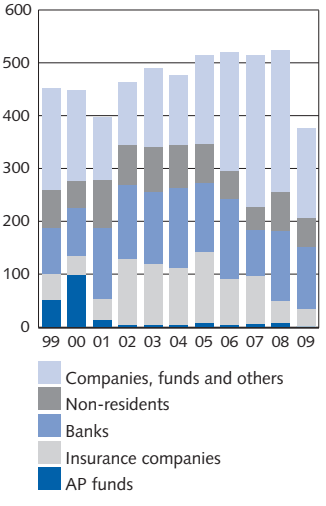
The non-residential investors[19] reduced their holdings by almost SEK 20 billion. At the end of 2009 they owned securities on the money market to a value of almost SEK 54 billion, which constituted just over 14 per cent of the market's total volume at that time.

Companies, funds and others[20] reduced their investments for the second consecutive year in 2009, by around SEK 99 billion to approximately SEK 169 billion (see Chart 5). Together, these investors have the largest holdings on the money market. At the end of 2009, this sector controlled almost half of the outstanding stock of short-term debt securities.

Turnover in the money market

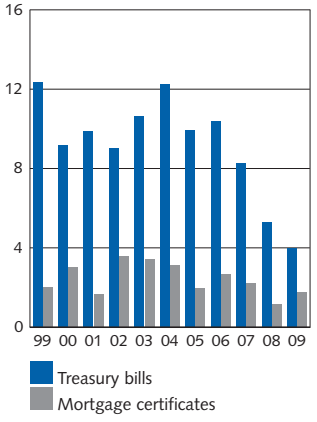
According to the statistics obtained by the Riksbank from its primary monetary policy counterparties, the turnover in treasury bills and

Chart 5. Investors in the money market
SEK billion



Sources: The AP funds, Statistics Sweden and the Riksbank

Chart 6. Average daily turnover in the money market
SEK billion



Source: The Riksbank

[19] No detailed information exists as to which types of foreign investor make up the category "non-residential" in statistics for the balance of payments issued by Statistics Sweden (SCB). However, it is likely that major foreign pension funds represent a major share of this category.

[20] The category "Companies, funds and others" is a heading for residual items in the figures provided by Statistics Sweden and is derived from the difference between the outstanding stock of securities in the money market and the other sectors' holdings of these securities.

mortgage certificates continued to decrease in 2009 (see Chart 6). The turnover in treasury bills and mortgage certificates accounted for 16 per cent of the total turnover in government and mortgage securities. This can be compared to the average for the last ten years when these short-term securities have constituted approximately 25 per cent of the government and mortgage securities.

The outcome for the turnover statistics can partly be explained by the fact that the money market has shrunk in comparison with the bond market, measured in terms of outstanding volumes. The decline in turnover on the money market in 2009 is, however, primarily due to a lower level of activity on the secondary market. Here the turnover in Swedish treasury bills amounted to SEK 2.7 billion, which was the lowest turnover level for more than a decade.

Investors chose to keep treasury bills in their portfolios to a great extent. Like government bonds, these short-term government securities are considered to entail a low level of risk in times of financial uncertainty.

However, the turnover in mortgage certificates also declined somewhat. On the secondary market, turnover fell from an average of SEK 1.1 billion per day to slightly less than SEK 1 billion per day between the end of 2008 and the end of 2009.

ISSUANCE AND THE TRADING STRUCTURE ON THE FIXED-INCOME MARKET

The issuance and trading of securities functions in approximately the same way on the bond and money markets. The description below therefore applies to securities on both of these markets. However, different trading regulations (market conventions) apply on the two sub-markets. These trading regulations are described in more detail in Appendix 2.

Issuance

Government bonds and treasury bills are issued and sold via auctions, in which authorised dealers for the Swedish National Debt Office participate. These dealers comprise a number of banks and financial institutions with which the Swedish National Debt Office has signed contracts. At present, there are six or seven such dealers depending on the form of security to be auctioned. In their contracts, the dealers undertake to act as *market makers*. Acting as a market maker on this market involves a commitment to submit bids for every issue and to set prices for customers for the securities issued by the state. The Debt

Office also sells treasury bills in already existing loans on an ongoing basis, a process known as *on-tap* sales. On-tap sales are used for short-term liquidity management (up to six weeks). The Debt Office can customise the maturity of a treasury bill according to its borrowing requirement by choosing both the date of issue and maturity.

Mortgage institutions also issue their bonds and certificates through authorised dealers, which consist of banks and securities companies. In this case, however, no auctions are held. The bonds and certificates are instead sold on an ongoing basis according to the borrowing needs of the mortgage institutions, i.e. on-tap sales.

Companies often have agreements with one or more banks on borrowing programmes, in which they issue bonds and certificates on specific predetermined terms. As previously mentioned, companies and banks also issue securities abroad and then convert these loans to SEK using derivatives (see the box on Covered interest rate parity).

Alongside the corporate issuance aimed at large groups of investors, there is also a market for *private placements*. These often involve bond loans that are issued in their entirety to one or a small number of investors. The terms are subject to negotiation and the issues are largely designed to meet the wishes of the investors. It has become increasingly common for companies to opt for this form of bond borrowing.

Trading structure

There is also an active secondary market in the fixed income market. Certain debt securities have a more active secondary market than others. Government bonds are the type of debt security that has the highest turnover. This is because these are issued in large volumes and are exposed to low credit risk.[21] Mortgage bonds also have a relatively good turnover on the secondary market. Corporate bonds, on the other hand, are usually retained by investors until maturity, resulting in a lower turnover on the secondary market. Securities in the money market, treasury bills and other certificates are also retained in the portfolio for their entire terms. Moreover, turnover on the money market has generally decreased in recent years (see the section on Turnover on the money market above).

[21] In this context, credit risk refers to the risk of failure by the issuers of bonds to fulfil their contractual obligations. When the Swedish state is the issuer of the bond, this risk may be considered minimal.

Trading in government bonds is still conducted largely by telephone, although electronic trading does take place on a limited scale.[22] At present, electronic trading covers three benchmark bonds[23]. The electronic trading system is known as SAXESS.

The dealers act as intermediaries in bond trading. The dealers can be described as *interbank participants* and the trading that takes place between these dealers is normally referred to as *interbank trading*. Trading by the dealers with other counterparties, for example industrial enterprises or insurance companies, is referred to as *customer trading*.

Sometimes, there may be a need for trading to take place anonymously. For this purpose, there are special intermediaries known as *brokers*. Interbank participants may, for example, declare their interests through a broker to avoid having to reveal them to their competitors. Brokers are normally well-established international brokerage companies, whose only clients are institutional participants. Brokers do not trade on their own behalf. Trading via brokers has increased in recent years.

A majority of the dealers in government securities are also dealers in securities issued by mortgage institutions. Trading in corporate securities is, on the other hand, relatively limited in Sweden. It is therefore uncommon for both bid and ask prices to be quoted in the trading systems on a regular basis. It is rather the case that prices for corporate bonds are quoted in response to a client's request.

CONTRACT TYPES FOR THE MONEY MARKET'S SHORTEST SEGMENT

Ordinary securities are less practical when maturities in the money market are reduced to a week or even less. The market participants use other contract solutions instead, such as *deposit contracts* and *repos* (see the relevant sections below for the various contracts). These standardised contracts offer the participants greater flexibility in borrowing or investing at the shortest periods of maturity.

The Riksbank can also provide deposit and lending facilities for the shortest periods of maturity (although the conditions offered may be less favourable, as is explained below). Participants in the Riksbank's payment system RIX[24], who have a monetary policy counterparty agreement with the Riksbank may take advantage of a number of sep-

[22] The electronic platform for fixed-income trading was introduced in May 2001, as a result of collaboration between the interbank participants, NASDAQ OMX Stockholm and the Swedish National Debt Office.
[23] Benchmark bonds consist of the most frequently traded government bonds, with maturities of two, five and ten years.
[24] See the section on RIX in the chapter The financial infrastructure.

arate facilities for depositing or borrowing money at short maturities. The Riksbank can meet the short-term borrowing or investment needs of the market participants by offering intraday facilities, fine-tuning operations standing facilities, monetary policy repos or certificates (see the box on the Riksbank's facilities for short-term borrowing and investment needs).

The overnight market is especially important for evening out the banks' daily deficits and surpluses in their transaction accounts in the RIX payment system. These imbalances arise when the banks' incoming and outgoing payments do not match one another in time and when unforeseen payments arise during the day. While the banks make forecasts in order to assess the need for liquidity to carry out their payments, customers' business transactions and transfers by portfolio managers and other financial participants within their foreign exchange and securities portfolios may create further imbalances that may need to be adjusted during the day.

Because the Riksbank, along with the market participants, offers its counterparties facilities for borrowing or depositing funds at predetermined interest rates, a potential alternative always exists to the interest rates offered by the market.[25] The market participants therefore have an incentive to determine a rate within the corridor formed by the deposit and lending rates offered by the Riksbank.[26] In this way, the terms for the overnight market are decided in practice by the Riksbank.[27]

[25] For example, the Riksbank always offers deposits or lending in the so-called standing facilities. Normally, the interest rates for deposits and lending in these facilities have been 75 basis points below/above the Riksbank's repo rate. However, between 22 April 2009 and 7 July 2010, the Riksbank applied interest rates at 50 basis points below/above the repo rate. These so-called policy rates are available on the Riksbank's website, www.riksbank.com.

[26] See for example the brochure *The Riksbank's Management of Interest Rates – Monetary Policy in Practice*, Sveriges Riksbank 2005.

[27] More information on the overnight market may be found in an article entitled *The Swedish Market for Balancing Liquidity* in the Sveriges Riksbank Economic Review 2005:4.

Riksbank facilities for short-term borrowing and deposit requirements

The Riksbank offers facilities for depositing or borrowing money at short maturities. These facilities are available to participants in the Riksbank's central payment system RIX or to those who have some other form of monetary policy counterparty agreement with the Riksbank. The Riksbank's counterparties in the fixed-income market mainly comprise RIX participants, monetary policy counterparties and primary monetary policy counterparties. At year-end 2009, the Riksbank had 22 RIX participants, of these, 14 were also monetary policy counterparties.[28] Five participants were also already primary monetary policy counterparties.[29]

Depending on the level of the counterparty agreement signed with the Riksbank, short-term lending and deposit facilities may take the form of intraday facilities, fine-tuning operations, standing facilities,and monetary policy repos or certificates. RIX participants have access to the Riksbank's intraday facilities. A RIX participant that is also a monetary policy counterparty may also use the Riksbank's standing facilities and participate in the fine-tuning operations that adjust liquidity in the banking system. The monetary policy counterparties may also buy the weekly certificates and participate in the weekly monetary policy repos. However, to be able to take part in these weekly transactions, the monetary policy counterparty must have signed a special agreement with the Riksbank.

In mid-October 2008, the weekly repos were replaced by certificates with a maturity of seven days (see the section From monetary policy repos to Riksbank certificates below). The circle of counterparties for this facility is made up of the Riksbank's monetary policy counterparties and restricted monetary policy counterparties.

[28] On 2 April 2009, the Riksbank also introduced "restricted monetary policy counterparties" who have the possibility to get Riksbank loans in Swedish kronor and to buy Riksbank certificates. Sparbanken Finn, AB Svensk exportkredit (SEK), E. Öhman J:r fondkommission AB and Kommuninvest AB have applied to be and have been approved as restricted monetary policy counterparties.
[29] More information on the Riksbank's counterparties is available at www.riksbank.com.

Intraday facilities (intraday credits) – for RIX participants

Banks participating in RIX are able to borrow interest-free from the Riksbank during the day against collateral in securities. A loan of this type is called an intraday credit, or intraday facility. The value of the collateral after any haircuts sets the ceiling for the loan. This is the maximum limit for the amount of credit the counterparty may be granted at the Riksbank during the day. The intraday facility is the fastest way of acquiring liquidity, as long as there is sufficient collateral. The credit is provided more or less instantaneously. The facility is needed mainly from when RIX opens until the early afternoon, which is when it becomes clear what surpluses and deficits the banks have in their transaction accounts.

If there is not enough collateral to borrow from the Riksbank, certain banks have an informal agreement whereby they can provide each other with "interest-free" intraday credits.[30] The counterparty limits set the ceiling for how much the banks are allowed to lend to each other. However, the banks rarely need to turn to each other for intraday credits.

As a consequence of the financial crisis during the autumn of 2008, collateral requirements were changed to make it easier for participants to obtain intraday credit at the Riksbank. The permitted level of covered bonds from closely-linked institutions was initially raised from 25 per cent to 75 per cent. This level was then raised further to 100 per cent at the same time as the minimum credit-rating requirement was lowered for longer-term securities used as collateral. These regulations also applied throughout 2009.

From monetary policy repos to Riksbank certificates

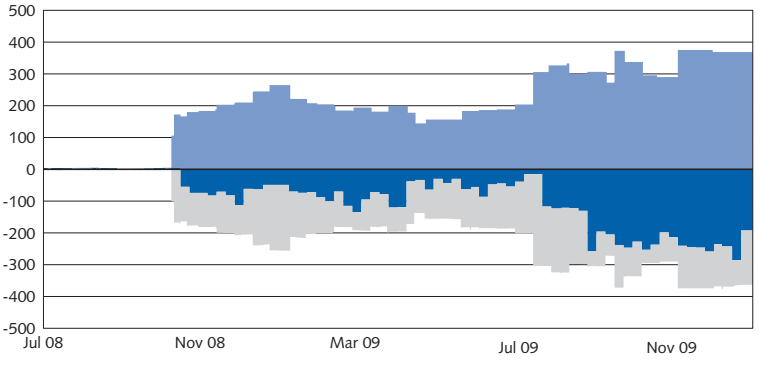
The Riksbank's extraordinary facilities for SEK loans as of autumn 2008 (see the box on the impact of the Riksbank's extra lending on the balance sheet) has contributed to a liquidity surplus in the banking system. In order to neutralise this surplus from the banks, the Riksbank issues certificates that the banks can invest their surpluses in (see Chart 7). The

[30] More information on the deposit market is presented in the section "The fixed income market – Deposit contracts".

certificates have a term of seven days and a fixed interest rate equivalent to the repo rate. The certificates are issued each Tuesday and will replace the monetary policy repos for as long as there is a surplus in the banking system.[31] Repos were previously used to supply the banking system with the liquidity the banks needed at the prevailing repo rate. The Riksbank's forecast regarding liquidity in the banking system determined the amount of the repos, which were often in the range of SEK 2-3 billion. Up to October 2008, there was thus a *structural deficit* of liquidity in the banking system.

Since October 2008, it is instead the size of the Riksbank's stock of outstanding loans that determines the volume of certificates offered to the banks. This is because there is now a *structural surplus* of liquidity in the banking system. The Riksbank therefore offered the banks the opportunity to buy weekly certificates for over SEK 250 billion on average in 2009. However, the volume of the average bid that the banks submitted and were allocated certificates for was only SEK 130 billion in 2009. The banks chose

Chart 7. The Riksbank's deposits and lending in Swedish kronor
SEK billion



Source: The Riksbank

[31] In May 2010, the Riksbank decided to offer certificates with a longer maturity than one week in parallel with the original certificates. The new certificates are valid for the period between the monetary policy meetings at the repo rate.

to deposit the remainder overnight with the Riksbank, primarily through the fine-tuning operations.

The counterparty circle for the issue of Riksbank certificates includes the Riksbank's monetary policy counterparties, in contrast to the monetary policy repos, which are limited to the primary monetary policy counterparties.

Fine-tuning operations

At the end of the day, the banks even out as far as possible any deficits or surpluses between them on the overnight market. However, since October 2008 there has been too much liquidity in the banking system as a whole which means that most of the commercial banks have a surplus of liquidity at the end of the day. This surplus is evened out in the Riksbank's fine-tuning operations.[32] These operations entail the banks depositing their surpluses with the Riksbank overnight. The counterparties that deposit their surpluses with the Riksbank overnight receive the Riksbank's repo rate minus 10 basis points.

The sums deposited with the Riksbank at this rate have been very substantial since October 2008. In 2009, an average of SEK 123 billion was deposited in these fine-tuning operations, which corresponds to approximately half (49%) of the average liquidity surplus in the banking system. The remaining half (51%) was invested in Riksbank certificates with a maturity of one week. It thus follows that if a larger part of the liquidity surplus had been invested in Riksbank certificates, the overnight deposits would have been smaller.

If at the end of the day the banking system was instead to have a deficit in relation to the Riksbank, the counterparty responsible for this deficit would be able to borrow from the Riksbank overnight. The counterparty would then pay the Riksbank's repo rate plus ten basis points. However, such a scenario is hypothetical at present. Nevertheless, before the Riksbank's extraordinary measures were introduced in connection with the financial crisis the position of the banking system in relation to the Riksbank

[32] Before the financial crisis in October 2008, the amounts involved in these operations were small in relation to the weekly repo. This is why they are called "fine-tuning" operations. In 2009, however, the fine-tuning operations were very substantial, both in relation to the weekly operations and in absolute amounts.

fluctuated between a deficit and a surplus from day to day. The counterparty or counterparties that held the final deficit or surplus, and therefore needed to perform a fine-tuning operation overnight, also varied from day to day. Before the crisis broke out, the fine-tuning operations averaged approximately SEK 200 million.

Up to the autumn of 2008, only the primary monetary policy counterparties were allowed to participate in the fine-tuning operations. In early October 2008, however, the Riksbank decided that all the monetary policy counterparties would be given the opportunity to participate in these operations until further notice. The reason for expanding the circle of participants was specifically the liquidity surplus that had arisen in the banking system since the Riksbank introduced the extraordinary facilities for SEK loans. The circle of participants therefore includes all of the monetary policy counterparties, that is the same circle that has access to the extraordinary measures. Other counterparties which are not participants in RIX may contact the Riksbank through these monetary policy counterparties.

Standing facilities – for monetary policy counterparties

It may happen that the transaction accounts of the individual banks at the Riksbank are not balanced when RIX closes, although the banking system as a whole is in balance. If so, any deficits or surpluses are placed in the Riksbank's standing facilities overnight. This involves much smaller amounts than in the fine-tuning operations. This is because in the standing facilities the counterparty is required to pay the Riksbank's repo rate plus 50 basis points for an overnight loan. Making deposits overnight thus provides a return equal to the Riksbank's repo rate minus 50 basis points.[33] During 2009, the average deposit in the Riksbank via the standing facilities amounted to approximately SEK 50 million per day.

[33] Up to and including 21 April 2009, the deposit and lending rates in the standing facilities were equivalent to the repo rate +/- 75 basis points respectively. In connection with the decision to reduce the repo rate to 0.5 percent on 21 April, the width of this corridor was changed.

The impact of the Riksbank's extra lending on the balance sheet

Many of the measures implemented by the central banks during the financial crisis are increasingly being reflected in the central banks' balance sheets. For example, the Riksbank's assets and liabilities more than tripled between the end of September 2008 and the end of 2009 (see Table 2). What lies behind this development and what effects does it have on the banks and their balance sheets?

The measures adopted by the Riksbank have increased the balance sheet total

After the collapse of the US investment bank Lehman Brothers in mid-September 2008, the situation on the markets for short-term USD borrowing became very strained. Consequently, on 29

Table 2. The Riksbank's balance sheet before and after the extra measures
SEK billion

ASSETS	30.9.2008	31.12.2009	LIABILITIES	30.9.2008	31.12.2009
Gold	28	32	Banknotes and coins	106	111
Claims on residents outside Sweden denominated in foreign currency	235	302	Deposit facility	0	0
Claims on residents in Sweden denominated in foreign currency	0	0	Fine-tuning operations	0	171
Lending to monetary policy counterparties denominated in Swedish kronor	4	369	Riksbank certificates	0	192
Other assets	1	6	Liabilities to residents outside Sweden denominated in Swedish kronor	0	0
			Liabilities to residents in Sweden denominated in foreign currency	0	0
			Liabilities to residents outside Sweden denominated in foreign currency	65	93
			Other liabilities	38	78
			Equity	59	64
Total assets	268	709	Total liabilities	268	709

Source: The Riksbank

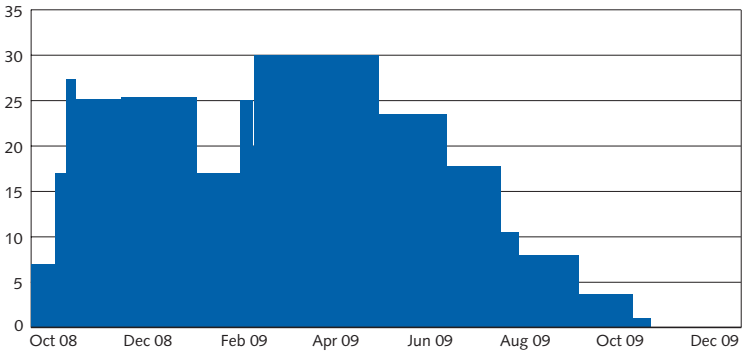
September 2008, the Riksbank established a new loan facility in USD.

At their peak, the Swedish banks' dollar loans amounted to USD 30 billion (see Chart 8). However, during the course of 2009 it became easier for the banks to get funding in dollars on the market and the need for the Riksbank's dollar loans declined. The Riksbank therefore allowed the dollar loans to fall due without giving the banks the opportunity to renew the loans. The last loans denominated in US dollars matured in November 2009.

At the start of October 2008, the Riksbank also established a loan facility in SEK aimed at increasing the banks' *access* to credit and thereby promoting financial stability. The maturity of these loans was initially 1-6 months and they were awarded at a fixed interest rate that was determined in an auction procedure. In February 2009, the Riksbank also began to offer loans at a variable rate (the repo rate with a supplement) and, furthermore, at maturities of up to 12 months. These loans were also primarily intended to increase access to credit as the fact that the commercial banks lacked confidence in each other meant that the supply of liquidity between the banks was not working satisfactorily.

Later in 2009, the Riksbank wanted to take action that would help to provide lower interest rates for households and companies. The Riksbank therefore offered loans of SEK 100 billion at a fixed interest rate on three occassions.

Chart 8. The Riksbank's lending of US dollars in 2008-2009
USD billion



Source: The Riksbank

The maturity for these three very large loans was set at 12 months, the purpose being to lend credibility to the Riksbank's pledge that the interest rate would remain low for some time to come. These loans were thus mainly provided for monetary policy reasons, in contrast to previous loans where the aim was to safeguard financial stability.

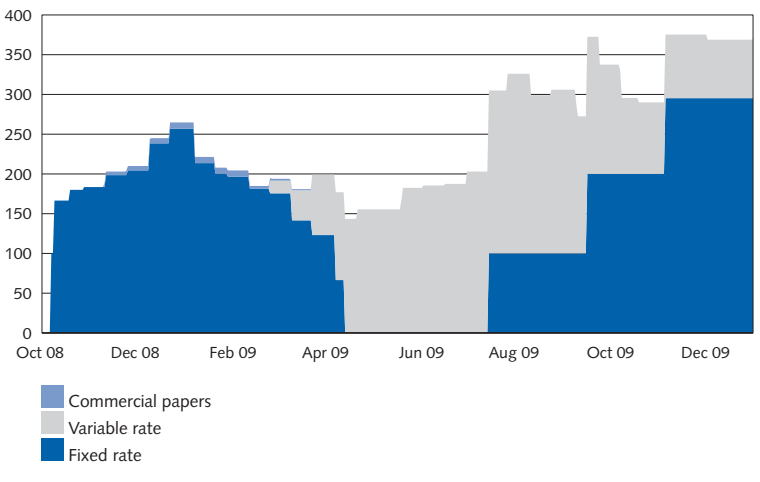
Alongside these loans, a facility was also set up in 2008 with the specific aim of increasing the banks' possibilities to award loans to companies. This provided the banks with the possibility to utilise commercial paper as collateral for long-term loans from the Riksbank. However, there was little interest in these loans. At most, just over SEK 0.9 billion was on loan from this facility in 2009.

In total, the Riksbank's monetary policy counterparties had loans of approximately SEK 369 billion from the above facilities at year-end 2009. At most, the Riksbank lent SEK 375.3 billion, while the average volume amounted to SEK 256 billion in 2009 (see Chart 9).

How has the Riksbank funded this increased lending?

With regard to funding, it is important to distinguish between lending in SEK and lending in USD. The loans in USD have partly been funded through swap

Chart 9. The Riksbank's lending of SEK to financial institutions in 2008-2009
SEK billion



Source: The Riksbank

agreements signed with the US central bank, the Federal Reserve, during the period. Under the swap agreements, the Riksbank can purchase USD against SEK from the Federal Reserve, which thereby receives an SEK asset for investment in the Riksbank.[34]

The Riksbank's SEK lending to Swedish banks is funded through a purely book-keeping measure in which the Riksbank deposits the amount of the loan in the borrowing bank's account in the Riksbank. That is to say that the Riksbank funds the loans itself. The possibility to create money in this way allows a central bank, in principle, to issue unlimited loans in its own currency. However, the loan facilities set up by the Riksbank require approved collateral in the form of securities.[35]

Where does the money go?

Since October 2008, the banks have been offered the opportunity to invest the liquidity created by the SEK lending in Riksbank certificates with a maturity of one week. The alternative has been an overnight investment in a deposit account in the Riksbank, via the Riksbank's fine-tuning facility (see the box on the Riksbank's facilities for short-term borrowing and deposit requirements). Interest on the certificates is equivalent to the repo rate, while the overnight interest on these particular deposit accounts has been equivalent to the repo rate minus ten percentage points. However, despite the lower yield, the banks have periodically opted to invest the greater portion of the liquidity in deposit accounts at the Riksbank[36] so as to remain prepared to manage unexpected liquidity problems.

Individual banks can also choose to use the funds they have borrowed from the Riksbank. A bank may, for example, choose to lend money to other banks, purchase securities or pay due debts. In such a case, the liquid funds would then be transferred to another bank's account with the Riksbank – the system is closed. It is only if the banks or the Riksbank choose not to renew due loans that the banking system's investments in certificates and their deposits with the Riksbank will decrease.

[34] The Federal Reserve's SEK claim is included in the item "Liabilities to residents outside Sweden denominated in SEK".
[35] More information on collateral is available at www.riksbank.com.
[36] See "Fine-tuning transactions" among liabilities on the Riksbank's balance sheet.

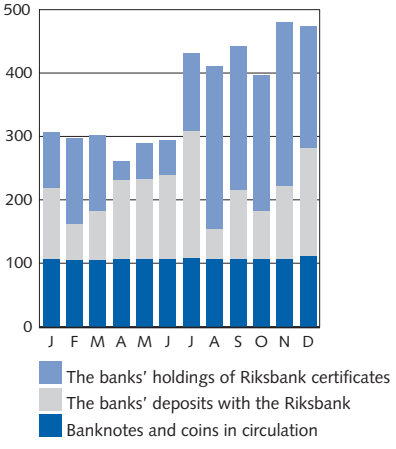
What effects has this lending had?

The *monetary base* is a concept that has been in focus recently as a result of the actions of the central banks, as it demonstrates the effects of this lending. It is defined as the total of three liability items on the Riksbank's balance sheet: banknotes and coins in circulation, deposits in the Riksbank and short-term certificates in circulation. Previously, before the Riksbank implemented its crisis measures, the monetary base in Sweden more or less consisted solely of banknotes and coins in circulation. The monetary base showed very stable development and seldom attracted any interest. The increase in the monetary base illustrated in Chart 10 below therefore reflects the increase in the banks' liquidity buffers in SEK that are deposited with the Riksbank and that have arisen as a consequence of the SEK lending.

It is difficult on the basis of the available statistics to draw any certain conclusions about the total impact of the lending in SEK on the banks and their balance sheets. One likely effect is that exposures between the banks have fallen as the banks have become less dependent upon the interbank market.

As the banks have acquired a surplus of liquidity, they did not have the same incentive as previously to deposit money with or

Chart 10. The monetary base in Sweden 2009
SEK billion



Source: The Riksbank

borrow money from each other in 2009. In principle, all of the counterparties were instead forced to deposit surplus liquidity with the Riksbank, irrespective of whether they had previously taken measures to even out deficits and surpluses between each other. If, on the other hand, the banks had invested most of their surpluses in the weekly certificates, this would probably have led to a higher degree of activity between the banks as some of the banks would then have had a liquidity deficit at the end of the day.

The Riksbank's USD loans, which have partly been funded through the Federal Reserve, have temporarily reduced the Swedish banks' need to find funding on the US market.

The central banks' liquidity-creating measures have thus replaced a large portion of the funding previously mediated on the financial markets. Risk premiums on the Swedish and foreign interbank markets have thus fallen since the financial crisis peaked in October 2008. This is probably because the central banks have taken over some of the mediation of loans between financial institutions.

Deposits

Deposits are standardised deposit and lending agreements without requirements for underlying collateral. Normally, market participants do not use deposits for depositing and lending for longer than a week. This is because the counterparty limits[37] and capital adequacy requirements[38] make this form of placement relatively more expensive than other financial contracts with longer maturities.[39] Deposits are more likely to be used to even out the need for liquidity between the banks overnight. The banks have, quite simply, agreed to trade in liquidity among themselves and in return to pay neither more nor less than the Riksbank's repo rate under normal conditions.[40] However, during the financial crisis in 2008-2009, the price for borrowing on the deposit market increased significantly. The banks were less willing to relinquish the liquidity they had.

The major banks estimate that around 90 per cent of the turnover on deposit contracts involves maturities of up to two days.[41] In 2009, the institutions designated by Statistics Sweden as Monetary Financial Institutions[42] had average deposit volumes of SEK 165 billion at the end of each month. The major share of this amount, that is an average of SEK 132 billion, consisted of deposits from Swedish monetary financial institutions. Only a minor part of the deposits thus originated from foreign institutions.[43]

Repos ("repurchase agreements")

A *repo* is an agreement in which one party agrees to sell a security to another party in return for liquid funds.[44] At the same time, the parties also agree that the same security will be repurchased at a predetermined price at a given time in the future. A repo transaction is therefore composed of two parts, a sale (spot) and an agreement to repurchase on a later date (forward). The repo thus functions essentially as

[37] The amount a bank can lend to its counterparties is determined by the bank's own limits, 'counterparty limits'.
[38] More information about capital adequacy requirements can be found in the box Central laws and forms of incorporation in the financial sector in the chapter Financial Intermediaries.
[39] See the article entitled *The Swedish Market for Balancing Liquidity* in Economic Review 2005:4.
[40] See the book "Penningmarknaden", Nyberg, Viotti and Wissén, 2006.
[41] See the article entitled *The Swedish Market for Balancing Liquidity* in Economic Review 2005:4.
[42] Monetary Financial Institutions (MFI) comprise banks, mortgage institutions, finance companies and other MFIs (municipalities and corporate-financed institutions, monetary securities companies and brokers, as well as other monetary financial institutions).
[43] Swedish Monetary Financial Institutions report their outstanding volumes in different currencies on a monthly basis to Statistics Sweden (SCB), which compiles financial market statistics. The definition of the Swedish banking day is not unambiguous: the definition usually refers to maturity overnight (O/N), but tomorrow next (T/N) may also appear (see Appendix 2, Market conventions on the Swedish fixed-income and foreign exchange markets).
[44] There are also "reverse repos". For example, the Swedish National Debt Office conducted reverse repos during the financial crisis when the banks were given the opportunity to borrow liquid funds from the National Debt Office with mortgage bonds as collateral.

a collateralised loan over the maturity of the repo. Conversely, repos may be viewed as security loans collateralised with cash.

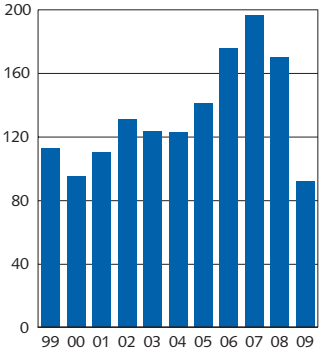
A company that wants to obtain liquidity via repos must have a portfolio of securities on which it can raise loans, which is not the case when deposits are used. If the borrower cannot honour his or her debts at the end of the period, ownership of the pledged securities is transferred to the lender, hence repos entail minimal counterparty risk for the lender. In principle, all securities that can be traded on the fixed income market can be used as collateral for repos.

The turnover in repo transactions among the Riksbank's primary monetary policy counterparties and the Debt Office's dealers averaged just over SEK 92 billion per day in 2009.[45] Turnover was thus SEK 78 billion lower per day than in the previous year (see Chart 11). An estimated 90 per cent of the turnover in repos involves maturities of up to one week.

Despite the fact that the turnover in repos has fallen significantly, it is three times higher than the spot turnover in the underlying government and mortgage securities.[46] According to the statistics compiled by the Riksbank, spot turnover in these underlying securities amounted to SEK 29 billion in 2009 (see the previous section Turnover on the bond market).

The main reason for the high turnover in repos is that they offer investors a quick and efficient way of getting access to capital. Bond dealers can fund their securities portfolios via the repo market. They

Chart 11. Average daily turnover in repos
SEK billion



Source: The Riksbank

[45] The statistics compiled by the Riksbank cover approximately 60 per cent of turnover in repos at monetary financial institutions.
[46] Includes treasury bills, nominal government bonds, mortgage certificates and mortgage bonds. Inflation-linked government bonds are not included in these figures.

can also acquire securities quickly in order to meet their obligations under their dealer agreements. Another reason for the high turnover in repos is that they make it possible for foreign participants to own Swedish securities without taking a currency risk. The use of repos allows the currency risk to be sold at the same time as the investor retains his or her interest investment via the underlying security that forms the collateral for the loan.

According to Statistics Sweden's financial market statistics, the outstanding volume of repo borrowing by the monetary financial institutions at the end of each month averaged around SEK 202 billion in 2009. More than half of this amount, over SEK 173 billion, was attributable to the repo borrowing of Swedish monetary financial institutions.[47]

DERIVATIVES IN THE FIXED INCOME MARKET

The fixed income market comprises various types of derivative instruments, including *interest rate forwards, interest rate swaps* and *interest rate options.* Other variants of derivatives include *credit derivatives* and *structured products*.

Interest rate forwards

A *forward* is a contract whereby the parties have undertaken to buy/sell an asset at a predetermined price at a specified time in the future. In a forward, the contract remains unchanged up to the time when the underlying asset is delivered and the payment is made. In a future, on the other hand, the price is adjusted daily in a market valuation process, i.e. the contract is *"marked to market".* A future is usually traded on an exchange while forward contracts are often standardised agreements between two parties. (The Swedish expression "termin" refers to both forward and futures, which sometimes can be confusing.) In 2009, so-called RIBA futures were introduced on the Swedish market. These are futures that have the actual outcome of the Riksbank's repo rate as the underlying asset (see the box RIBA and NOIS — two new derivatives on the fixed-income market).

The most common way to use forwards on the Swedish fixed-income market is to trade in *IMM-FRA (International Money Market Forward Rate Agreements)*.[48] These are standardised interest rate

[47] The special conventions used in trading in the money market's short-term contracts are presented in Appendix 2.

[48] However, when a contract for an IMM-FRA matures, the underlying instrument (the deposit) is not exchanged. Instead, there is a cash settlement between the agreed interest rate at the time of entry into the contract and the market rate when the contract matures.

forwards that have deposit contracts as the underlying asset and specific maturity dates known as IMM days.[49] The turnover in IMM-FRAs among the Riksbank's primary monetary counterparties averaged SEK 113 billion per day during 2009. The equivalent figure for the previous year was SEK 161 billion.

Other forwards in the Swedish fixed-income market are *forward contracts on bonds* and *on treasury bills*. These contracts are binding agreements to buy or sell government bonds, mortgage bonds or treasury bills at a specified date in the future.

Relative to the turnover of IMM-FRAs, the market in bond and treasury-bill forwards is not especially large. The average turnover in bond forwards with government bonds as the underlying asset also fell from SEK 27 billion per day to SEK 19 billion per day between 2008 and 2009. The turnover in forwards with mortgage bonds as the underlying asset averaged SEK 7 billion per day in 2009. This was a decrease of SEK 2 billion per day compared with the previous year.

The turnover in treasury-bill forwards fell from SEK 153 million per day to SEK 116 million per day between 2008 and 2009. Viewed in a longer perspective, the turnover in treasury-bill forwards has decreased since 2000. The likely explanation for this is the gradual increase in the use of IMM-FRAs. During the last two years, a lower turnover in the underlying treasury bills may also explain the lower turnover in forwards.

Interest rate swaps

Swaps are another type of derivative on the fixed-income market. 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 from the other party.[50] Swaps can also be regarded as a portfolio of interest rate forwards. Since swaps are closely related to forwards investors may use combinations of these two instruments to obtain a desired profile over time with regard to return and risk.

Interest rate swaps with long maturities are referred to by the abbreviation IRS and involve the exchange of interest rate payments over several years. Another type of interest rate swap — with shorter maturities — used in Sweden is known by the acronym STINA (*Stockholm Tomorrow Next Interbank Average*). A STINA contract is an agreement

[49] IMM days (IMM - International Money Market) always fall on the third working Wednesday in March, June, September and December.

[50] The convention is always to state the variable rate as the current STIBOR rate, while the fixed rate is stated at the government bond yield (with the same maturity as the swap) plus a premium.

lasting up to a maximum of one year to pay or receive the difference between an agreed fixed rate of interest and a variable overnight rate. The daily turnover in STINA swaps among the Riksbank's primary monetary policy counterparties fell by SEK 11 billion between 2008 and 2009 after increasing by approximately the same amount in the previous year. In 2009, turnover amounted to SEK 23 billion per day.

RIBA and NOIS – two new derivatives on the fixed-income market

During 2009, two new derivative instruments were introduced on the Swedish fixed-income market. One of these instruments takes the form of a forward contract based on the Riksbank's policy rate (RIBA futures, *Riksbank futures*). The other is a forward contract based on an interest rate swap (NOIS, *NASDAQ OMX Interest rate Swap*). Both instruments were introduced by NASDAQ OMX Stockholm and are subject to central counterparty settlement [51] at NASDAQ OMX Stockholm. The turnover in NOIS has been almost non-existent while the average turnover in RIBA has been SEK 5.7 billion per day. This can be compared to the turnover of SEK 113 billion per day for the much more popular FRA contracts (IMM-FRA).

Like the FRA contracts the RIBA contracts are standardised contracts whereby the parties have undertaken to buy/sell an asset at a predetermined price at a specified time in the future. However, the RIBA contracts have the average outcome of the repo rate as an underlying asset or reference, while the FRA contracts have a deposit contract as the underlying asset. This means that the FRA contracts can be used to insure against interest-rate movements on the market. The RIBA contracts can not be used to manage market risks in the same way. A RIBA contract is rather a complementary instrument that gives the buyer and seller the possibility to speculate in the level at which the Riksbank will set its policy rate (the repo rate). If the agreed interest rate is higher than the average repo rate during the period of the contract, the buyer will pay the difference between the agreed rate and the average repo rate, which is called the fixing rate. If the agreed rate is instead lower than the fixing rate, then the buyer will receive the interest-rate difference from the seller.

Each contract is traded up to and including two days before the third Wednesday of the so-called IMM month. The final payment is made on the first bank day following the final trading

[51] See Chapter 3, The Financial Infrastructure, for an explanation of the term central counterparty settlement.

day. It should be noted that RIBA contracts, like FRA contracts, are *fictitious loans*. This means that there is no transfer between the buyer and the seller of the underlying nominal value, which is SEK 1 million. The underlying maturity is usually 90-91 days, but can be longer. At present, eight different RIBA contracts are traded, which can be compared to 12 FRA contracts.[52]

[52] For more information on RIBA futures, see www.nasdaqomxnordic.com.

The TED spread and the basis spread – different measures of risk

The TED spread and the basis spread are studied to get an indication of the degree of uncertainty on the interbank market. A rise in these spreads means that the risk premiums that reflect liquidity and credit risks have increased. In other words, the level of these spreads provides an indication of how well the interbank market is functioning.

The *TED spread* indicates the difference between the interbank rate and the interest rate on risk-free government securities, that is treasury bills. This difference thus expresses how much extra interest a bank requires to lend money to another bank compared with making the same loan to the state.

The *interbank rate* refers to the interest rate for loans without collateral between the banks. A reference rate for loans on the interbank market, based on the average of the lending rates that the banks charge each other, is published every day for each currency area for maturities of up to one year. The reference rate for the British pound and the US dollar is, for example, LIBOR (*London Interbank Offered Rate)* while the most common reference rates for the euro and the Swedish krona are EURIBOR (*Euro Interbank Offered Rate*) and STIBOR (*Stockholm Interbank Offered Rate*). At year-end 2009, STIBOR was calculated as an average of the interest rates charged to each other by six banks for lending on the Swedish interbank market.

The Basis spread is the difference between the interbank rate for a certain period of maturity and the average expected policy rate during the same period. One could say that the basis spread measures the preference for keeping funds liquid rather than tieing them up for a certain period. In times of financial turmoil, banks often want to deposit less cash at longer maturities, thus widening the basis spread.

The expected policy rate is estimated with the aid of the market-listed interest rate of the *Overnight Indexed Swap* (OIS). The OIS is an interest rate derivative contract in which two parties agree to pay/receive the difference between a fixed interest rate and a compound variable interest rate. The variable interest rate

consists of the geometric mean value of the overnight rate over the term of the contract. The market-listed or fixed interest rate reflects the average expected overnight rate during the term of the contract. As credit risk is limited in these contracts, the market-listed interest rate reflects monetary policy expectations to a great degree. These contracts are designated *STINA* (*Stockholm TomNext Interbank Average*) in Sweden, while the equivalent of the variable overnight rate is STIBOR T/N (*Tomorrow/Next*).

Interest rate options

An *option* in the fixed-income market is a contract whereby the holder has the right, but not the obligation, to buy or sell a debt security at a specified price and on a specified date in the future. In turn, the writer of the option has only the obligation to exercise the contract.

In Sweden, trade is conducted in *government bond options*, where the underlying financial asset is a government bond. The turnover in government bond options has fallen sharply in recent years and trading in these instruments is limited compared to that in other fixed-income derivatives. The estimated average turnover per day amounts to approximately SEK 2 million.[53]

Structured products

One type of derivative instrument that has become more common in recent years is *structured products*. In most cases, these instruments combine securities with various types of options. One of the most discussed instruments in the category of structured products is the *credit derivative* (see the box Risks in the trade and settlement of credit derivatives).[54]

So-called *credit default swaps* (CDS) are credit derivatives that attracted a lot of attention during the latest financial crisis. A CDS offers the buyer protection against the suspension of payments on the part of the issuer. However, trading in credit derivatives and structured products has, up to now, been more highly developed internationally than it has been in Sweden. For example, no credit default swaps are issued in Sweden.

Trading structure in the market for interest derivatives

Derivatives can either be traded directly, that is over the counter (OTC), between a buyer and seller or via an organised exchange. On exchanges, trading in derivatives is standardised, with known maturity dates and contract sizes. Derivatives traded off organised exchanges may either be standardised or tailored to suit the buyer's or seller's requirements. Liquidity, that is the turnover in the derivatives, is generally higher in exchange-traded derivatives. In Sweden, derivatives on the fixed-income market are mostly traded OTC and are usually

[53] Due to the low turnover in this instrument, the Riksbank ceased to collect statistics from its primary monetary policy counterparties as at 30 September 2007. During the years 2004-2006, the average turnover in interest rate options was SEK 130 million, with the equivalent figure in 2007 being SEK 11 million.
[54] More information about credit derivatives and structured products can be found in the book "Penningmarknaden", Nyberg, Viotti and Wissén, 2006, and in the publication Financial Stability 2006:2, Sveriges Riksbank 2006.

of the standardised type. Some of these OTC derivatives are cleared by NASDAQ OMX Stockholm which thus acts a counterparty to the buyers and sellers.[55] The active trading in the derivative instruments is carried out on a market where a number of dealers set prices by telephone or electronically.

The foreign exchange market

The foreign exchange market is an important financial market. What we normally call the foreign exchange market is a worldwide market. It is characterised by the large amounts involved, a large number of participants, low transaction costs and the rapid dissemination of price information. The global turnover in this market every day involves amounts corresponding to tens of thousands of billions of SEK.

In this section, the term "the *Swedish* foreign exchange market" primarily refers to foreign exchange transactions that take place in the international market, where one part of the transaction consists of Swedish kronor (SEK). The Swedish foreign exchange market may also be defined as the trade in (all) currency pairs that is performed by institutions in Sweden, so an account of such trading is provided at the end of this section.

One reason why participants exchange SEK for foreign currency and vice versa is to match revenue and disbursements in foreign currency. These payments are traditionally generated by trade in goods and services or by investments in securities issued in foreign currency. Another common reason is to obtain protection against the foreign exchange risk that arises during trading in goods and services in foreign currency or via investments in foreign securities. Foreign exchange derivatives may be used to avoid risks of this kind. The close link between the fixed-income and foreign exchange markets is explained in the box Covered interest rate parity below.

SEK may be exchanged either by *spot transactions*, when liquidity or money is normally received after two days, or via a derivative instrument, when liquidity is received at some other agreed time (see the section on Frequently used instruments in the Swedish foreign exchange market, below).

The major share of turnover, calculated as *amounts*, takes place in the foreign exchange market. However, a large share of the *number* of foreign exchange transactions is not conducted on the foreign exchange market. This is because banks and enterprises that operate internationally neutralise a large share of their income and expenditure

[55] See also the description in the chapter The financial infrastructure.

in foreign currencies internally. For example, sales in EUR can be balanced against purchases of goods in EUR. In this way, a company can, for example, minimise the hedging it needs. However, *netting*, as this is called, does not generate any flows in the foreign exchange market, but does offer a method for dealing with transactions in foreign currency without requiring the exchange of currency for each and every one of them. When a bank or a company needs to reduce or raise the amount of foreign exchange in its account with a foreign bank however, it normally turns to the institutionalised foreign exchange market.

Covered interest rate parity

There is a close connection between the fixed-income and the foreign exchange markets through the foreign exchange derivative market. One effect of this connection is that it provides two options to major Swedish participants when borrowing money. They may choose – at the same interest cost – either to issue securities in Sweden or to issue securities abroad.

Loans raised abroad can be converted to SEK through the use of currency derivatives. The reason for this is that exchange rates in the spot and forward markets are affected by interest rates in the respective countries. In other words, the difference in current and expected interest rate levels between two countries is reflected in the price difference between the spot and the forward price for the currency pair of the two countries. Consequently, interest costs are the same, regardless of the alternative chosen. This link is usually referred to as *covered interest rate parity* (CIP).

If, for example, a Swedish company has to make a payment in USD in three months, the company can choose between two equivalent alternatives: it can either purchase USD for SEK today and invest these dollars at US interest rates for three months (for example, by buying US government securities) or it can invest SEK at Swedish interest rates for three months and, at the same time, purchase dollars forward, i.e. with delivery and payment in three months at a price in SEK that is known today.

Any difference in prices between these two options would provide risk-free opportunities for arbitrage[56], which would immediately be taken up by participants in the market. As a result, the prices on the fixed-income and foreign exchange markets will be adjusted in such a way that interest rate parity prevails, i.e. that interest rate expenses are equally high regardless of where the loan was raised. This relationship also enables major Swedish participants to borrow abroad and then use foreign exchange derivatives (above all, foreign exchange swaps) to con-

[56] Arbitrage is a term that describes the use of imbalances, expressed as differences in market prices, between two or more markets.

vert their foreign currency loan to SEK.

During the financial crisis, the interest rate parity relationship was clearly illustrated. When, for various reasons, market rates did not reflect the market participants' "true" expectations, the price of foreign exchange forwards was changed instead. Assuming covered interest rate parity, negative interest rates could therefore be implicitly interpreted on the basis of foreign exchange swaps between certain currencies at certain maturities at certain times.

The following section describes the instruments most commonly used in SEK trading and the structure of trading in the foreign exchange market. An account is then provided of the turnover in the Swedish foreign exchange market from two separate perspectives.

FREQUENTLY USED INSTRUMENTS IN THE SWEDISH FOREIGN EXCHANGE MARKET

In foreign exchange transactions in which SEK is one of the currencies involved, the following instruments are frequently used:

Spot

The definition of spot is "a system of trading in which commodities are delivered and paid for immediately after a sale" [57]. In the foreign exchange market, a spot transaction means that payment and delivery in a foreign exchange transaction, in practice, take place two banking days after the completion of the trade. However, a bank can choose to close a transaction by already paying on the same day.

Derivatives

Derivative instruments are used, for example, as a means of spreading and managing risks. The choice of derivative instrument is made according to the purposes of the participants. The derivative instruments used in the foreign exchange market are *foreign exchange forwards*, *foreign exchange swaps*, *cross-currency interest rate swaps* and *foreign exchange options*.

Foreign exchange forwards are used by companies to hedge currency risk when handling payments to and from abroad. A foreign exchange forward is an undertaking to purchase/sell the currency in the future on a set date at a set price.

One of the most common types of contract used in the foreign exchange market is *foreign exchange swaps* (*FX swaps*). A foreign exchange swap works as an agreement between two parties to simultaneously buy and sell one currency against another with two different value dates. The currency is usually bought on the spot date (i.e. in two days' time) and sold as a forward sale (i.e. at some point in the future). These swaps could be regarded as the equivalent of the money market's repos. After all, a repo also consists of a spot and a forward transaction that are linked to each other. However, in the fixed-income market, it is a security and not a currency that is sold and repurchased

[57] Concise Oxford Dictionary, 11th edition.

at a later date (see the section: The fixed-income market – the money market's shortest segment). FX swaps can be classified according to maturity: short swaps with maturities of up to one week and longer swaps with maturities of more than one week and up to (normally) one year or longer. Short swaps are normally used to manage liquidity, while longer swaps are pivotal instruments for the banks, for example in their pricing of interest rate spreads for different currency pairs[58].

A cross currency interest rate swap (or more simply a currency swap) is another type of contract that is also a combination of transactions. A currency swap is an exchange of interest payments in two currencies, for example, Swedish interest against euro interest, and, where appropriate, an exchange of capital amounts (at the beginning and at the end of the period). A swap of this kind normally has a maturity of more than one year.

Options are also traded on the foreign exchange market. These are known as *foreign exchange options*. Option transactions in the foreign exchange market are structured in the same way as in the fixed-income market, with the difference that the underlying asset is a currency.[59] Foreign exchange options may be used, for example, to reduce the foreign exchange risk in future transactions. The buyer of a foreign exchange option has the opportunity, but not the obligation, to exercise the option on the date that the payment falls due. If the market price is more advantageous than the foreign exchange rate at which the option entitles the holder to buy, the buyer will probably decide not to exercise the option.

TRADING STRUCTURE

Trading in SEK does not differ significantly from trading in other currencies on the foreign exchange market. This account may therefore be considered to apply to the foreign exchange market in general. Transactions on the foreign exchange market are conducted through so-called *market makers* who, on request, quote bid and ask prices via an electronic system or telephone. A standard spot transaction by telephone involving the EUR/SEK currency pair is EUR 5 million. Traditional trading by telephone has decreased considerably in recent years, however, in favour of electronic trading. Trading in the electronic systems is more order-driven[60] and standard transactions do not exist to the same extent. Like fixed-income derivatives, foreign exchange de-

[58] Currency rates are stated in pairs, such as USD/SEK, EUR/USD, GBP/SEK, EUR/SEK.
[59] See the description in the section: The fixed income market – Derivatives in the fixed income market.
[60] Orders submitted are automatically matched without the brokers having to contact one another.

rivatives in SEK are only traded OTC (see the description in the section The fixed income market – Trading structure on the market for interest rate derivatives).

Interbank trading and customer trading

Every third year, the Bank for International Settlements (BIS) publishes the study *Foreign exchange and derivatives market activity* which is based on surveys from individual central banks.[61] According to the latest study, 43 per cent of turnover on the foreign exchange market during April 2007 consisted of what is called *interbank trading*. This refers to trade between interbank participants (market makers) who are dealers in different instruments. These dealers may be banks and securities companies. According to the results of the study carried out in 2004, interbank trading's share of the total turnover was approximately 53 per cent. The primary reason for the decline in the proportion of interbank trading is increased activity in other segments. Above all, trade between dealers and other financial institutions such as hedge funds, pension companies and insurance companies has increased heavily in recent years. In 2007, this trade accounted for approximately 40 per cent of the global turnover, according to the BIS survey.

Interbank trading is often, in turn, the result of *customer trading*, i.e. transactions between dealers and customers. Customers are, generally speaking, all participants other than dealers. If the customer, for example a Swedish company, needs EUR to execute a payment today, it will turn to its bank, which will quote an EUR rate. If the bank wants to restore its foreign exchange allocations to the position prevailing before the sale of EUR, it will buy EUR for SEK from another bank. This transaction between the two banks may give rise to further interbank trading. The pricing of currency is largely determined on the interbank market, where bid and ask prices are continuously listed for different currencies against SEK. The prices that are quoted to Swedish customers are therefore very often a result of pricing on this market.

Electronic trading

Foreign currency trading is increasingly shifting from telephone trading to order-driven trading using different electronic platforms and systems. When a participant finds an attractive rate, it can immediately accept the rate by pressing a buy or sell key. As a result, an order may be immediately entered into the system. Roughly 85 per cent of the

[61] This survey is known as "The Triennial Central Bank Survey". More information is available at www.bis.org.

spot trade in SEK between the Riksbank's counterparties is performed via electronic systems. Most SEK trading is conducted via systems such as Reuters Dealing 3000. Most of the major currency pairs (such as EUR/USD, GBP/USD, USD/JPY, and EUR/JPY) are traded via the Electronic Broking System (EBS). In the case of interbank trading in foreign exchange derivatives, the situation is somewhat different. Here, about one third of derivative transactions are electronic. However, the proportion varies depending on the type of derivative instruments traded.

In the trading conducted by the Riksbank's counterparties on behalf of their customers, including major companies, the major banks often use electronic platforms that they have developed in-house. These are called *single-bank platforms* and quote the customer rates only from the bank itself. However, there are also *multi-bank platforms* (such as Reuters Dealing 3000) in which several banks participate. These quote the customer rates from several banks, enabling the customer to compare rates.

Just over 40 per cent of customer trading in SEK takes place using electronic systems and the trend is towards more anonymous and order-driven trade just as in trading on the stock exchange. Systems already exist that are anonymous and have central clearing (for example, FXMarketSpace) for the largest currencies. Increased risk awareness has also led to an increase in the demand for safe services for managing currency transactions after the transaction itself has taken place. CLS is one example of such a service and offers the safe settlement of currency transactions (see also the chapter The financial infrastructure).

Electronic trading has also made *black box* trading possible on the foreign exchange market, just as in trading in shares and fixed-income instruments. In such trading, decisions on currency positions are taken by computers, which are programmed to interpret market movements and the behaviour of various participants. This so-called algorithmic trading has increased the requirements concerning risk management at the banks.

Cross trading

Trading in currency usually takes place via one of the largest currencies. This means, for example, that the price of SEK relative to NOK is set via the euro, which is what is known as a *base currency*. By starting from the price for NOK against EUR and for SEK against EUR, a price for SEK against NOK is obtained. This is usually called "cross trading".

Cross trading is a practical arrangement, as the banks would otherwise need to price SEK against every imaginable currency. On

efficient markets the currency that is used for pricing is unimportant, as long as the transaction costs are low. The reverse, that is inefficient markets, would create opportunities for risk-free profits, known as arbitrage Then the participants would be able to sell SEK at a high price against a currency and buy SEK back at a low price against another currency.

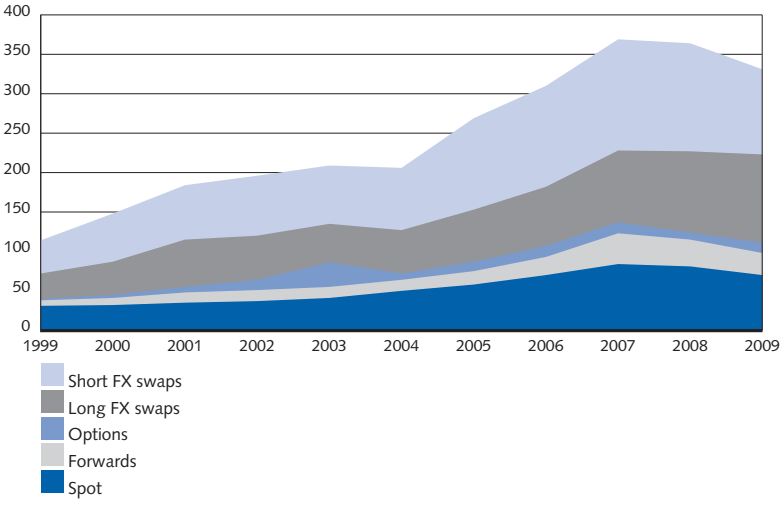
Unlike in spot trading, derivative trading in SEK against other currencies does not take place using EUR as a hub currency but USD. Until the end of the 1960s, the hub currency for derivatives trading was the pound sterling (GBP).

A number of market conventions applying to foreign exchange trading in SEK are also described in Appendix 2.

Turnover in SEK

There are no comprehensive statistics on turnover in SEK on the foreign exchange market. However, the Riksbank collects turnover statistics from its counterparties in foreign exchange transactions where one side of the foreign exchange transaction is comprised of SEK. At year-end 2009, these counterparties consisted of the four major banks plus five large international participants.[62] The Riksbank's counterparties account for around half of the global turnover in SEK.[63]

Chart 12. Average daily turnover in the Swedish foreign exchange market
SEK billion



Note. This is the definition of short and long FX swaps used by the Riksbank when collecting turnover statistics. The distinctions made by the market participants with regard to maturity periods for FX swaps are described in the section on derivatives.
Source: The Riksbank

[62] More information about the Riksbank's counterparties is available at www.riksbank.com.
[63] According to the BIS survey "Foreign exchange and derivatives market activity" from April 2007.

According to the statistics collected by the Riksbank, average turnover amounted to SEK 332 billion per day during 2009 (see Chart 12 below). This means that turnover was over SEK 30 billion lower per day than in the previous year.[64]

Of this, the daily turnover in spot transactions averaged around SEK 70 billion per day in 2009, a decrease of over SEK 11 billion per day compared to the previous year. The turnover in foreign exchange forwards in SEK at the Riksbank's counterparties totalled approximately SEK 28 billion per day in 2009. This represented a decrease of around SEK 6 billion, compared to the figure for 2008.

The turnover in foreign exchange swaps in 2009 totalled approximately SEK 220 billion per day, an increase of around SEK 20 billion on average per day on the 2008 figure The lower volume can primarily be explained by the fact that trading in currency swaps with a maturity of up to two days fell by approximately SEK 30 billion per day between 2008 and 2009.[65] Turnover in these contracts amounted to approximately SEK 108 billion per day, compared to SEK 137 billion per day in 2008.[66] The turnover for longer swaps, with maturities from two days to 18 months, was approximately SEK 112 billion per day in 2009. The corresponding figure for 2008 was around SEK 103 billion per day.

The turnover in foreign exchange options among the Riksbank's counterparties increased during 2009, by an average of around SEK 4 billion per day to a total of approximately SEK 13 billion per day. The Riksbank does not collect statistics on the turnover in currency swaps among its counterparties, but according to the BIS study mentioned above, average turnover totalled around SEK 150 million per day in April 2007. According to the BIS study, over three-quarters of the trade in SEK took place outside Sweden in April 2007. Banks based in the United Kingdom accounted for 39 per cent of the turnover, while only 22 per cent was traded by banks based in Sweden. There may be several explanations for this major foreign participation in trade in SEK. To begin with, London is the dominant financial centre for the global foreign exchange market and many of the largest banks are based there. In addition, SEK and securities issued in SEK are important elements in well-diversified foreign portfolios focused on Europe. Other countries where there is extensive trading in SEK are Denmark (15 per cent) and the United States (9 per cent).

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[64] Only one leg of the swap transaction is included in these figures.

[65] This is the definition of short and long FX swaps used by the Riksbank when collecting turnover statistics. The distinctions made by the market participants with regard to maturity periods for FX swaps are described in the section on derivatives.

[66] Known as overnight and tomorrow-next swaps.

Foreign exchange trading in Sweden

Above we have described the Swedish foreign exchange market defined as all the foreign exchange trading where SEK forms one leg of the transaction, wherever in the world the transaction takes place. An alternative definition of the Swedish foreign exchange market is all the foreign exchange trading that takes place in Sweden, irrespective of the currency pairs involved.

One issue examined in the BIS study previously cited was the foreign exchange undertaken in April 2007 by the four major Swedish banks based in Stockholm. According to the survey, Sweden is the 15th largest trading venue in foreign exchange in global terms. Between 1989 and 2007, foreign exchange trading in Stockholm increased by around 12 per cent per year, from an average of USD 13 billion per day in 1989 to USD 42 billion per day in 2007. However, foreign exchange trading in Stockholm has expanded somewhat more slowly than the global foreign exchange market overall (which grew by 25 per cent annually between 1989 and 2007).

The *currency pair* with the highest turnover in Stockholm is USD/SEK. Its share of the total turnover has risen somewhat, from 28 per cent in 1998 to 39 per cent in 2007 (see Table 3). One reason for this is that a relatively large amount of FX swaps are traded in Stockholm and that the US dollar is the base currency in transactions with these instruments. The next largest currency pair is EUR/USD, representing 26 per cent of trading in Stockholm during 2007. The third largest currency pair is EUR/SEK. In 2007, this currency pair accounted for 23 per cent of the trade in Stockholm. Further down the line, the ranking of the most frequently traded currency pairs in Stockholm varies from year to year.

The largest single currency traded in Stockholm in April 2007 was not SEK but USD, which formed one part of approximately 33 per cent

Table 3. The six currency pairs with the highest turnover in Stockholm
Per cent

	1995		1998		2001		2004		2007	
1	USD/SEK	28	USD/SEK	28	USD/SEK	33	USD/SEK	31	USD/SEK	39
2	DEM/USD	19	DEM/USD	16	EUR/USD	14	EUR/USD	16	EUR/USD	26
3	DEM/SEK	18	DEM/SEK	7	EUR/SEK	12	EUR/SEK	11	EUR/SEK	23
4	USD/CHF	4	USD/JPY	4	GPB/USD	4	GPB/USD	5	GPB/USD	2
5	DEM/FRF	2	GBP/USD	2	USD/JPY	3	USD/JPY	2	USD/JPY	4
6	USD/JPY	2	GBP/SEK	2	GBP/SEK	1	USD/CHF	2	USD/CHF	2
	Other	27	Other	40	Other	32	Other	33	Other	4
	Total	100	Total	100	Total	100	Total	100	Total	100

Note. The figures represent the month of April.
Source: BIS

of all the currency pairs traded. This was followed by SEK (around 29 per cent) and EUR (around 23 per cent).

The stock market

The stock market helps to perform two of the financial market's basic functions: to convert savings into funding and to manage risks. It enables investors to channel their savings to companies that need capital and thus to gain access to investments with a relatively high, albeit fluctuating, yield. At the same time, the founders of the companies redistribute a proportion of the risks in the companies to investors who are willing to bear them.

Share (or equity) is the term for the owners' *shares* in a company (limited company). The capital contribution made by the owners in return for these shares comprises the company's *share capital*. A share is essentially a claim on the company's assets and profits after the company's creditors, for example the company's creditors, have received their due. As the value of this claim is determined by the profitability of the company, share capital can be regarded as risk capital. However, the shareholders' risk is limited in the sense that they cannot lose more than the amount they have invested in the company. Part of the company's profit is usually distributed directly to the shareholders as dividends, which in Sweden are usually paid out once a year, while the rest is added to the company's equity capital. A shareholding also entails co-determination rights in the company; each share carries some form of voting right at the company's annual general meeting.[67]

Companies that are expanding and need an injection of capital may, for example, borrow money from a credit institution, issue bonds on the fixed-income market or issue new shares. Due to the risks associated with lending to expanding businesses, companies' funding needs can rarely be met fully on the fixed-income and credit markets, or at least not at a reasonable cost. Some of these companies therefore meet their funding requirements by issuing new shares that are sold to investors who are willing to take on risk.

To ensure that the mediation of risk capital between companies and a broad range of investors is as efficient as possible, it is often advantageous to turn to an organised marketplace for equities, for instance a stock exchange. Companies use stock exchanges to issue shares and investors to buy and sell shares.

[67] The normal principle is one share/one vote, although differentiated voting rights also exist. For example, there may be class A shares in a limited company, which confer ten votes per share, and class B shares, which only confer one vote per share.

A description of the stock market in Sweden is presented below. It begins with a description of the issuers and investors on the market. After this, the role of the marketplaces in share trading is presented, followed by a description of share trading at NASDAQ OMX Stockholm and other marketplaces in Sweden. The section concludes with an account of the trade in share-related derivatives.

The growing integration of the European stock markets is making it increasingly difficult to determine what can be considered to be a Swedish share. Throughout this section, the term Swedish shares is used to designate the shares listed on Swedish marketplaces. Certain companies that could be defined as foreign companies, for example if their head office is located abroad, can still list their shares on Swedish marketplaces and these will thus still be designated as "Swedish" shares. Furthermore, Swedish shares may be traded abroad if they are listed on a foreign marketplace.

ISSUERS

Far from all Swedish companies may obtain funding by issuing shares. In order to be classified as a limited company, a company must have capital amounting to at least SEK 50 000. Just under one third of all

Table 4. Holdings of shares listed on Swedish marketplaces, per sector
Per cent

SECTOR	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-financial companies		6.8	8.2	8.5	9.2	8.7	8.4	9.0	9.4	9.5	9.6
Financial companies											
Banks, finance institutions, etc.	1.9	2.4	2.0	2.5	2.3	3.4	2.8	2.5	2.2	1.6	2.1
Investment companies[1]	5.9	6.4	6.1	5.6	5.6	5.3	5.3	5.2	5.6	5.4	5.0
Mutual funds		8.5	9.8	10.5	11.6	11.1	11.8	11.2	10.9	11.4	12.6
Insurance companies, pension institutions	12.0	9.8	11.6	10.4	9.2	8.7	8.7	8.1	8.3	9.0	9.1
Financial companies, total	28.1	27.2	29.5	29.0	28.7	28.5	28.6	27.0	27.0	27.4	28.8
Public sector											
Central government		4.9	5.4	5.7	5.5	5.2	4.4	4.5	4.5	4.6	4.7
Local government		0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0
Social insurance funds	4.3	4.1	3.7	4.1	4.1	3.8	3.5	3.2	3.2	3.5	3.4
Public sector, total	6.4	9.3	9.3	10.0	9.8	9.2	8.0	7.8	7.8	8.2	8.1
Households	15.0	13.1	13.7	14.3	14.4	15.0	14.8	14.3	13.4	14.5	13.9
Non-profit organisations											
Companies		2.1	1.9	1.8	1.8	1.8	2.1	2.1	2.0	2.1	1.8
Households	2.8	2.6	2.9	2.9	2.9	2.8	2.7	2.7	2.4	2.5	2.5
Non-profit organisations, total	4.7	4.7	4.7	4.7	4.7	4.6	4.8	4.8	4.4	4.6	4.3
Outside Sweden	39.0	39.0	34.6	33.5	33.1	33.9	35.3	37.2	38.0	35.8	35.4
ALL SECTORS, TOTAL	100	100	100	100	100	100	100	100	100	100	100

[1] Investment companies are defined as limited companies with ownership spread among a great number of natural persons, which primarily manage shares and other securities with a significant risk spread across industries and companies. This definition is derived from Statistics Sweden's Standard Classification by Institutional Sector 2000.
Source: Statistics Sweden

Swedish companies are limited companies. Only those limited companies with at least SEK 500 000 in capital may offer their shares for public trading.

Limited companies whose shares are not sold to the public are referred to as private limited companies, while companies whose shares are sold to the public are called public limited companies. Both established companies and companies that are not yet ready for stock exchange listing or other forms of public share trading can opt to be classified as private limited companies. They can occasionally receive funding in the form of private venture capital. Such funding is sometimes channelled via a special form of intermediary, a venture capital company. These are described in more detail in the chapter Financial intermediaries.

INVESTORS

Shareholding in Sweden is widespread and extensive. At year-end 2009, the total value of shares listed on Swedish marketplaces amounted to over SEK 3 400 billion (see Table 5). This represents an increase of approximately 50 per cent compared with 2008. Table 4 shows that foreign investors owned 35 percent of the share value at the end of 2009, thereby forming the sector with the greatest holding. Just under 14 per cent consisted of direct holdings by Swedish households. The households also own shares indirectly through investment funds and savings in insurance and pension schemes. At year-end 2009, the proportion of holdings held by financial companies was approximately 29 per cent. Non-financial companies accounted for ten per cent of total share assets.

Table 5. Swedish marketplaces 2009 (2008 within parentheses)

	NUMBER OF COMPANIES		MARKET VALUE, SEK BILLION	
NASDAQ OMX Stockholm	255	(263)	3 413	(2 240)
NGM Equity	26	(38)	4	(6)
Aktietorget	120	(107)	5	(4)
First North	100	(100)	22	(13)
NGM Nordic MTF	21	(26)	1	(1)
Burgundy	66	(–)	–	(–)
Total excl. Burgundy[1]	522	534	3 445	2 273

[1] Burgundy offers trading in shares already traded at above mentioned marketplaces and is therefore excluded from the total.
Sources: NASDAQ OMX Stockholm and the Riksbank

MARKETPLACES

Marketplaces typically provide two main services. They provide assistance to companies wishing to offer shares for sale and they administer the technical systems and the regulatory frameworks that make share trading possible. There are currently two categories of marketplace: regulated markets (a category that includes tradtional stock exchanges) and trading platforms, which are usually called MTFs (Multilateral Trading Facilities).

There were 522 public limited companies in Sweden in 2009 (see Table 5). Of these, 281 were listed on a regulated market and 241 were traded on an MTF. For listing on a regulated market, companies must comply with the requirements of Swedish legislation and of the marketplace itself. These requirements refer to factors such as the company's size, provision of information and governance. MTFs are marketplaces that can be run by a stock exchange or a securities institution and offer simpler opportunities for trading than a regulated market. The regulations for MTFs are not as detailed, although they can themselves choose to adopt the more stringent rules that apply to regulated markets. Due to the simpler regulations of the MTFs it is usually less complicated to offer shares on these marketplaces, but on the other hand it usually entails a higher level of risk for the investors. The business concept of some MTFs is to offer trading in shares that are already listed on a stock exchange. These companies already fulfil the requirements for market trading and do not entail increased risk.

Regulated markets and MTFs must also adopt regulations that govern information related to trading. Companies intending to trade on these marketplaces must undertake to provide the market with information concerning decisions and events that may influence share prices. The reason for this is that all traders should have access to the same information. This is intended to create confidence in the market and protect investors.

There are two regulated markets in Sweden: NASDAQ OMX Stockholm, which has a predominant position, and Nordic Growth Market (NGM). At year-end 2009, there were four MTFs in Sweden: *First North*, *Nordic MTF, Burgundy* and *Aktietorget*. Table 5 shows that the market value of NASDAQ OMX Stockholm was SEK 3 413 billion, or 99 per cent measured as the market value of the shares traded in Sweden. This is despite the fact that only 49 per cent of the public limited companies are listed on NASDAQ OMX Stockholm. Swedish shares can also be traded on certain overseas MTFs that have specialised in providing a marketplace for shares that are already listed on a stock exchange and thereby fulfil the listing requirements.

The overwhelmingly majority of share trading in Sweden is conducted in electronic trading systems belonging to a stock exchange or MTF, but it is also possible to trade shares outside these systems. A portion of the trading that takes place outside these systems is conducted in accordance with NASDAQ OMX Stockholm's regulations and is reported to NASDAQ OMX Stockholm as normal stock exchange transactions. The remainder of the trade conducted outside the system takes place directly between the buyer and the seller (a practice also known as OTC trading) and is not subject to the regulations of any marketplace.

Share trading via an electronic system

Trading in shares via an electronic system is conducted by using different types of order. An order can be placed in the system as a *limit order*. This means that the customer prespecifies a maximum acceptable bid price or a minimum ask price. Alternatively, it can be placed as a *market order,* which instructs the broker to trade at the best available price.

The system sorts the limit orders according to price and time, the highest bid prices and lowest ask prices being placed first 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. How long an order remains in the system depends on whether there is a corresponding order in the order book with which to close the deal. When a market order reaches the automatic trading system it is in principle matched chronologically with the limit orders that have been placed. Before this, however, it will have been dealt with by a broker who assesses when its various elements are to be registered in the system.

Even though limit orders and market orders are the only types of orders that exist in the stock exchange trading system, they can be executed in different ways. For instance, it is not unusual for a customer to want a major order to be broken down in the system into smaller units. The reason for this is, above all, to avoid too great an impact on prices. It is then possible for the customer's broker to enter what is called an *iceberg order* into the system, which means that only part of the total volume of the order ("the tip of the iceberg") is visible to other participants. When one unit has been executed, the next is automatically entered into the system, and so on until the entire order has been completed. Other types of order than pure limit orders and market orders may also occur in the stage between the customer and the broker.

TRADING IN SHARES ON NASDAQ OMX STOCKHOLM

NASDAQ OMX Stockholm is the predominant marketplace for Swedish shares. The following section describes the members of NASDAQ OMX Stockholm, its trading structure and turnover.

Members of NASDAQ OMX Stockholm

All trading on NASDAQ OMX Stockholm is conducted through its members. Both large and small investors have to go through one of these members in order to buy or sell shares. The members consist of Swedish securities institutions, i.e. securities companies and credit institutions which are licensed by Finansinspektionen (the Swedish Financial Supervisory Authority) to engage in securities trading. Members also include remote members, i.e. foreign companies that engage in securities trading in Sweden from abroad. NASDAQ OMX Stockholm has 113[68] share trading members. In principle, non-financial companies and branches of foreign companies can be members of the stock exchange. At present, however, there are no members in this category in NASDAQ OMX Stockholm.

Trading structure

Share trading on NASDAQ OMX Stockholm takes place electronically through the matching of orders in the trading system INET Nordic.[69] The trading day begins and ends with an auction which is intended to find the price that provides the largest number of finalised orders for each share. During the trading day, buyers or sellers place buy or sell orders with their securities institution. Every order is then forwarded to brokers for entry into an order book in the trading system.

Many exchange members provide Internet-based services for placing orders. This can often entail lower transaction costs (for example, brokerage fees) than when trading via securities companies and banks.

When a deal is closed, information is sent to Euroclear Sweden (previously VPC AB), where the transaction is settled. Settlement entails the shares being deregistered from the seller's account and registered on the purchaser's account (if the customer has a custody account at a broker, the transaction is instead registered in the custodian's management account at Euroclear Sweden). At the same time, payment for the transaction is made via the buyer's and seller's banks.

[68] Source: NASDAQ OMX Stockholm member statistics, 15 March 2010.
[69] INET Nordic was launched on the markets NASDAQ OMX Nordic and NASDAQ OMX Baltic in February 2010. This is the same system that NASDAQ OMX uses on its US exchange and on its European trading platform NASDAQ OMX Europe. The fixed-income market on NASDAQ OMX Nordic still uses the old system SAXESS.

Only when this is done is the transaction completed (usually three days after the deal is closed). More information about securities settlement is available in the chapter The financial infrastructure.

Listed companies

At the end of 2009, 255 companies were listed on NASDAQ OMX Stockholm, following a slight reduction during the year.[70] Public companies listed on NASDAQ OMX Stockholm are presented on a Nordic list, which also presents the public companies listed on the stock exchanges in Helsinki, Copenhagen and Iceland.

The Nordic list represents a harmonisation of the listing requirements. To be listed on NASDAQ OMX Nordic, the expected market value of the shares must be no less than EUR 1 million. Further requirements are that the ownership must be sufficiently spread and that the business must have existed for a sufficiently long period (three years) and must show stable profitability, or have financial resources to cover operations for at least twelve months.

The Nordic list is divided into three segments – Large Cap, Mid Cap and Small Cap – based on the market value of the companies. The *Nordic Large Cap* segment comprises companies with a market value of more than EUR 1 billion. Companies with a market value of between EUR 150 million and EUR 1 billion are placed in the *Nordic Mid Cap* segment and companies with a market value of less than EUR 150 million are listed in the *Nordic Small Cap* segment.

New capital can be raised on the stock exchange through new share issues, i.e. listed companies increase their equity capital by

Table 6. Some key figures for share trading on NASDAQ OMX Stockholm

Market value 31/12 2009, SEK billion	3 413
Turnover 2009, SEK billion	3 393
Average daily turnover, SEK billion	13,5
Annual turnover, billion shares	58
Total number of deals closed during the year, million	30,3
Average amount per deal	112 127
Average number of deals per day	120 375
Rate of stock turnover, per cent	119

Source: NASDAQ OMX Stockholm

[70] In addition there are three companies that together constitute the Xterna list. The Xterna list has been established by NASDAQ OMX Stockholm for trading in shares in foreign companies not listed on the stock exchange.

issuing new shares. New capital can also be raised through initial public offerings (IPOs), i.e. when new companies are listed on the stock exchange.

Turnover and market value

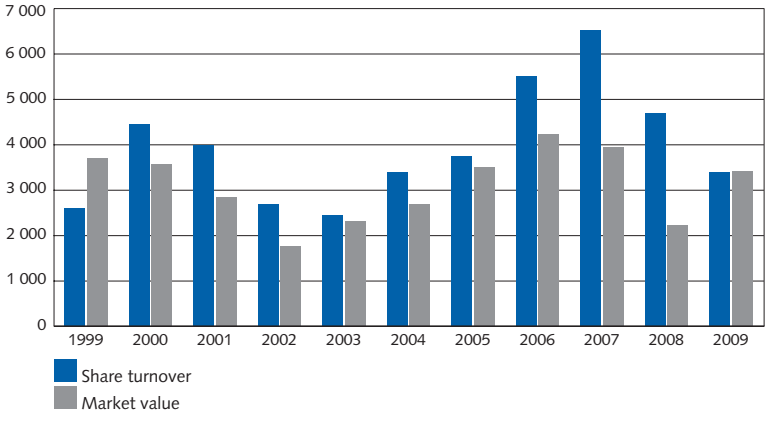
The turnover in share trading on NASDAQ OMX Stockholm was SEK 3 393 billion in 2009, a decrease of almost 30 per cent compared with the previous year (see Chart 13). This decrease was due to the decline in the average amount per transaction and not to a decline in either share value or activity. In actual fact, the number of transactions increased by 5 per cent to just over 30 million. The average turnover per trading day thus amounted to just over SEK 13 billion (see Table 6). The turnover on the stock market, in terms of SEK, is thus slightly less than half that on, for example, the fixed-income market. On the other hand, the number of transactions on the stock market is considerably higher (see the section on the fixed-income market in the chapter The financial infrastructure). At year-end 2009, market value amounted to SEK 3 413 billion, an increase of 52 per cent compared with the previous year.

SHARE TRADING ON OTHER SWEDISH MARKETPLACES

Regulated markets

There are two regulated marketplaces in Sweden. In addition to NASDAQ OMX Stockholm, Nordic Growth Market (NGM) has also been licensed by Finansinspektionen to operate a stock exchange in Sweden. NGM has specialised in small and medium-sized growth

Chart 13. Share turnover and market value on NASDAQ OMX Stockholm
SEK billion



Source: NASDAQ OMX Stockholm

companies and offers listing and share trading on the NGM Equity list. There are 26 shares listed on NGM Equity. In addition, NGM offers derivatives trading on the Nordic Derivatives Exchange (NDX) list.

Trading facilities (MTFs)

At year-end 2009, there were four MTFs in Sweden: *First North*, *Nordic MTF, Burgundy* and *Aktietorget*.

First North is intended for small companies, new companies and growth companies and is operated by NASDAQ OMX as an alternative marketplace. First North includes companies in Denmark, Finland, Iceland and Sweden. The companies that are traded on First North are not listed on NASDAQ OMX Stockholm, although trading takes place using the trading system INET Nordic, as on NASDAQ OMX Stockholm. Information about prices, volumes and order depth[71] is published in real time through the same channels as for shares traded on NASDAQ OMX Stockholm.

However, NASDAQ OMX Stockholm does not take responsibility for monitoring the companies listed on First North. Instead, every company has a *Certified Adviser* who, by agreement with NASDAQ OMX Stockholm, is responsible for that company's compliance with the requirements for trading on First North and with the requirements for the continuous provision of information. The Certified Advisers are, in turn, required to enter into agreements with the companies for which they are responsible. These agreements specify the requirements for trading on First North, including those regarding shares distribution, market value and information.

In February 2009, a new segment, First North Premier, was introduced into First North. The companies traded on the First North Premier segment must fulfil the same requirements for accounting and information as companies traded on NASDAQ OMX Nordic. At year-end 2009, a total of 100 companies were traded on First North.

NGM operates Nordic MTF, a trading facility for small to medium-sized growth companies, where trading is conducted using NGM's trading system Freeway.[72] NGM is responsible for scrutiny of the listed companies and for trading in the companies' shares. At year-end, 2009, a total of 21 companies were listed on Nordic MTF, a slight decrease compared with the previous year.

[71] The order depth shows how many shares the purchaser wishes to buy and the seller wishes to sell and at what price.

[72] Nordic MTF is a further development of Nordic OTC, NGM's previous list for trading in Nordic growth companies.

Burgundy is an MTF operated by leading banks and investment companies in the Nordic region, who are also the participants that are allowed to trade on this facility. Institutional and individual investors may only trade through one of these participants. These in turn ensure that the transactions take place in accordance with the "best possible result" principle.[73] This means that an order is executed on Burgundy if the price is better there than on other marketplaces that offer trading in the security concerned. Trading is offered in all the shares listed on NASDAQ OMX in Sweden, Denmark and Finland, on the Oslo Stock Exchange in Norway and on NGM.

The fourth Swedish MTF is Aktietorget, which is intended for small and growing companies. Trading takes place through the INET Nordic trading system, like the trading on NASDAQ OMX Stockholm. Aktietorget complies with the general regulations for an MTF, but has in addition its own regulatory framework to protect the investor. At year-end 2009, a total of 120 companies were traded on Aktietorget.

EQUITY DERIVATIVES

Derivatives with individual shares or equity indices as underlying assets may be traded on marketplaces in Sweden. The vast majority of these derivatives are options or futures. 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 issuer of the option has the obligation to exercise the option if the other party wishes. A *equity future* 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. The vast majority of trading in equity derivatives takes place under the auspices of NASDAQ OMX Derivatives Markets (NASDAQ OMX DM), which is an auxiliary of NASDAQ OMX Stockholm.[74] NGM also provides trading in derivatives on the list Nordic Derivatives Exchange (NDX).

NASDAQ OMX DM offers trading in derivatives with Swedish, Danish, Norwegian, Russian and certain Finnish shares as underlying assets.[75] In addition to derivatives linked to individual shares, options and futures linked to NASDAQ OMX's own stock index are traded on NASDAQ OMX DM. NASDAQ OMX DM also provides clearing for the derivatives traded on its exchange and for certain OTC derivatives

[73] According to MiFID, banks and investment companies must take all reasonable measures into account to achieve the best possible result for their clients when they offer the execution or transfer of an order.
[74] An auxiliary is not a separate legal entity but relates to a particular part of a company's activity.
[75] Certain Finnish derivatives, including Nokia derivatives, are traded on Eurex, in line with an agreement with NASDAQ OMX.

that are not listed for trading (see the chapter The financial infrastructure).

The number of standardised derivatives traded on NASDAQ OMX DM during 2009 amounted to just over 80 million. Equity options and index futures accounted for approximately three-quarters, while the remaining quarter was divided between equity futures and index options.[76]

Other equity-related products

Other products tied to certain shares or to a basket of shares are also traded on the Swedish market.

Warrants are one such product. The word warrant is now used in the Swedish financial market for a rather profuse flora of securities. In most respects, warrants resemble call options, i.e. they give the holder the right, but not the obligation, to purchase the underlying asset at a set price before or at a set time. Warrants can be issued using a wide range of underlying assets including shares, stock indices, equity baskets, currencies, commodities and so on. A characteristic of warrants is that they generally have a considerably longer time horizon than ordinary options, usually more than one year. They are also issued by a party – in most cases a bank or a securities company – other than the one issuing the underlying asset. Furthermore, warrants are transferable. In this respect, warrants differ from the non-transferable contracts created for standardised options on NASDAQ OMX DM. In Sweden, warrants are traded on NASDAQ OMX Stockholm and also on the Nordic Derivatives Exchange (NDX). In 2009, the turnover in warrants on NASDAQ OMX Stockholm totalled SEK 40 million per day.

Exchange traded funds (ETFs) are also traded on NASDAQ OMX. By investing in an exchange traded fund, the investor buys a basket of underlying securities. These funds are often index funds, that is funds structured to reflect a specific share index. In 2009, the daily turnover for equity traded funds amounted to SEK 854 million.

Outside the established marketplaces, trading is conducted in *CFD contracts* (Contract for Difference), which may be described as forward contracts without a set maturity date. A CFD contract reflects price changes in underlying assets, which usually consist of shares, share indices, commodities or currencies. CFD contracts are traded through a broker. The buyer of the contract provides collateral that only needs to represent a certain percentage of the value of the un-

[76] The difference between an index option/index future and a equity option/equity future is that the former relate to the development of a stock index while the latter relate to the development of a single share.

derlying asset. This collateral is continuously updated. In addition, the buyer pays a daily interest charge as long as the contract runs and, in certain cases, also a brokerage fee. Any profit or loss is determined by the performance of the underlying instrument from the time of purchase or sale until the time the CFD contract is terminated.

Financial intermediaries

This chapter describes the different types of middlemen, or intermediaries, involved in the financial system. Intermediaries can be divided into groups where credit institutions, in the form of banks and credit market companies, are important for the supply of credit. Private equity investment companies play an important role in the supply of venture capital. Investors, in the form of insurance companies, fund management companies and pension funds, take care of the general public's savings. And securities companies act as brokers and market-makers in the financial markets.

The intermediaries have been classified on the basis of an institutional perspective. Large parts of the legislation regulating the financial companies are also based on this perspective (see the box Central laws and forms of incorporation in the financial sector). Several different kinds of intermediary are often included in one and the same financial 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 fulfil the role of universal banks; that is, to be able to provide products and services in the entire financial field. Four major bank groups dominate the Swedish market: Handelsbanken, Nordea, SEB and Swedbank. Due to this dominance, the four major banks are of decisive significance to the stability of the Swedish financial system. In addition, Danske Bank is also a major participant in the Swedish financial market. Together, these five bank groups account for approximately 80 per cent of both deposits from and lending to the Swedish public.

As the financial intermediaries are organised into groups, it is not sufficient to merely look, for example, at the lending within the group's bank company to gain an understanding of a group's total lending. It is also necessary to include the lending carried out by its mortgage institutions and finance companies. However, financial groups do not organise their businesses in similar ways. For example, two of the four major Swedish banking groups have their securities trading businesses in separate subsidiaries. The others have opted to offer these services through their banking arms. Neither do all financial groups have bank-

ing operations as their main operations. For example, there are financial groups that have insurance activities as their main operation, but which also conduct banking operations. Table 7 provides an overview of the way in which the business activities have been divided within the six largest financial groups in Sweden.

In addition to their business activities on the Swedish financial market, the four major Swedish banks also conduct significant operations outside Sweden. The banks' operations abroad are important as half of their lending is abroad. Consequently, a major portion of the banks' risks are to be found overseas. As the business operations of the various companies in the groups, both in Sweden and abroad, all have an impact on the groups' results, it is also important to examine these foreign operations to obtain a complete view of the groups. However, this publication is primarily intended to describe the Swedish financial market. The statistics presented therefore contain neither the Swedish banks' overseas operations conducted through branches abroad, not the operations conducted in the banks' foreign subsidiaries. As regards the foreign participants active on the Swedish financial market, branches in Sweden and Swedish subsidiaries are included in the statis-

Table 7. Operations of the major banking groups in Sweden

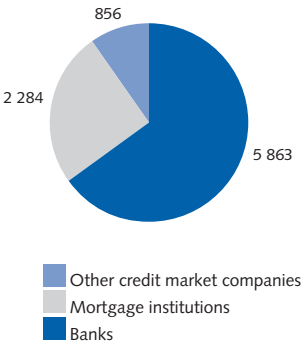
PARENT COMPANY	BANK	MORTGAGE INSTITUTION	FUND MANAGEMENT COMPANY	SECURITIES BUSINESS	LIFE INSURANCE	FINANCE COMPANY
Nordea AB	Nordea Bank AB	Nordea Hypotek AB	Nordea Fonder AB	Nordea Investment Management AB	Nordea Liv och Pension AB	Nordea Finans AB
Svenska Handelsbanken AB	Svenska Handelsbanken AB	Stadshypotek AB	Handelsbanken Fonder AB	Handelsbanken Markets, not a separate company, but a business division in the group.	Handelsbanken Liv AB	Handelsbanken Finans AB
Skandinaviska Enskilda Banken AB	Skandinaviska Enskilda Banken AB	Provided by the bank	SEB Fonder AB	Enskilda Securities AB	SEB Trygg Liv AB	Provided by the bank
Swedbank AB	Swedbank AB	Swedbank Hypotek	Swedbank Robur Fonder AB/Swedbank Robur Kapitalförvaltning	Swedbank Markets, not a separate company, but a business division in the group	Swedbank Försäkring AB	Swedbank Finans AB
Danske Bank A/S	Danske Bank Sverige[1]	Provided by the bank[2]	Danske Capital[3]	Provided by the bank	Danica Pension Försäkringsaktiebolag[3]	Provided by the bank
Skandia AB	Skandiabanken AB	Provided by the bank	Skandia Fonder AB	Provided by the bank	Livförsäkringsaktiebolaget Skandia	–

[1] Branch.
[2] Realkredit in Denmark is the Danske Bank Group's mortgage institution.
[3] Common specialised entities.
Note: The companies do not themselves group their entities as above. Consequently one entity may cover several business operations. They also have a larger number of companies than shown above.
Source: The banks' annual reports

tics.[77] To provide a complete picture of the four major Swedish banking groups a brief outline of these groups and in particular their operations abroad is presented in the box Foreign operations – a part of the banking groups.[78]

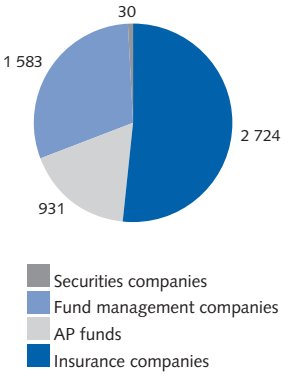
However, the banks, mortgage institutions, insurance companies, securities companies et cetera will be dealt with separately in this chapter. Charts 14 and 15 provide an overview of the extent of the operations conducted in the most important categories of financial intermediaries.

Chart 14. Total assets of Swedish bank mortgage institutions and other credit market companies at year-end 2009 SEK billion



Source: The Riksbank

Chart 15. Total assets and investment assets of securities companies, insurance companies, fund management companies and AP funds at year-end 2009 SEK billion



Note. The chart shows the total assets for securities companies, while for insurance companies and AP funds it shows investment assets and for securities funds it shows the funds managed.
Source: The AP funds' annual reports, Finansinspektionen and the Riksbank

[77] The difference between a subsidiary and a branch is that a subsidiary, unlike a branch, is a distinct legal entity, separate from the parent company, while branches are included in the parent company or in a subsidiary. A branch has no equity, and its assets and liabilities are considered to be a part of the net wealth of the company to which the branch belongs. Accordingly, a branch is considered to be a unit with its own administration.
[78] See the Financial Stability report, published by the Riksbank twice a year, for a more detailed review of the activities of the major banks.

Foreign operations – a part of the banking groups

The Swedish banking groups conduct operations in a number of different areas of the Swedish financial market, as well as outside Sweden. The operations of a group's various companies, both within Sweden and abroad, are all, to some extent, dependent upon one another and affect the development of the group as a whole. For example, companies within a group can share certain administrative functions or joint funding, which can provide them with advantages over companies that are not organised within a financial group. Similarly, the entire group can be negatively impacted if a part of the group, a unit or company, encounters problems. Consequently, in order to obtain a fair image of the major banks, it is important to examine both the operations conducted in Sweden and the operations abroad, i.e. to examine the groups in their entirety. Table 8 indicates the consolidated total assets of the four major Swedish banks, as well as the groups' lending to the public, in Sweden and abroad. The table indicates that both Swedish and foreign operations are of major significance for the major banking groups as a whole.

Furthermore, in recent years, the dependence of the major banks upon operations in other countries has increased. For example, at the end of 2009, foreign assets account for around half of the major banks' total assets. At the same time, this also implies that a major portion of the banks' risks is located abroad. Consequently, in order to obtain a complete view of the major banks' operations, the scope and geographic extent of the

Table 8. Operations of the four major banking groups on the Swedish financial market at year-end 2009
SEK billion

	HANDELS-BANKEN	NORDEA	SEB	SWEDBANK	TOTAL, FOUR MAJOR BANKS
Total assets	2 123	5 212	2 308	1 795	11 438
Loans to public, of which:	1 478	2 891	1 094	1 192	6 655
– loans to Swedish public	994	719	617	959	3 289
– loans to public abroad	484	2 172	476	233	3 366

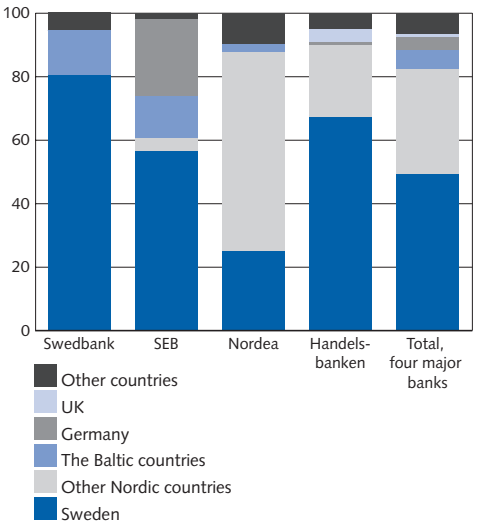
Note. To some extent repos are excluded from the lending to the public in Sweden and the public abroad respectively.
Sources: Bank reports and the Riksbank

foreign operations should also be examined. As this publication is generally focused on operations in Sweden, the emphasis of this overview is placed upon describing the scope of the major banks' foreign operations. Unlike the rest of the statistics in this publication, the statistics in the overview below refer to the entire operations of the groups, i.e. operations in all companies and countries.

Lending to the public accounts for around 60 per cent of the major banks' assets. Nordea is the bank undertaking the largest proportion of lending to borrowers outside Sweden. Over 75 per cent of Nordea's lending is outside Sweden; only a minor portion refers to the Swedish public. The largest markets of the other three major banking groups are in Sweden. However, these groups also have a major portion of their operations abroad (see Table 8).

There are, however, clear differences between the foreign operations of the various major banks. Nordea's lending outside of Sweden is almost exclusively to the other Nordic countries. Handelsbanken and SEB conduct approximately one third of their lending in the other Nordic countries, while Swedbank only

Chart 16. Geographical breakdown of the major banks' lending in 2009
Per cent



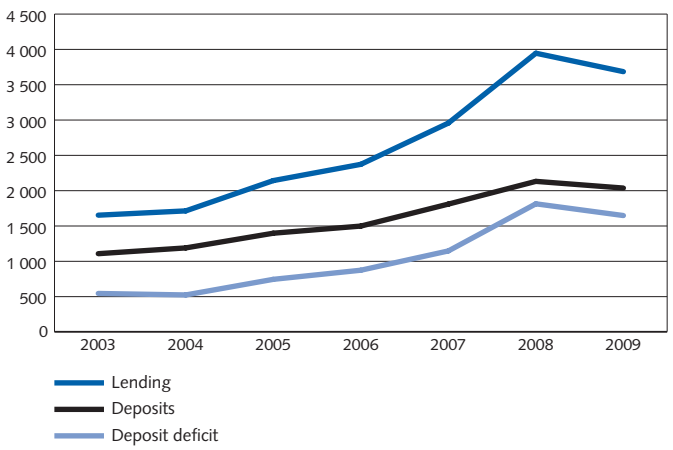
Sources: Bank reports and the Riksbank

conducts a small portion of its lending in these countries. Both SEB and Swedbank conduct a significant portion of their lending in the Baltic states. SEB also has a large part of its lending in Germany. Chart 16 shows the geographical distribution of lending in each major banking group at year-end 2009.

Just like domestic lending, approximately 50 per cent of foreign lending is funded by deposits from the public. Chart 17 shows the four major banks' lending in foreign currencies, deposits in foreign currencies and the difference between lending and deposits, what is known as the deposit deficit.

The *deposit deficit* shows the proportion of a bank's lending in foreign currency that cannot be funded by deposits in the same currency and accordingly has to be funded in some other way. The deposit deficit in foreign currency amounted to around SEK 1 650 billion at the end of 2009, which corresponds to 45 per cent of the lending in foreign currency. The chart shows that the banks' lending abroad has increased steadily since 2004, but slowed down somewhat in 2009, mainly as the result of a decline in demand. As

Chart 17. The four major banks' deposits and lending in foreign currency
SEK billion



Note 1. Deposit deficit = lending – deposits.
Note 2. As the focus here is on overseas operations, we only show the deposit deficit in foreign currency. The total deposit deficit amounted to around SEK 3 400 billion at the end of 2009.
Sources: Bank reports and the Riksbank

the percentage of deposits has remained relatively constant, the banks' dependence on market funding has increased at the same rate as the lending.

The banks' funding differs, depending on whether they have a centralised or decentralised funding strategy. Swedish banks in many ways have *centralised funding*, where liquidity management is carried out as a central function and the parent company holds a liquidity reserve.[79] Foreign subsidiaries which are dependent on market funding obtain liquidity through the parent company, which in turn borrows on the global securities market. The typical example is the Baltic countries, where deposits do not cover lending. Centralised funding has the advantage of economies of scale and cheaper funding, as the parent company often has a more well-known name and higher credit rating than the individual subsidiaries. As all of the funding is done in the same place, the fixed costs are also kept down. One disadvantage may be that potential financial problems on the foreign market could spread to operations in other markets. Centralised funding requires that one can move money freely within the group, as well as a functioning derivatives market and the ability to exchange money to another currency at any given time, which can be hampered by different time zones, operational obstacles, local authority regulations and problems in the financial markets.

With *decentralised funding* the banks allow foreign subsidiaries and branches to manage their own funding and liquidity. This leads to diversified funding and a developed local market that is less dependent on the parent bank's home market. Decentralised funding also reduces the group's dependence on a small number of participants. However, it also leads to higher costs because of the lack of economies of scale.

Some of the lending in Sweden is also funded in foreign capital markets. The banks convert, or swap, this lending into Swedish kronor, to protect themselves against foreign exchange risk.

On the one hand, the fact that the banks are active in countries outside Sweden can be considered positive, as this reduces

[79] One exception is Nordea, which has significant operations in Denmark, and largely obtains funding on the Danish securities market.

their dependence upon one, single market. On the other hand, establishment in markets outside Sweden can also entail risks for the banks, particularly if this establishment takes place very rapidly or on markets that are still in a stage of development. For example, it can take some time for a bank to get to know a new market and build up the same experience and knowledge that it has of its main market. If establishment takes place on growth markets, this can also entail a risk, as these are usually not as stable and predictable as mature markets. However, entry onto a market in a later stage can also entail reaching other customers with lower creditworthiness than would have been the case if the market had been entered sooner.

As the assets of major banks predominantly consist of loans, credit risk forms the greatest risk in the banks' operations. The fact that the banks are exposed to different borrowers in different countries and sectors implies that credit risk also differs between the banks. In periods of declining economic activity, borrowers' ability to repay their borrowings deteriorates and credit risk rises. The steep decline in the economic cycle that started towards the end of 2008 has brought up the issue of the risks faced by the major Swedish banks in conjunction with their foreign operations. Most of the focus has been on SEB and Swedbank, as a result of their operations in the Baltic states, where the economic downturn was faster and stronger than most people were expecting, and where a large part of the lending was funded through the parent company. More information concerning this is available in the Riksbank's Financial Stability Report.

Credit institutions

The credit institutions are specialists in assessing and monitoring credit risk. One of the reasons they can do this is that they often have long-term relationships with their customers. Consequently, they play an important part in ensuring the supply of capital in the economy. Credit institutions include banks and non-bank credit institutions, in Sweden called credit market companies.

The banks have long played a key role among credit institutions. For example, the banks have traditionally had a monopoly on accepting deposits. These deposits, which can very quickly be converted into cash or used for payments, mean that the banks contribute to the supply of liquidity in the economy. However, banks' monopoly on accepting deposits was abolished on 1 July 2004, enabling credit market companies also to accept deposits from the public. As with banks, these deposits are covered by the Swedish deposit guarantee scheme.[80]

One of the most important function of banks in society is their role in the payment system (read more about the payment system in the chapter The financial infrastructure). The banks, for example, provide the accounts through which many payment transactions are made plus a number of payment services associated with the transactions.

In general, credit market companies are specialist lenders within a particular area. Among credit market companies, *mortgage institutions* and *finance companies* have the largest market share. Chart 18 shows a breakdown of lending to the public, between banks, mortgage institutions and other credit market companies.

BANKS

The banks are the largest group of lenders among all credit institutions. They account for almost half of the credit institutions' total lending to the public, which corresponds to a good SEK 2 200 billion (see Chart 20). In the Swedish market, the four largest banks together account for 80 per cent of the banks' total assets (see Table 9).

In addition to the limited liability banks, the Swedish market also includes savings banks and co-operative banks. There are a large number of independent savings banks in Sweden. However, these are usually small, operating solely in regional or local markets. Unlike limited liability banks, savings banks lack equity capital and therefore

[80] According to the Act that came into force on 1 July 2004, other undertakings besides banks and credit market companies may, subject to certain conditions, also accept deposits from the public. However, these deposits are not covered by the deposit guarantee scheme. The deposit guarantee scheme aims to protect customers' deposits in accounts up to the amount in Swedish kronor that corresponds to EUR 50,000 per customer and institution.

have no shareholders. The profits of the business are therefore not distributed. Instead, any surpluses are retained in the bank as reserves. The number of savings banks has declined in recent years, primarily through mergers of small savings banks.

A co-operative bank is an economic association established to offer banking services 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 either; the profits are re-invested in the business and can, to a certain extent, be distributed to the bank's members in the form of a bonus dividend.

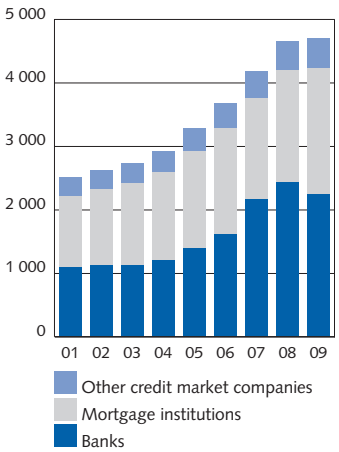
At the end of 2009, there were a total of 115 banks established in Sweden. These comprised 34 limited liability banks, of which one was the subsidiary of a foreign bank, 26 foreign-owned branches, 53

Table 9. The ten largest banks' total assets at year-end 2009
SEK billion

SEB	1 276
Swedbank	1 246
Nordea Bank	1 220
Handelsbanken	944
Danske Bank[1]	550
Länsförsäkringar Bank	82
DnB NOR Bank[1]	77
SkandiaBanken	36
Volvofinans Bank	24
Sparbanken Finn	19
Total 10 largest	5 474
Total all banks	5 839

Note 1. The figures in the table refer to operations conducted in Sweden. Foreign operations conducted by branches or subsidiaries are not included. The figures for foreign banks' branches and subsidiaries therefore refer only to operations in Sweden.
Note 2. All of the Swedish banks' total assets as a percentage of GDP amounted at the year-end 2009 to 188 per cent.
[1] Foreign branch.
Source: The Riksbank

Chart 18. Lending by credit institutions to the public
SEK billion



Note 1. The chart shows lending from an institutional perspective. As the mortgage activities of certain banks are conducted within the bank, the banks' credit granting statistics include a certain portion of loans traditionally regarded as mortgages, i.e. loans to households provided against liens on real property. In other words, the mortgage institution lending statistics do not include all the mortgages taken out in Sweden. However, total lending from credit institutions is not affected by this.
Note 2. Since 2007, SEB has conducted its mortgage operations within the banking company, rather than within a separate company. This means that the banks' credit granting statistics, as of 2007, also include lending previously carried out within SEB Bolån and included in the category lending from mortgage institutions. The relative change in lending from banks and lending from mortgage institutions between 2006 and 2007 can be partly attributed to this.
Source: The Riksbank

savings banks and two co-operative banks. Compared with 2008, the presence of foreign banks in Sweden has declined; three foreign bank subsidiaries and three foreign-owned branches have been withdrawn from the Swedish banking market.

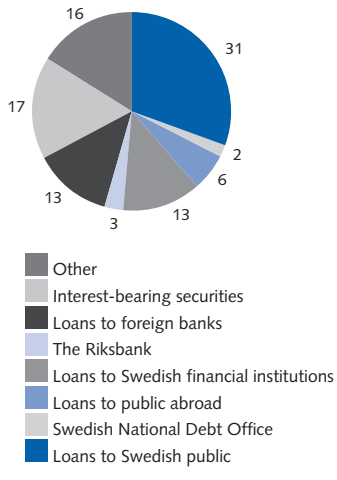
The banks' assets and liabilities

The banks' assets consist for the most part of loans to the public. At the end of 2009, lending to the public in Sweden and abroad totalled SEK 2 251 billion, corresponding to around 37 per cent of the banks' total assets (see Chart 19).[81]

Almost 50 per cent of lending to the public went to Swedish non-financial companies and just over 30 per cent to Swedish households (see Chart 20).[82] Less than one fifth of the lending went to the public abroad.

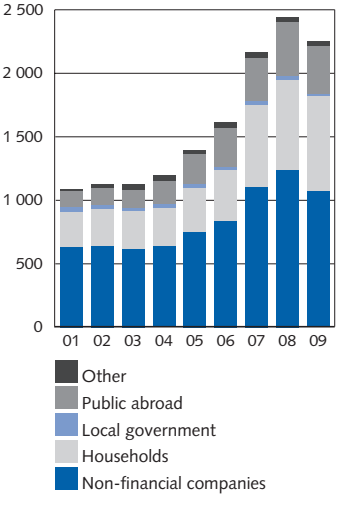
In addition to lending to the public, the banks also have large claims on Swedish financial institutions and foreign banks. These claims comprised around 13 per cent of the banks' assets. In addition, around

Chart 19. The banks' assets at year-end 2009
Per cent



Source: The Riksbank

Chart 20. The banks' lending to the public by borrower category
SEK billion



Note. The chart includes lending from Swedish entities only. Lending conducted through the Swedish banks' branches or subsidiaries abroad are not included. For foreign banks, only branch operations in Sweden are included.
Source: The Riksbank

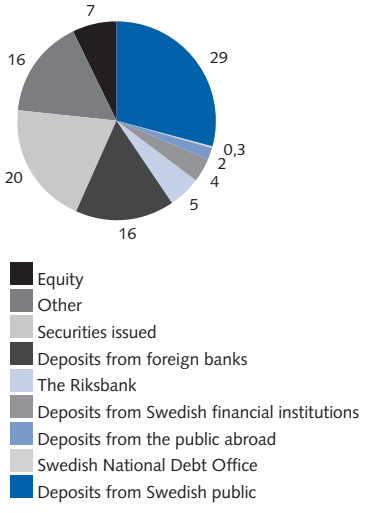
[81] This represents only a small part of the Swedish banking groups' lending to the public abroad. The remainder of the banks' lending to the public abroad was thus comprised of the banks' foreign branches and subsidiaries. For a brief outline of the total lending abroad, see the box: Foreign operations – a part of the banking groups.
[82] The financial institutions include other banks, finance companies and securities companies.

17 per cent of the assets consisted of bonds and other interest-bearing securities.

The largest item on the liabilities side of the banks' balance sheets is deposits from the public. During 2009 deposits from the public in Sweden and abroad amounted to just over 30 per cent of the banks' total liabilities and at the end of 2009 they amounted to SEK 1 855 billion (see Chart 21). Swedish households accounted for just over 50 per cent of this and Swedish non-financial companies for just over 30 per cent (see Chart 22). Around 8 per cent of the deposits from the public came from abroad. The banks' liabilities otherwise consist of their market funding requirements. These liabilities include both deposits from Swedish and foreign financial institutions and liabilities in the form of securities issued. The banks' equity only constitutes a minor part of total assets.

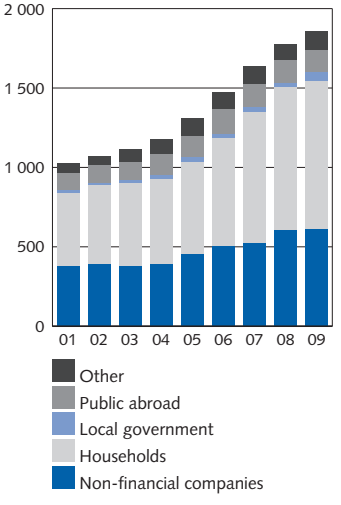
In addition to the liabilities in the balance sheet, banks may also have off-balance sheet commitments. Typical off-balance sheet items are certain derivatives, guarantees and commitments. Special forms of incorporation such as *Conduits* and *Structured Investment Vehicles*

Chart 21. The banks' liabilities and equity at year-end 2009
Per cent



Note. For Swedish banks the figures refer to liabilities and equity for operations conducted in Sweden. Swedish banks' overseas operations conducted by branches or subsidiaries are not included. For foreign-owned banks, branch operations in Sweden and Swedish subsidiaries are included.
Source: The Riksbank

Chart 22. The banks' deposits from the public, by lender category
SEK billion



Note. The figures for Swedish banks include deposits with the entities conducting their operations in Sweden. Swedish banks' operations conducted by branches or subsidiaries abroad are not included. For foreign-owned banks, branch operations in Sweden and Swedish subsidiaries are included.
Source: The Riksbank

(SIVs) are also placed off-balance sheet.[83] The common factor for these items is that the bank, as yet, does not have a real and quantifiable liability. That is to say that there is uncertainty regarding whether the banks' commitments will actually result in a liability and, if so, the date when this will occur and the total amount involved.

One consequence of the financial crisis was that the banks found it more difficult to fund themselves on the market, particularly in 2008, but also in 2009. The extensive global uncertainty regarding counterparty creditworthiness and liquidity made investors unwilling to lend money for the funding of banks and other financial institutions. Consequently, borrowing at longer maturities in particular became unusually expensive and, at times, impossible. It was particularly difficult for the banks to refinance the foreign market funding.

The Swedish banks have undertaken a number of measures to ease the financing of the banks and improve the functioning of the financial markets. For example, the Riksbank has increased the availability to the banks of credits with terms of up to twelve months.[84] These credits were issued in exchange for the provision by the banks of collateral to the Riksbank. This increased lending from the Riksbank can be seen in Chart 21, which indicates the banks' liabilities and equity. It is also shown in Chart 19 on the banks' assets, which is because the banks deposit much of the additional liquidity in the Riksbank overnight through the Riksbank's fine-tuning operations. The banks' opportunities to obtain funding improved at the end of 2009, and the Riksbank decided in February 2010 to stop offering the variable-interest rate loans with a twelve-month maturity.[85]

During the financial crisis a guarantee programme was established to facilitate the banks' funding. This guarantee programme meant that institutions could issue securities with a guarantee that the government, for a fee, would step in if the institution offering the guaranteed loan was unable to pay its lenders. The government bank guarantees were used most at the beginning of the year, and declined gradually during the second half of 2009. The programme has been extended several times and now applies until 31 December 2010. Prior to the guarantee programme becoming established, the Swedish National Debt Office made additional issues of treasury bills during a transition period.

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[83] Conduits and SIVs are not very common in Sweden.

[84] A complete list of the measures adopted by the Riksbank is available at the Riksbank's website, www.riksbank.com.

[85] On 20 April 2010 the Riksbank decided to also stop offering loans with three-month and six-month maturities, and to instead offer 28-day loans at a variable interest rate. These loans are priced relatively high with the intention of encouraging the banks to use normal market funding instead.

The funding from the Riksbank and the Swedish National Debt Office amounted to around 6 per cent of the banks' total funding at the end of 2009, which was roughly as much as at the end of 2008, but much more than the half a per cent which this funding accounted for before the crisis broke out. More information on the implications of the Riksbank's measures can be found in the box on the impact of the Riksbank's extra lending on the balance sheet in the chapter The financial markets.

MORTGAGE INSTITUTIONS

The mortgage institutions belong to the credit market companies category and their main task is to fund the purchase of property, primarily homes. Loans are secured mainly by legal charge on real property or municipal sureties. State credit guarantees are also used. Lending by mortgage institutions constitutes around 42 per cent of the total lending of credit institutions.

There are, in all, six mortgage institutions in the Swedish market. Four of these are part of a financial group. Frispar Bolån is partly owned by SBAB, Sparbanken Finn and Sparbanken Gripen. SBAB is wholly owned by the Swedish state. The three largest institutions are part of banking groups and together account for 81 per cent of the mortgage institutions' total assets (see Table 10).

At year-end 2009, lending by the mortgage institutions to the public amounted to SEK 1 932 billion. Lending with single-family dwellings and multi-family dwellings as collateral comprised the largest part – just under 80 per cent (see Chart 23). Lending with tenant-owner apartments as collateral has increased very sharply and is now more than four times as large as at year-end 2001. Contributory factors here include both higher market prices and the conversions of rental properties to tenant-owned properties that have taken place during the period. In Chart 23, the mortgage institutions' lending to the public

Table 10. Mortgage institutions in Sweden, total assets and lending at year-end 2009
SEK billion

	TOTAL ASSETS	LENDING
Swedbank Hypotek	784	664
Stadshypotek AB	672	635
Nordea Hypotek	393	374
SBAB[1]	344	182
Länsförsäkringar Hypotek	81	68
Frispar Bolån	10	9
Total	2 284	1 932

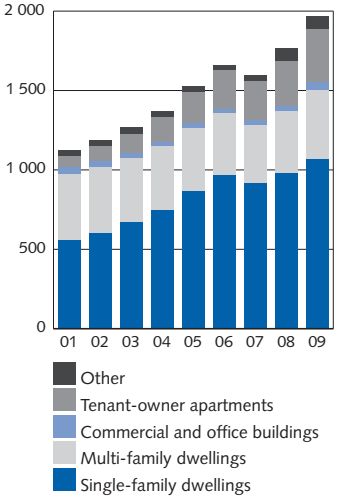
[1] Including SBAB's subsidiary AB Sveriges Säkerställda Obligationer (The Swedish Covered Bond Corporation).
Source: The Riksbank

appears to decline between 2006 and 2007. However, this is not due to an actual decrease in lending in the form of home loans, but results from the merger of SEB Bolån into SEB's banking arm in 2007, after which SEB Bolån is no longer a freestanding mortgage institution.

The interest rates on loans from mortgage institutions can be fixed, for different terms, or variable.[86] The choice of fixed-interest period is affected, for instance, by customers' expectations regarding the development of short-term and long-term interest rates. In 2009, the percentage of new loans granted at variable rates was 84 per cent. Fixed-rate loans with terms of more than five years and fixed-rate loans with terms up to and including five years accounted for 3 per cent and 13 per cent respectively of total new loans (see Chart 24).

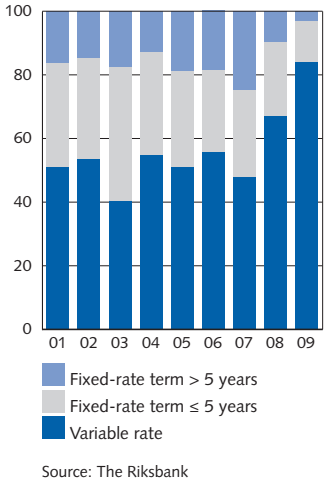
The distribution of fixed-rate short and long-term loans and variable-rate loans in the mortgage institutions' total loan stock has varied over the most recent ten-year period. Over this entire period, and particularly during 2008 and 2009, the percentage of fixed-rate loans for five years or more has declined, while loans at fixed rates for terms of up to five years and variable-rate loans have increased. At year-end

Chart 23. Lending by mortgage institutions to the public
SEK billion



Note. The decrease in the mortgage institutions' lending to the public from 2006 to 2007 is due to the merger of SEB Bolån into SEB's banking arm at that point in time. Consequently, this is not an actual reduction but only a consequence of the organisational change in SEB.
Source: The Riksbank

Chart 24. New lending per year by mortgage institutions according to the original fixed-rate term
Per cent



Source: The Riksbank

[86] The major banks no longer offer loans with entirely variable rates. A three-month fixed period has replaced the previous variable rate.

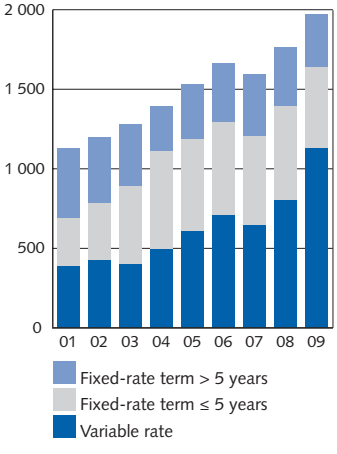
2009, 57 per cent of the total consisted of variable-rate loans, while 26 per cent of loans at fixed rates were for terms of up to and including five years and around 17 per cent had fixed rates for more than five years (see Chart 25).

The mortgage institutions mainly obtain funding for the credit granted by issuing bonds, what are known as covered bonds, and certificates (see Chart 26). These are purchased primarily by large asset managers, such as the AP funds, the insurance companies and the banks. Funding by the bank-owned mortgage institutions also largely consists of loans from their parent bank. Mortgage institutions also borrow from domestic companies and households, for instance, by issuing private bonds. A considerable share of funding takes place in foreign markets.

The mortgage institutions strive to extend the maturities for their borrowing to better match the maturities for assets and liabilities.[87] Banks fund themselves largely at a fixed interest rate, but lend money at a variable rate, which leads to interest rate risks. To reduce these interest rate risks, the mortgage institutions use derivatives, so-called interest-rate swaps.[88]

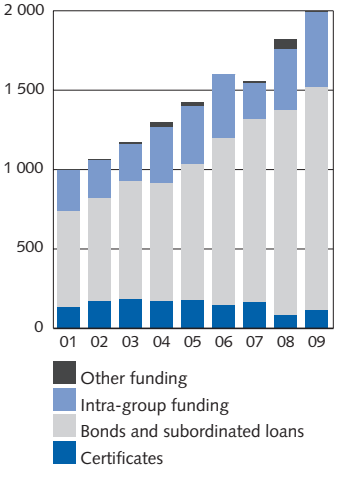
Like the banks, the mortgage institutions experienced some deterioration in the possibility to obtain funding in the securities market

Chart 25. Loan stock of mortgage institutions according to the original fixed-rate term
SEK billion



Source: The Riksbank

Chart 26. Funding by mortgage institutions
SEK billion



Source: The Riksbank

[87] See the box Effects of liquidity requirements for banks on Swedish mortgage rates in Financial Stability Report 2010:1.
[88] See the description of interest rate swaps in the section on the fixed-income market in the chapter The financial markets.

during 2008 and part of 2009 as a result of the financial crisis. It became both more difficult and more expensive to raise loans through the issue of certificates or bonds. However, to a certain degree, mortgage institutions have been able to issue covered bonds[89] to their parent companies, which are subsequently pledged to the Riksbank with the aim of utilising the loan facilities established by the Riksbank to a greater degree. They have also been utilised in reverse repos[90] with the Swedish National Debt Office. This has contributed to the entire banking groups obtaining better access to funding. During the second half of 2009 the financial markets began to function better and the demand for government measures declined.

At year-end 2009, borrowing through bonds and subordinated loans totalled SEK 1 404 billion, while short-term borrowing through certificates amounted to SEK 116 billion (see Chart 26).

OTHER CREDIT MARKET COMPANIES

Credit market companies also include finance companies other than mortgage institutions. At year-end 2009, lending by these institutions comprised ten per cent of total lending by credit institutions. Almost one fifth of the total assets of SEK 856 billion is attributable to the finance companies linked to the four major banking groups (see Table 11).

Prior to 1985, restrictions limited the scope of banks to lend money. By setting up finance companies, which were not subject to

Table 11. The ten largest institutions in the category other credit market companies, total assets at year-end 2009 SEK billion

Svensk Exportkredit AB	363
Kommuninvest i Sverige AB	174
Landshypotek AB	60
Handelsbanken Finans	54
Nordea Finans Sverige AB	45
Swedbank Finans AB	31
DnB NOR Finans	13
Volkswagen Finans AB	11
Wasa Kredit AB	9
Svenska Skeppshypotekskassan	8
Total 10 largest	769
Total	856

Note. Excluding the foreign operations of the Swedish institutions conducted by branches and subsidiaries abroad.
Source: The Riksbank

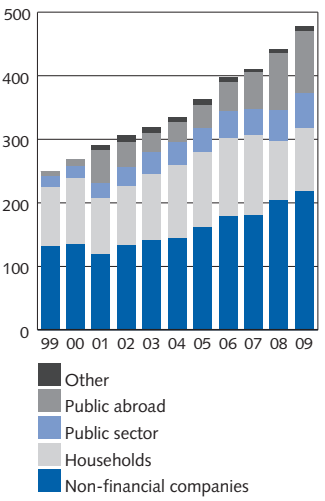
[89] For a description of covered bonds, see the box Covered bonds in Sweden.
[90] See the definition in the chapter The financial markets.

these restrictions, the banks were able to increase lending. Today, finance companies have typically specialised in one specific form of financing, for example leasing and factoring services for corporate customers and promissory note loans and credit card accounts to households.[91] For administrative reasons, they still operate as independent companies within the banking groups.

Finance companies are also owned by non-financial companies. In such cases, they provide complementary services to normal operations through the financing facilities offer to the company's customers. For example, large car manufacturers often provide financing opportunities to purchasers.

Other finance companies have focused on granting loans to a particular sector. The largest of these institutions is Svensk Exportkredit (SEK), a mainly state-owned company. SEK is charged with the task of fostering growth in the Swedish export industry. In addition, Kommuninvest i Sverige AB was established by a number of municipalities and county councils. Its purpose is to arrange funding for its members that is as cost-efficient as possible. Similarly, Landshypotek AB aims to provide its members (agricultural and forestry companies in Sweden) with funding on favourable terms.

Chart 27. Lending by other credit market companies to the public
SEK billion



Source: The Riksbank

[91] Factoring can either refer to borrowing against an invoice or the sale of accounts receivable. An invoice borrowing agreement with a factoring company implies that a company receives credit against collateral consisting of its invoiced accounts receivable. A promissory note is the same as a debt instrument, i.e. a written promise to repay a debt. Loans against a promissory note are a common type of bank loan.

The finance companies fund their operations mainly through loans from other financial institutions, in particular the banks. Some finance companies also obtain funding by issuing certificates, bonds and promissory notes in the securities market. Outstanding loans to the public by other credit market companies amounted, at the end of 2009, to SEK 478 billion (see Chart 27). Of these loans, 45 per cent were made to Swedish companies, while 20 per cent went to Swedish households and 20 per cent went to public borrowers abroad. There are 53 companies categorised as other credit market companies on the Swedish market, of which 46 are finance companies.

Private equity investment companies

Banks do not normally contribute private equity, as this does not lie within their business concept.[92] Instead, both established companies and those that are not yet ready for listing on the stock exchange or other forms of public trading in their shares can sometimes acquire funding in the form of private equity. Smaller entrepreneurs wishing to develop their operations and avoid pledging private assets, such as their home, can also obtain private equity. This kind of funding has increasingly been channelled through a special type of intermediary, the private equity investment company.[93]

Private equity investment companies invest in unlisted companies in the form of equity. These investments are funded through risk capital funds owned by the private equity investment companies. The development of the companies in which the private equity investment company has invested, the portfolio companies', determines the amount of yield received by the private equity investment company. Private equity investments may basically be categorised as investments in early phases of a company's life cycle, known as *venture capital* investments, and investments in later phases of the company's life cycle, known as *buy-out* investments. Early phase investments usually entail high risk. This is because the investment is often made in newly-started companies with weak cash flows and few tangible assets. Private equity investment companies also differ from other financiers in that they frequently play an active owner role in the companies in which they invest.

In Sweden, the first private equity investment companies were established at the end of the 1980s. However, the sector has grown

[92] Risk capital investments undertaken in unlisted companies are usually known as private equity.
[93] For a description of private equity investment companies in Sweden, refer, for example, to the article Private equity investment companies in Sweden in the Riksbank's Financial Stability Report 2005:1.

rapidly, especially in recent years. According to the Swedish Private Equity and Venture Capital Association (SVCA), 159 private equity investment companies were operating in Sweden in December 2009. The majority of these focus on the buy-out segment. Together, Swedish private equity investment companies managed total assets in an amount of approximately SEK 400 billion at year-end 2009.[94] Approximately half of the assets managed are invested in portfolio companies.[95]

In Sweden, an amount equivalent to a half per cent of GDP is invested in private equity through private equity investment companies. A large part of the capital in Swedish equity funds is from foreign investors. Institutional investors, such as fund-in-fund managers, pension funds and insurance companies are among the predominant categories of investors.[96]

Insurance companies, fund management companies and pension funds

Financial intermediaries also include a number of middlemen whose activities are not primarily focused on the supply of capital. 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 in common that they are important investors in the financial markets. As investors, they concentrate more on managing others' money than their own.

Table 12. The ten largest insurance companies' investment assets at year-end 2009, groups
SEK billion

INSURANCE COMPANY	INVESTMENT ASSETS
Alecta	447
Skandiakoncernen	404
SEB Trygg Liv	362
AMF Pension	307
Folksam	243
Länsförsäkringsgruppen	167
SPP	146
If Skadeförsäkring	82
Swedbank Försäkring	74
Handelsbanken Liv	68
Others	424
Total	2 724

Sources: Statistics Sweden and company reports

[94] Swedish Private Equity and Venture Capital Association: www.svca.se.
[95] European Private Equity and Venture Capital Association: www.evca.eu.
[96] Ibid.

The insurance companies supply the general public with life and non-life assurance. Non-life assurance enables the public to reduce risks associated with property. Life assurance, on the other hand, is linked to one individual and can provide compensation in the event of injury or death of the insured individual, but can also include pension assurance. Life assurance thus provides the possibility of allocating income over an individual's remaining lifespan and such products are consequently frequently regarded as long-term forms of saving. The policyholder pays a premium to obtain this insurance cover. The insurance companies invest the premiums they receive in the securities market.

Other forms of long-term savings are provided by the national pension funds and by private fund management companies. The national pension funds administer the assets the state has set aside to cover its pension undertakings, while fund management companies manage the public's savings in securities funds.

INSURANCE COMPANIES

At year-end 2009, there were 351 Swedish insurance companies active in the domestic market. In addition, 35 foreign companies were operating through branches in Sweden. Most of the Swedish insurance companies are small, local non-life companies but the market is concentrated to a few major companies. Taken together, the insurance companies had investment assets amounting to SEK 2 724 billion at year-end 2009. Approximately 84 per cent of this amount was held by the ten largest insurance companies (see Table 12).

Insurance companies are divided into life assurance and non-life assurance companies. These businesses may not be carried out in the same company, although it is common to have both types of business in the same corporate group. Life assurance and non-life assurance companies both offer insurance against risk, albeit totally different types of risk.

Life assurance companies can pay out compensation when an insured person is unable to work, dies or reaches retirement age. The type of compensation provided by the insurance cover depends on how the policies are formulated. The products need not be seen only as insurance, but can also be seen as a form of long-term saving in which the policyholder has a claim on the capital managed by the insurance company.

Life assurance can be divided up into traditional life assurance and unit-linked insurance. Traditional life assurance pays a guaranteed

minimum return, while the yield from 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 Fund management companies).

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 property damaged in an insurance event. Unlike life assurance, non-life assurance policies are not a form of saving. The activities of these companies in the securities market only take place in order to manage the companies' own funds.

Wage earners can also take out *group insurance policies*, which are based on labour market agreements. These provide additional cover in the event of sickness, occupational injury or retirement.

Insurance companies in Sweden can take three corporate forms: dividend-paying limited liability companies, limited liability companies operated on mutual principles and entirely mutual companies. Limited liability companies run on mutual principles and entirely mutual companies are known as non-dividend-paying companies. Accordingly, the corporate form in which an insurance company conducts its business operations is of significance, for instance, for the allocation of yield.

The assets of a dividend-paying limited liability assurance company consist of 'investment assets', i.e. premiums invested in various securities. The liabilities consist primarily of technical provisions. The technical provisions must correspond to the amount needed by the company to meet all the commitments arising from the insurance contracts into which it has entered.[97] Equity consists 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 and it is the shareholders who must contribute capital if the company does not fulfil its undertakings. Policyholders in these companies do not take on any financial risk. On the other hand, financial risk is assumed by the policyholders in a limited liability company operated on mutual principles and in entirely mutual companies, where the policyholders themselves own the equity. All surpluses arising in mutual companies accrue to the policyholders. However, this also implies that the policyholders accept the risk that a deficit may arise, which can entail such results as the lowering of pension payments.

[97] The amount of these technical provisions is calculated using a number of variables, including expected return, life expectancy, estimates of future operating costs and premium income of contracts entered into, as well as the discount rate which is used to calculate the present value of the company's future commitments. The discount rate is determined, among other things, by the rates for government bonds and covered bonds.

The total investment assets of the nationwide life assurance and non-life assurance companies amounted at year-end 2009 to SEK 2 724 billion. Of these assets, the life assurance companies accounted for roughly 80 per cent (see Chart 28).

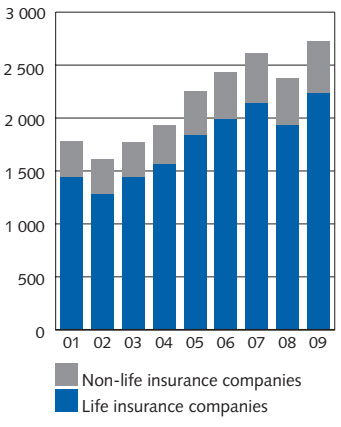
The investment assets of insurance companies comprise mainly equities and bonds. The percentage invested in equities fell during 2001, 2002 and 2008 due to the negative development of the equity markets. In December 2009, equity accounted for around 50 per cent of the investment assets and the capital managed. Holdings of bonds and short-term investments made up 40 per cent and 4 per cent respectively of the investment assets. Investments in properties only accounted for a minor part (see Chart 29) and 33 per cent of investment assets were foreign investments.

Insurance associations and pension foundations

In addition to insurance companies, insurance associations and pension foundations also provide insurance services. Compared to the insurance companies, these institutions represent only a small portion of the pension insurance market.

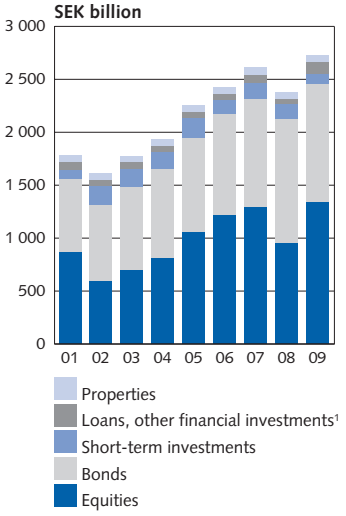
Insurance associations are associations that conduct insurance business on behalf of employees at one or more companies. Their activities are aimed at individuals in the same professional group or mem-

Chart 28. Investment assets of the insurance companies
SEK billion



Source: Statistics Sweden

Chart 29. Insurance companies' investment assets, by type of financial asset
SEK billion



[1] Changed definition from and including the first quarter of 2009. The current definition includes lending, derivatives and repos.
Source: Statistics Sweden

bers of certain communities of interest. Most insurance associations only offer pension insurance, but a few also offer health insurance. At year-end 2009, a total of 78 insurance associations were operating, with total assets amounting to approximately SEK 108 billion.[98]

Pension saving can also be conducted through pension foundations. 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. At year-end 2009, there were around 2 200 active pension foundations in Sweden, which, together had SEK 166 billion in assets.[99]

FUND MANAGEMENT COMPANIES

Fund management companies administer and manage capital in mutual funds. Generally, each fund management company can offer a large number of funds with a different investment focus. The Swedish fund management market is dominated by the bank-owned fund management companies. The four biggest fund management companies, owned by the largest banking groups, together account for 66 per cent of the fund market (see Table 13). In the case of these fund management companies, the banks' branches or Internet services act as distribution points. Fund investment in Sweden totalled SEK 1 583 billion in managed capital at year-end 2009.

The assets managed in equity funds amounted to SEK 952 billion at year-end 2009. Besides equity funds, other kinds of fund include fixed income funds, which invest in interest-bearing securities, and 'mixed funds', which invest in both equities and interest-bearing securities. The assets managed in fixed income funds and mixed funds amounted to SEK 378 billion and SEK 254 billion respectively for the same period. In addition to these types of funds, there are also hedge funds, which differ from other funds in that their management is relatively unrestricted regarding both investment strategies and the financial instruments that may be used, such as derivatives. The assets managed in hedge funds totalled around SEK 88 billon at year-end 2009 (see Table 14).

[98] The majority of insurance associations conduct their own asset management, while some outsource asset management. The fact that some insurance associations outsource their asset management means that some overlapping exists in the reporting of data, as these assets are also included in investment assets of fund management companies.

[99] Information on the assets held by pension foundations is based on data reported at the turn of the year 2009/2010. For pension foundations with a split financial year, the reported figures thus refer to the financial year 2008.

Fund management companies affiliated to insurance companies have markedly increased their share of the fund market in recent years, due to the growing interest in choosing funds for pension saving. This, in turn, is partly a result of Sweden's pension reform in 2000, which saw the introduction of a premium pension system (PPM). In the premium pension system, the amounts set aside for premium 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 forms of savings are basically the same product, the differences being the forms of ownership and taxation. Consequently, mutual funds today compete to some extent with the life assurance companies.

Just as in 2001 and 2002, during 2008 the total assets of equity funds decreased in comparison with the previous year, both in terms of SEK and as a proportion of the total investment fund assets. This was largely due to the negative developments in the stock markets.

Mutual fund wealth increased substantially in 2009 and was at the year-end largely back at the levels prevailing prior to the financial

Table 13. The ten largest fund managers, assets under management, year-end 2009
SEK billion

Robur	418
SEB	275
Nordea	214
Handelsbanken	143
Länsförsäkringar	67
Skandia	54
AMF Pension	52
SPP Fonder AB	49
Skagen	34
Danske Fonder	28
Total 10 largest	1 334
All	1 583

Source: Svensk Fondstatistik (part of MoneyMate)

Table 14. Mutual fund assets, per type of fund
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Equity funds	522	343	445	514	733	868	895	543	863
Fixed income funds	162	205	244	275	310	340	354	373	378
Mixed funds	154	119	141	158	202	238	247	204	254
Hedge funds	28	36	43	50	71	82	76	66	88
Total	867	702	873	997	1 316	1 528	1 572	1 185	1 583

Note. The figures in the table indicate the capital value of Swedish savings in mutual funds, by type of fund.
Source: Svensk Fondstatistik (part of MoneyMate)

crisis. Net saving in funds during the year was at an all-time high. Two factors contributing to the increased saving were low interest rates and good stock market growth.[100] Of total mutual fund wealth at the end of 2009, equity funds accounted for 57 per cent, fixed income funds 23 per cent and other funds 20 per cent (see Table 14).

STATE-OWNED PENSION FUNDS

The Swedish public pension system is made up of two components: one collective and one individual. The collective element is often referred to as an *income pension*, and is a "pay-as-you-go" system whereby pensions are financed by current charges. The individual element consists of a *premium reserve system* in which pension disbursements are financed by money paid into funds during individuals' working lives and where individuals themselves choose their fund management company. Of the guaranteed pension, equivalent to 18.5 per cent of the individual'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 national pension funds is primarily to manage the pension capital within the framework of the pay-as-you-go system. This task is carried out in the first place by the First, Second, Third, Fourth and Sixth AP funds. The Seventh AP fund manages the capital in a premium reserve system, in competition with private fund management companies. The Seventh AP Fund 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 state inter alia that pension capital may be invested in all capital market instruments that are listed and tradable.[101] One restriction is that at least 30 per cent of the funds' assets must be invested in low-risk debt securities. A limited portion of the assets may be exposed to foreign exchange risk. The Sixth AP Fund has the most flexible investment rules with regard to choice of instruments, but it may not invest abroad. The Seventh AP Fund may also invest in instruments other than shares and debt securities and, like the first four AP funds, is also allowed to invest abroad.

At year-end 2009, the investment assets of the AP funds totalled SEK 931 billion. This can be compared with life assurance companies and the fund management companies, whose investment assets

[100] The Swedish Investment Fund Association, www.fondbolagen.se.
[101] Up to five per cent of the assets may be invested in unlisted securities. However, these investments must take place indirectly through mutual funds or private equity investment companies.

amounted to SEK 2 238 billion and SEK 1 583 billion respectively in December 2009.

Securities institutions

Securities institutions is the term used to refer collectively to the securities companies and Swedish credit institutions that are licensed by Finansinspektionen (the Swedish Financial Supervisory Authority) to engage in securities trading. The term also covers foreign companies that engage in securities trading through a branch in Sweden. The Authority can license eight different kinds of investment activities.[102]

Securities institutions have two primary functions. One is to trade with securities in their own name on behalf of customers, i.e. commission trading, and the other is to buy and sell securities on their own behalf in their capacity as market maker.[103] Being a market maker involves quoting two-way prices (i.e. bid and ask prices). All market makers must therefore be prepared at all times to buy and sell securities. To ensure this, the institutions need to hold a stock of securities, and thereby take on some of the market risk. By bringing together purchasers and sellers of securities and acting as market makers, they contribute to liquidity and thus a more efficient market in securities.

Another important role played by the securities companies is in underwriting and assisting in other ways in connection with the issue of securities. By doing so, they make an important contribution in reducing the information gap between issuers and investors. Securities companies are also able to provide credit to customers purchasing securities and administrative services. They also accept deposits, to a limited extent.

At year-end 2009, just over 200 Swedish companies had one or more of the above-mentioned licences to engage in securities trading. Just over half of these companies were securities companies, while the others were mainly banking companies and savings banks.

SECURITIES COMPANIES

Of the securities companies registered at year-end 2009, four companies held seven of the eight different licenses for securities trading activities. Most of these companies were also members of NASDAQ OMX Stockholm. At year-end 2009, two companies held the eighth license for "operation of a trading facility".[104]

[102] For further information concerning these licenses see Finansinspektionen's website, www.fi.se.
[103] The role of market-makers is described in greater detail in the chapter The financial markets.
[104] See the review of trading facilities in the chapter The financial markets.

Frequently, many securities companies are specialised in one or a small number of activities and therefore only need licenses for those. This group includes, for example, a large number of smaller asset management companies, as well as companies with other specialisations. Among the securities companies, there are also a number of power and commodity dealers.

As many securities companies concentrate on arranging contracts between potential buyers and sellers, their balance sheets are often relatively modest. At year-end 2009, the total assets of the securities companies amounted to about SEK 30 billion.

SWEDISH CREDIT INSTITUTIONS THAT ENGAGE IN SECURITIES TRADING

In addition to investment companies, many banks engage in securities trading on a major scale. Of the total of 34 banking companies registered in Sweden at year-end 2009, 27 were licensed for securities trading. Ten of these banking companies held seven of the eight licenses for securities trading. The four major banks, Swedbank, Handelsbanken, Nordea and SEB are represented among the companies holding the most licenses.

Among the banking companies conducting securities trading, there also exists a group of companies operating basically only in securities trading, but which have, for various reasons, applied for and been granted banking licences, mainly to avoid restrictions and competitive disadvantages vis-à-vis the banks. Furthermore, the Swedish securities companies may, subject to certain restrictions, accept deposits in order to facilitate their securities trading business.

Besides the securities companies and banking companies referred to above, 50 savings banks had one or more securities trading licences at year-end 2009. Usually, these involved a licence to act as an agent in securities transactions, i.e. to accept the customer's order locally and submit it to an affiliated bank holding more licenses.

Central laws in the financial sector

Banking

Banks that conduct banking operations and *credit market companies* that conduct *financing operations* are subject to the regulations in the **Banking and Financing Business Act**.

This act states, for instance, what banking and financing business entails, and that banks and credit market companies need a licence from Finansinspektionen, the Swedish Financial Supervisory Authority, before they can begin conducting banking or financing business. A banking business is a business that combines the mediation of payments through general payment systems with receiving money (for instance, deposits in accounts) that may need to be repaid within a maximum of 30 days. A financing business also combines two operations: first, receiving funds from the general public and, second, offering credit, guaranteeing credit, buying other companies' claims, (for instance, invoices) or the financial leasing of personal property (such as cars). In addition to conducting banking or financing business, a bank or a credit market company may conduct other financial activities.

A bank can be either a limited liability bank, a savings bank or a co-operative bank. A credit market company can be a limited liability company or an economic association.

Banks and credit market companies (credit institutions) come under the supervision of Finansinspektionen. The Banking and Financing Business Act describes the requirements that banks and credit market companies must meet. This includes provisions regarding how banks and credit market companies should be organised, how they should conduct their operations and what demands are made of their owners and management.

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 act states how much buffer capital a bank or credit market company should hold in relation to the risks it takes, and how this should be calculated. Another important act is the **Act on Measures against Money Laundering and Terror-**

ist Financing. This act aims to prevent financial operations from being used for laundering money or for financing terrorism.

Examples of other laws that have a bearing on banks and credit market companies are the **Consumer Credit Act** and the **Act on the Deposits Guarantee Scheme**. The main purpose of the former is to regulate how credit services to consumers may be marketed. The Act on the Deposits Guarantee Scheme aims to guarantee funds in accounts of up to SEK 500 000 per customer and institution, or if it is higher, the amount in kronor corresponding to EUR 50 000. All types of accounts with banks and credit market companies (and securities institutions, see below) are covered, regardless of whether the money in the accounts may be freely withdrawn. However, this does not apply to individual pension savings.

Under the **Deposits Business Act**, other limited companies and economic associations besides the credit institutions and securities companies can accept money (for example, deposits) from the public that is to be repaid within one year after a request from the customer. They must first register with Finansinspektionen. These companies, known as *deposit companies*, may accept at most SEK 50 000 per consumer, but there is no corresponding limit to the amount of money the company can receive. Deposit companies are not subject to supervision but are to be inspected by Finansinspektionen once a year. These companies are also covered by the Act on Measures against Money Laundering and Terrorist Financing. The money received by deposit companies is not covered by the deposit guarantee.

The **Government Support to Credit Institutions Act**, also known as the Support Act, was passed to manage the financial crisis that culminated in 2008. The Support Act gives the Swedish state the possibility to offer support to banks and credit market companies to prevent them suffering financial problems that might pose a threat to the stability of the financial system. For example, in such a situation, the state can provide guarantees or capital injections or, as a last resort, take over ownership of a credit institution through the compulsory redemption of the companies' shares. On the basis of the Support Act, a programme

for borrowing with a government guarantee has been introduced, as has a capital injection programme.[105]

Insurance business

Two fundamental pieces of legislation regulate private insurance operations: The **Insurance Business Act**, which lays down the regulatory framework that governs insurance operations, and the **Insurance Contracts Act,** which regulates the relationship between insurance companies and policyholders.

The Insurance Business Act contains rules on the establishment of insurance companies in Sweden, their operations and supervision. The commercial rules distinguish between life assurance and non-life assurance operations, activities that, in principle, must be conducted in separate companies. Policyholders are protected through a requirement to provide information and a clear demarcation between equity and policyholders' capital, as well as a contractual right to profits.

The Insurance Contracts Act regulates the legal relationship between the insurer and the policyholder – as well as other beneficiaries. The Act applies to non-life assurance, life assurance, accident insurance, health insurance and consumer insurance. The Insurance Broking Act applies to the actual distribution of insurance products. It regulates how these operations are licensed, stipulates a central register of brokers and lays down certain requirements with which the brokers must comply.

Financial markets

The **Swedish Securities Market Act** covers several businesses that are important to a well-functioning securities market, namely securities business, stock market operations and similar, as well as clearing and settlement. The principal rule is that a licence is required for companies wishing to conduct any of these operations, and once a licence has been granted, these companies will come under the supervision of Finansinspektionen.

Securities business involves, for instance, the purchase or sale of financial instruments (e.g. shares) on behalf of customers, financial advice, discretionary port-

[105] The capital injection programme was introduced during the first half of 2009.

folio management and investment advice regarding financial instruments. The companies that are allowed to conduct securities business are called securities institutions (or securities companies). The Swedish Securities Market Act contains regulations on how the securities institutions should organise and conduct their operations and what demands are made of their owners and management. The act also includes rules of conduct that are aimed at protecting consumers. Like the credit institutions, the Swedish securities institutions are governed by the Capital Adequacy and Large Exposures (Credit Institutions and Securities Companies) Act and by the Act on Measures against Money Laundering and Terrorist Financing.

For *stock markets* and similar, the Securities Market Act describes the demands made of the stock market's operations, what requirements apply for a financial instrument to be traded on a regulated market, and also rules regarding entry onto regulated markets. Moreover, there are provisions regarding the demands made on the stock market owners and management.

With regard to a *clearing organisation* that engages in clearing activities (that is, clearing or settlement), the act states what particular operating requirements are made of the companies conducting this business and what requirements are made of those who participate in the clearing activities. In addition, there are provisions regarding the demands made on a clearing organisation's owners and management.

Another act that has particular importance for securities trading is the **Financial Instruments Accounts Act**. This act contains provisions on, for instance, the measures taken after the clearing and settlement of a securities transaction, namely the accounting process. The accounts show, for instance, who owns the equity and other financial instruments.

Securities trading is also regulated in the **Financial Instruments Trading Act** and the **Market Abuse (Financial Instruments Trading) Penal Act.**

The **Financial Advice to Consumers Act** ensures consumer protection in the event of investment advice, i.e. advice relating to investment in financial instruments. The **Investor Protection Act** contains rules which provide some financial protection to investors who have lost securities if the securities institution, fund

company or management company managing them becomes bankrupt. Investment cover currently amounts to SEK 250 000 per customer and institution.

The operations of fund management companies are regulated in the **Mutual Funds Act**. This Act contains provisions on mutual funds and what are known as special funds. The latter differ from mutual funds, for instance, through their focus and the target group at which they are aimed. The assets of a mutual fund or a special fund, as well as incoming and outgoing payments relating to the fund, are administered by a depository. This depository must be a bank or other credit institution. The fund management company and the depository operate independently of each other.

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. This requires an effective financial infrastructure consisting of various systems and routines governing the use of these systems. The following chapter begins by describing the different types of payment that exist and the infrastructure that is used for these payments. This is followed by a more detailed review of various types of retail payment and how they are used. The chapter concludes with a description of the most important systems in the Swedish financial infrastructure and an illustration of payment flows in Sweden.

Different types of payment

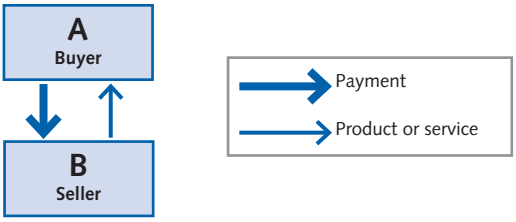
There are different types of payment, for example simple payments such as those made in cash or more complicated payments, for example card payments. Three different types of payment and the demands they impose on the financial infrastructure are described below.

A SIMPLE PAYMENT

In a *simple payment*, for example a cash payment, the claim is extinguished when the buyer pays using banknotes or coins. No intermediary is required for such a payment and there is no time lag between the initiation and completion of payment. Figure 1 provides an example of a simple payment.

A and B may be individuals, companies or authorities. A buys a product or service from B and pays for it by making some type of payment to B. These steps complete the payment.

Figure 1. Example of a simple payment



PAYMENT USING AN INTERMEDIARY

The major difference between a simple payment and a *payment using an intermediary* is that the execution of the latter requires a more advanced financial infrastructure. More parties are thus required than those directly involved in the transaction.

An example of a payment using an intermediary is an account transfer between two individuals with accounts at the same bank where the payer initiates the payment by instructing the bank to transfer funds. The bank then transfers the funds from the payer's account to the recipient's account and informs the recipient that his/her account has been credited. When the transfer is executed the payment has been made and thus settled, i.e. completed.

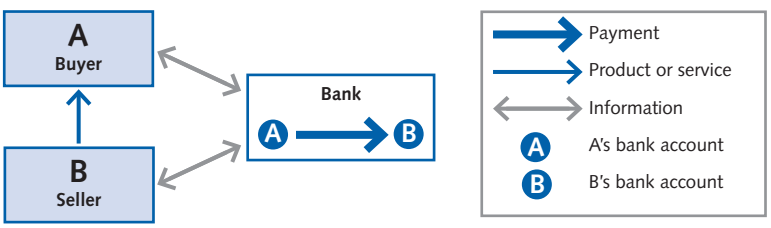
Figure 2 illustrates a transaction between A and B when A and B have accounts with the same bank. The bank receives the information on the transaction, debits A's account and credits B's account with the same amount.

PAYMENT USING SEVERAL INTERMEDIARIES

The picture becomes more complicated if A and B have accounts with different banks. It is then necessary to have more systems and an even more developed *financial infrastructure* in which information on the transaction can be transferred between the parties concerned. Such an infrastructure covers not only systems but also all the routines and regulations required to manage an account-based payment from beginning to end. Consequently, there is a time lag between the initiation and the completion of the payment.

If A and B have accounts with different banks and want to make a payment, a financial infrastructure is required that can mediate payments between different parties, see Figure 3.

Figure 2. Example of a payment using an intermediary

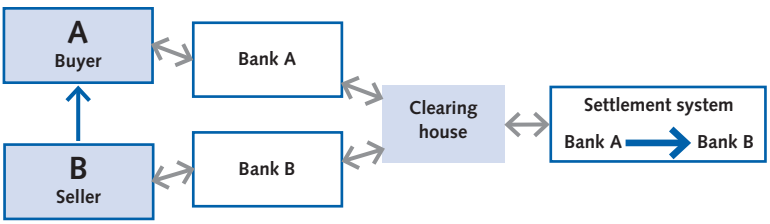


The processes managed within this infrastructure can generally be summarised in three steps.[106] In the first step the payment is *verified* and *authorised*. This often takes place in connection with the actual payment and involves verifying the identities of the parties and checking that the payment is valid. It also entails checking that there are sufficient funds to cover the payment. If the verification shows that there are sufficient funds the payment can be approved, i.e. authorised.

In the second step the transaction is *cleared*. This involves compiling instructions about the transfer. Clearing is performed by a *clearing organisation*. In the example shown in Figure 3, clearing involves a compilation of the transactions between two parties, A's and B's banks, and is therefore referred to as bilateral clearing. If more accounts and payment intermediaries are involved the compilation of transactions can be conducted for all the counterparties at the same time, so-called multilateral clearing.

In addition, clearing orders can be calculated as either gross amounts or net amounts. A's bank may, for instance, need to pay B's bank SEK 100, while B's bank has to pay A's bank SEK 50. The clearing orders can then be calculated as gross amounts, that is as total amounts. In this case this 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. The effect is to reduce the parties risk exposures to each other and thus their liquidity requirements. In this case, the clearing positions are compiled so that A's bank pays SEK 50 to B's bank. Multilateral netting involves all the participants' debts and claims being offset against one another. Each participant will then

Figure 3. Example of a payment using several intermediaries



[106] The three sub-processes – verification/authorisation, clearing and settlement – are also performed when the payer and the recipient have accounts with the same bank, but in this case are handled using the bank's internal systems.

have a single amount due from or payable to the other participants.[107] In some cases, clearing can instead be conducted through a central counterparty.[108]

In the third and final step the payment is *settled*. This means that the actual transfer is made from the payer's account to the recipient's account. If the payer and recipient have accounts in different banks, settlement takes place through 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 bank then debits, and the receiving bank credits, the respective customers' accounts. This settlement process is normally conducted using the accounts that the banks and some other financial companies, for example the clearing organisations, have with the relevant national central bank. Settlement is therefore carried out using central bank money in the settlement accounts provided by the central bank and not by a commercial bank. Read more about this in the section on RIX. When the three steps, that is verification /authorisation, clearing and settlement, have been carried out the payment has been completed.

TRANSFERS WHEN TRADING FINANCIAL INSTRUMENTS

Financial instruments include securities such as shares, bonds and derivatives. In a transaction involving shares or bonds, the steps are similar to those in the example of a payment using more than one intermediary. This means that a similar infrastructure is also needed. The difference between a payment using several intermediaries and a transaction in financial instruments is that securities trading entails two flows. Apart from the transfer of the payment for the securities from the buyer to the seller (the payment process), there is also a transfer of the securities themselves from the seller to the buyer (the securities process). Securities trading is outlined in Figure 4.

A securities transaction consists of three steps. In the first step the transaction is initiated. This takes place when A and B have placed their buy and sell orders in the marketplace and the orders have been matched. Matching involves checking that the brokers on the buy and sell sides agree on the amounts, products and times. Given that se-

[107] If we instead assume that there are three participants, where A is to pay SEK 100 to B and SEK 120 to C, where B is to pay SEK 50 to A and SEK 20 to C and where C is to pay SEK150 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 SEK170 to B and C pays SEK10 to B.

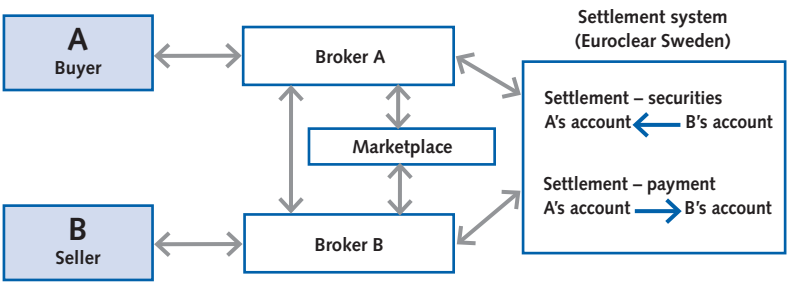
[108] Read more about central counterparty clearing in the section on transfers in trading with financial instruments.

curities trading involves large amounts of money, the safety aspect is especially important; any misunderstanding during such a trade could have serious financial consequences. In the second step the transaction is sent to the settlement system. Here the identity of the parties is verified and it is checked whether it is possible to make the two transfers. Instructions about the transfers are also compiled here. In the third and final step the transaction is completed with the settlement of the trade, which entails the simultaneous execution of the transfers in the payment process and the securities process. Settling the payment process and the securities process at the same time is referred to as *Delivery versus Payment (DvP)* and is a way of minimising the counterparty risks in a securities transaction. This eliminates the risk of a party paying for something that he or she does not receive, which could be the case if the two transactions were conducted at different times.

There are a number of important differences between transactions involving derivatives and transactions involving shares or bonds. In a derivatives transaction, the parties enter into a contract where the value of the contract is dependent on changes in the value of an underlying instrument.[109] Such a transaction does not thus involve a transfer of title to the underlying instrument as in the case of a share or bond transaction. Moreover, in a derivatives transaction the investor is exposed to a counterparty risk for a longer period of time than in a share or bond transaction. The contract may be valid for several months and throughout this period the value of the claim on the counterparty may change. This increases the risk that the counterparty will be unable to pay as planned. This risk remains until the derivatives contract matures. Only then is the transaction settled.

The clearing and settlement of financial instruments sometimes involves a *central counterparty*. A central counterparty is said to improve

Figure 4. Example of a financial instrument transaction

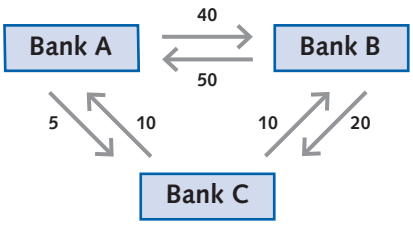


[109] The underlying instrument may be a security, a certain currency or a commodity.

the security of settlement by acting as a buyer to all the sellers and as a seller to all the buyers in securities transactions. Both the buying and the selling parties thus have the central counterparty as their counterparty. Counterparty risk in relation to many counterparties is thus replaced by counterparty risk in relation to only one, the central counterparty. Figures 5 and 6 illustrate the difference between not using and using a central counterparty in terms of turnover and the number of settlements.

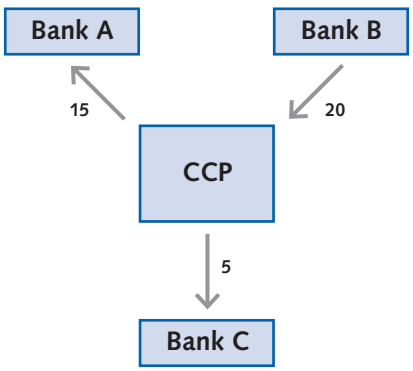
If the transactions are cleared and settled without using a central counterparty, as in Figure 5, the participants will have to handle six transactions and the turnover will amount to SEK 135. If the transactions are instead cleared and settled through a central counterparty, as in Figure 6, the number of settlement transactions falls to three, which also reduces the exchange of funds between the participants. The participants' net position with the central counterparty is the difference between what each participant would have paid in total and what they would have received from the other participants if clearing and settlement had been conducted without a central counterparty. This is

Figure 5. Exchange of funds in securities transactions without a central counterparty



	A	B	C	To be paid
A		40	5	45
B	50		20	70
C	10	10		20
To be received	60	50	25	135

Figure 6. Exchange of funds in securities transactions with a central counterparty



	CCP
A	15
B	–20
C	5

shown as the difference per participant between the last column and the last row of the table. In this way, turnover is reduced to SEK 40.

While this arrangement eliminates the counterparty risks for the buyer and seller, it also means that the risks are concentrated to the central counterparty, which must therefore be financially strong and have risk management routines. The central counterparty must always be able to deliver securities or cash in the event that a participant experiences delivery problems.

TRANSFERS IN FOREIGN EXCHANGE TRANSACTIONS

The infrastructure for foreign exchange trading is essentially similar to that for trading in financial instruments. Here too, there are two flows that have to be cleared and settled. The difference is that two payments are exchanged for one another, one in each currency.

The settlement of foreign exchange transactions can give rise to substantial risks. If the banks trading with one another are in different time zones, there is a risk that one party in a foreign exchange transaction will pay in the sold currency without receiving the bought currency. This entails full credit risk.[110] However, there are systems in the infrastructure that eliminate credit risk by settling both sides of a foreign exchange transaction at the same time. CLS, Continuous Linked Settlement, is one such system and is presented in more detail below.

Foreign exchange payments that are not settled using a special infrastructure require mediation by banks in other countries. This is common when foreign exchange transactions derive from ordinary payments and not from trading in financial instruments, for instance. If, for example, a foreign bank wants to make payments in Swedish kronor on its own behalf or on behalf of a customer, it opens an account with a Swedish bank. The Swedish bank then becomes what is known as a correspondent bank. The foreign 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 specified amount in kronor from the foreign bank's account. If the recipient of the payment has an account in the same bank as the foreign bank, the amount is credited directly to this account. The payment is thereby settled. However, if the recipient is another Swedish bank or has an account with another bank, the payment must first pass through the Swedish financial infrastructure before it reaches the recipient.

[110] Credit risk is the risk of a borrower failing to meet his commitments. In foreign exchange transactions this risk is often called Herstatt risk.

Large-value payments and retail payments

When we shop we exchange money for goods or services. All payments essentially entail a transfer of money between two parties, a payment sender and a payment recipient. However, the nature of the payments made between 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 very large amounts, often between SEK 10 million and SEK 100 million. However, they are much fewer in number than the retail payments. Retail payments are for relatively small amounts but entail a very large number of payments. The next section presents the different ways in which retail payments can be made. This is followed by a description of the systems that manage large-value payments.

Risks in the financial infrastructure

The payment and transaction flows managed in the systems in the financial infrastructure represent very substantial values. It is therefore of central importance that these systems work and that they do not entail risks that may adversely affect one or several participants. Preventing risks that arise in one system from spreading to other systems is also very important.

In recent years, a lot of work has been done to improve the ability of the systems to manage different types of counterparty and settlement risks. These risks can arise in different ways, for example in securities systems if the delivery of and payment for a security do not occur simultaneously, or in a payment system where the two parts of a payment are not conducted at the same time. A number of functions have arisen to manage these risks, for example so-called Delivery-versus-Payment (DvP) in a securities system where payment and delivery are executed simultaneously, or so-called Real Time Gross Settlement (RTGS) for a payment system where settlement is conducted in real time on a gross basis. These functions are also available in the Swedish systems and consequently the risk of losses arising as the result of counterparty and settlement risks has decreased considerably.

The systems still entail risks, but the focus is now instead on the large amounts of liquidity that these systems handle every day. In recent years, the trend has been for financial systems to handle increasingly large amounts, partly because the amounts handled by the financial sector are growing and partly because some systems have been merged with others. At the same time, the current clearing and settlement systems require large amounts of liquidity to be delivered at specific times during the day. The fact that today's markets are interlinked, in combination with the fact that a participant may quickly need to transfer the liquidity he receives in a system in order to meet his commitments, creates liquidity risks. If a participant lacks liquidity this may lead to the rapid spread of liquidity shocks from one system to another and thus also from one market to another, with affects that are difficult to

assess. The effect of these contagion risks has therefore been identified as a significant risk in the financial system and is something that the system owners, as well as the central banks and supervisory authorities, are striving to come to terms with.

RETAIL PAYMENTS

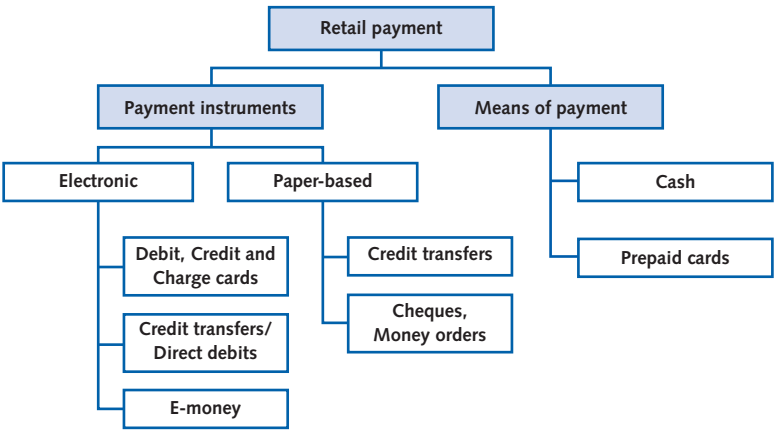
Retail payments are for relatively small amounts but entail a very large number of payments. These can be made in two ways: directly, for example by paying in cash, using a means of payment, or through a bank account, for example by paying by card, using a payment instrument. These two types of payment differ in that cash has an inherent value while a card is only a way of initiating a transfer between accounts.

If one uses a means of payment, which apart from cash also include different types of prepaid card, no financial infrastructure is needed at the time of the actual transaction. Such an infrastructure is required, however, when using a payment instrument. A payment can only be made using a payment instrument if the financial infrastructure works. Payment instruments include a wide range of retail payments such as credit transfers, direct debits, various forms of card and cheques. New payment instruments and means of payment have appeared in recent years, for example electronic money (e-money), mobile payment (payment using mobile phones) and new types of prepaid card. This section describes the retail payments that are used in Sweden The different ways that retail payments can be made are outlined in Figure 7.

Means of payment: Cash and prepaid cards

Cash is primarily used for the payment of small amounts and accounts for a large share of the total number of payments. However, this share has declined in recent years as the share of card payments has increased. As there are no overall statistics on cash usage, this can only

Figure 7. Outline of retail payments



be estimated. Measuring the amount of banknotes and coins in circulation ("M0" in economic terminology) in relation to gross domestic product (GDP) gives an indication of the use of cash. Such a measurement shows that the share of banknotes and coins in circulation in Sweden has fallen from 10 per cent in 1950 to just over 3 per cent today. In 2009 there was a slight upturn as a result of the fall in GDP, the share of banknotes and coins in circulation was practically unchanged compared to the preceding year (see Chart 30).

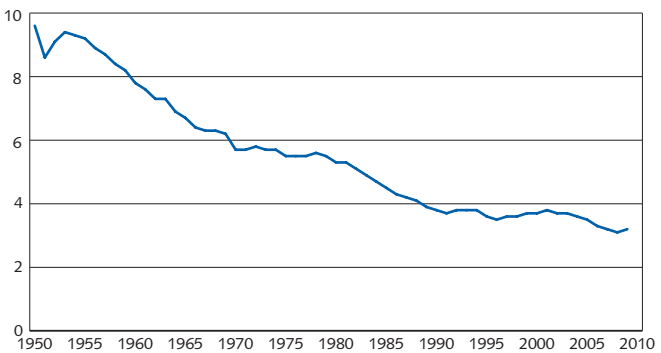
Statistics on cash withdrawals from ATMs show that the total transaction value has fallen in recent years. Between 2004 and 2009, the total transaction value fell by over 20 per cent. The number of transactions using ATMs has, on the other hand, not fallen to the same extent, which indicates that the size of the cash withdrawals is decreasing (see Chart 31).

The demand to be able to make secure payments without needing to use cash or any type of payment instrument has resulted in the emergence of prepaid cards. These can be either internal or external. An internal card, for example the SF cinema-chain card, can only be used at one or a few places and can act either as an electronic wallet or as a traditional charge card for an individual issuer. An external card can also be used as a means of payment at companies other than the one that issued the card.

Payment instruments: electronic and paper-based

Irrespective of which payment instrument is used to initiate a payment, they are all based on the same principle; that is that money is transferred from the buyer's account to the seller's account. This entails three important differences compared to a means of payment:

Chart 30. Banknotes and coins in circulation (MO) relative to GDP
Per cent



Source: Statistics Sweden

- A payment instrument, for example a debit card, has no intrinsic physical value.
- There is a need for a financial infrastructure at the time of the payment.
- There is often a time lag between the time of payment and the final settlement of the payment.

Electronic payment instruments

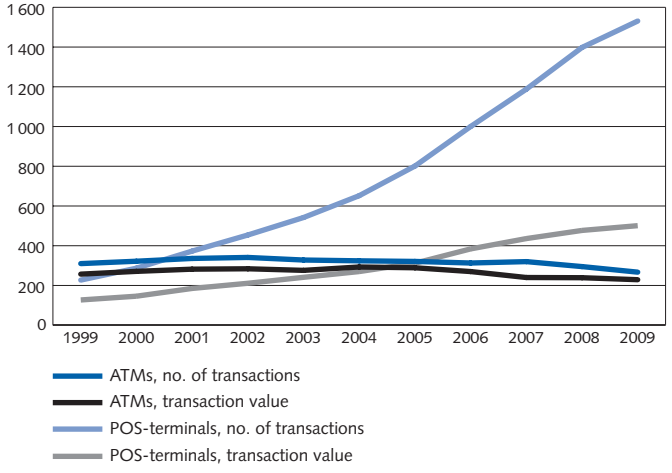
Card payments

Cards are primarily used for payments made at the time of the actual transaction, where the buyer and seller meet directly. However, cards are also used for remote payments, such as online payments, and for cash withdrawals from ATMs.

The cards issued by banks in Sweden are debit cards or credit cards and are tied to an international card system, usually Visa or Master Card. Some non-financial companies also issue cards, so-called charge cards. These include, for example, retailers and petroleum companies. The three types of card are described below.

- A *debit card* debits the transaction amount from the card holder's bank account directly and does not give the holder any credit.
- A *credit card* gives the card holder the option of having credit up to a certain limit. Either the entire debt or a portion of it is paid after a specified period. In the latter case, the outstanding

Chart 31. Card transactions in POS-terminals and ATM withdrawals
Million transactions and SEK billion



Source: The Riksbank

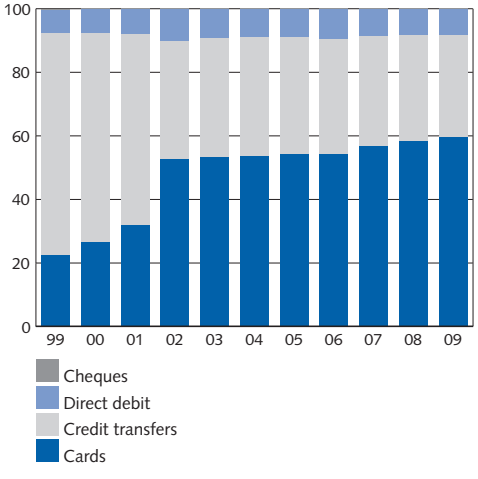
debt is rolled over into a new period. Interest must then be paid on the remaining debt.

- A *charge card* works in a similar way to a credit card with the difference that, the entire debt must be paid in full after a specified period and thus cannot be rolled over. A charge card can only be used in the retail chain that issued it, nor can it be used to withdraw cash from an ATM.

The use of cards has increased rapidly in Sweden in recent years. Between 1999 and 2009, the number of card payments increased by almost a factor of seven, from 255 million transactions in 1999 to 1 697 million in 2009. The value of these transactions has increased almost fourfold, from SEK 174 billion in 1999 to 735 billion 2009 (see Appendix 1 Table X). Previously, cards were used more often to withdraw cash from ATMs than to make payments. In recent years, however, there has been a marked change. In 2005, the transaction value in card payment terminals exceeded the transaction value of cash withdrawals from ATMs. According to statistics from 2009, the number of card transactions in point of sale (POS) terminals was almost six times higher than the number of cash withdrawals from ATMs (see chart 31). In terms of the number of payments, cards are the most widely used payment instrument (see Chart 32).

The value of an average card payment has fallen significantly over the last ten years, from approximately SEK 700 to over SEK 400 (see chart 33). Swedes are thus using cards to a greater degree to pay

Chart 32. Use of payment instruments
Per cent



Source: The Riksbank

smaller amounts. Cards are therefore increasingly acting as a substitute for cash. This is particularly so in the case of young people, which is indicated in a study that the Riksbank published in late 2007.[111]

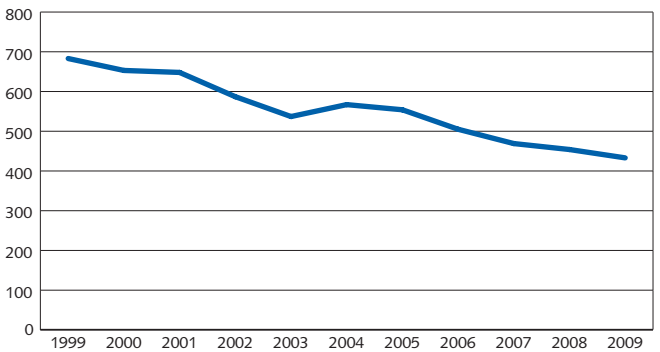
Credit transfers

Credit transfers are used for remote payments, that is for payments where the payer and the recipient do not meet directly. In a credit transfer, the payer instructs his bank to transfer a certain sum from his bank account to the recipient's bank account. Credit transfers are used for recurring and, in this context, relatively large payments and often in a contractual relationship, for example with an electricity or telecom company.

In 2009, the transaction value of credit transfers and direct debits amounted to SEK 11 621 billion, and the total number of such transactions was 1 149 million. Payments of this type are relatively few in number compared, for example, with card payments (see Chart 32), but in terms of value credit transfers and direct debits account for 94 per cent of the total transaction value of the account-based payment instruments.[112]

Most credit transfers and account-to-account transfers are now initiated electronically (see Chart 34).[113] Usually they are initiated using an online bank or via data files that can be used by companies. A few credit transfers are still paper-based and are mainly initiated by house-

Chart 33. Average value of a card payment
SEK



Source: The Riksbank

[111] "The costs of paying – private and social costs of cash and card", Working Paper Series, (No. 212), Bergman, Guibourg and Segendorff, Sveriges Riksbank, September 2007.
[112] This statistic does not include transfers between accounts within the same bank or transfers between PlusGiro accounts in Nordea.
[113] 90 per cent of the transaction volume and 97 per cent of the transaction value.

holds using credit transfer forms that are posted, or over the counter at a bank.

Direct debits

Direct debits are based on an agreement between the payer and the recipient on the automatic debiting of the payer's account. Direct debits, like credit transfers and account-to-account transfers, are used for remote payments and usually for recurring payments to a party that the payer has a contractual relationship with, such as a landlord or insurance company.

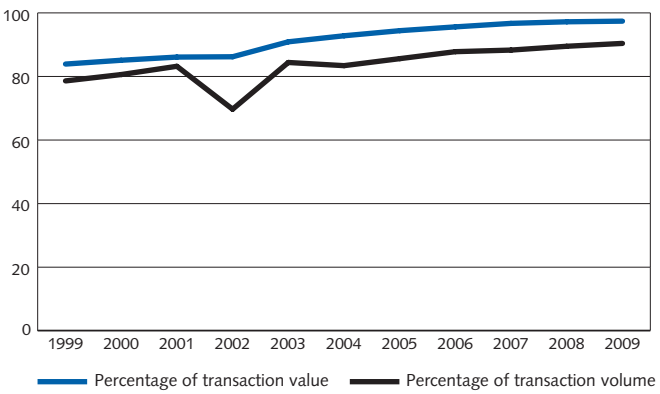
E-invoices

An e-invoice is an information mediation service. The recipient sends invoice information directly to the payer's online bank. The payer is able to see the entire invoice and can then pay it as a normal online credit transfer without needing to enter all the information on the payment himself. Some banks also offer a service in which the payer can approve e-invoices from a specific sender in advance, a process that is similar to a direct debit.

E-money

In theory e-money is an electronic substitute for cash in the form of digital value units[114] that exist independently on a card or a computer.

Chart 34. Percentage of electronically initiated credit transfers
Per cent



Note. From 1 January 2002, credit transfers between Nordea PlusGiro accounts are not included. Between 2001 and 2002, the percentage of electronically initiated credit transfers fell as a result of this.
Source: The Riksbank

[114] Electronic registration of funds that can be used for payments without being linked to an individual account.

In practice, however, cash and e-money do not have the same characteristics as e-money also shares many similarities with account-based payments. Like a card payment, e-money also requires a financial infrastructure and the real difference compared with an account-based payment is that the money is deposited with an e-payment company rather than in a bank account. The e-payment company acts as an intermediary between the buyer and seller. More information on e-payment companies is presented in the section on payment channels.

Paper-based payment instruments

Credit transfers

As mentioned above, credit transfers and account-to-account transfers are initiated either electronically or using a paper form. Paper-based credit transfers and account-to-account transfers are usually initiated by sending a completed credit transfer form by post or over the counter at a bank. They constitute only a small proportion of all credit transfers.

Cheques and money orders

A cheque is a written instruction from the writer of the cheque to the redeeming bank to pay a certain amount, either to the person writing the cheque or a third party specified by this person. These days, cheques are used to a very limited extent.

Money orders, which unlike cheques are still common, are a secure form of payment instrument that is used in connection with major purchases that are paid in cash, for example car purchases. A money order is bought at one of the Swedish banks for the desired amount and is made out to the recipient or to the buyer of the money order. If the money order is made out to the buyer it can later be assigned to the recipient and thus constitutes a secure form of payment as it has already been paid for.

Payment channels – different ways of making a payment

An electronic payment can be made using different types of payment channel. These are described below.

Online banking

The public uses online banking services to a great extent in Sweden. A survey conducted by the Riksbank in the autumn of 2009 estimated that approximately 70 per cent of the Swedish public use online bank-

ing services to make different types of payment. The number of credit transfers and account-to-account transfers made over the Internet is increasing rapidly, which in turn is reducing the percentage of paper-based payments and increasing the percentage of electronically-initiated payments. Swedish banks are increasingly offering various forms of online payment services. The trend is towards giving private individuals greater opportunities to overview their financial situation and make use of various financial services online.

E-payment companies

As e-commerce and Internet auctions between private individuals have become increasingly common, the need for a quick and simple way to make payments between two unknown parties has arisen. E-payment companies issue e-money and focus on securing payments online by acting as a link between, for example, the buyer's debit card and the payment recipient. The risk of card fraud is reduced as the e-payment company provides a so-called e-wallet to which money is transferred and then converted to e-money. Transfers between different accounts and international payments in different currencies are possible. The most well-known e-payment company is PayPal, which is registered in Luxembourg but is also active internationally.

Mobile phones

Today, most mobile payments are made using SMS. The payments are mediated by the telecom operator who pays the retailers for the goods or services they have sold. The operator then charges the customer by adding the amount to the normal telephone bill, or by sending a separate invoice. Mobile phones can also be used by those who want to get direct access to their own bank accounts in order to transfer money between them. In this service the phone is used as bearer of information and the bank services that can be performed are similar to those offered online.

SEPA and the Payment Services Directive

Single Euro Payments Area (SEPA)

In 2002, the European banking industry formulated a vision of a single market for payment services, the Single Euro Payments Area (SEPA). The aim of the SEPA is to make it possible for everyone to send and receive electronic payments in euro, nationally and internationally, in the same way, under the same conditions and at the same price.

The SEPA mainly regulates three payment services, these being account transfers (SEPA Credit Transfer), direct debits (SEPA Direct Debit) and card payments (SEPA Cards Framework). SEPA Credit Transfer, which as far as Sweden is concerned relates to cross-border payments in euro, was introduced on 1 January 2008. SEPA Direct Debit started on 1 November 2009, but, as there is no direct debit service in Sweden for euro payments, direct debiting in Sweden is not affected. The SEPA Cards Framework states that all cards should be equipped with a chip and that all payment terminals and ATMs should be converted to read from the chip instead of from the card's magnetic strip. The chip is a more secure technology for storing information and thus more difficult for card fraudsters to copy. The conversion from the magnetic strip to the chip should be completed by the turn of the year 2010/2011.

The greatest impact of the SEPA project will be in the euro-zone countries, but banks from all the EU/EEA countries, as well as Switzerland and Monaco, are participating in the project. As Sweden does not use the euro, it will not be possible to phase out the banks' standards for national payment services and replace them with the standards used for the SEPA. However, the Swedish banks have clearly stated that all future changes to their payment systems will be adapted to the SEPA.

The Payment Services Directive

All of the EU/EEA countries, together with Switzerland and Monaco, should have implemented an EU directive, the Payment Services Directive (PSD), in their national legislation on 1 November 2009. However, the

implementation of this directive has been delayed in Sweden and it will not come into force until 1 August 2010.

The directive aims to harmonise legislation on payments in Europe, but also to strengthen consumer protection in connection with payments in euro and other currencies belonging to countries that are not members of the EMU. It also represents a step towards the harmonisation of the payment market that the SEPA aims to achieve. The directive will, among other things, regulate the right of direct debit payers to request repayment of incorrectly executed direct debits. It will also provide guidelines on the responsibilities of the banks and the consumers in cases where an unauthorised transaction has occurred, for example in connection with some form of card fraud. In addition, an entirely new category of payment institution will be introduced which will be entitled to mediate payments, but also to provide credit, in connection with the payment service.

SYSTEMS FOR LARGE-VALUE PAYMENTS

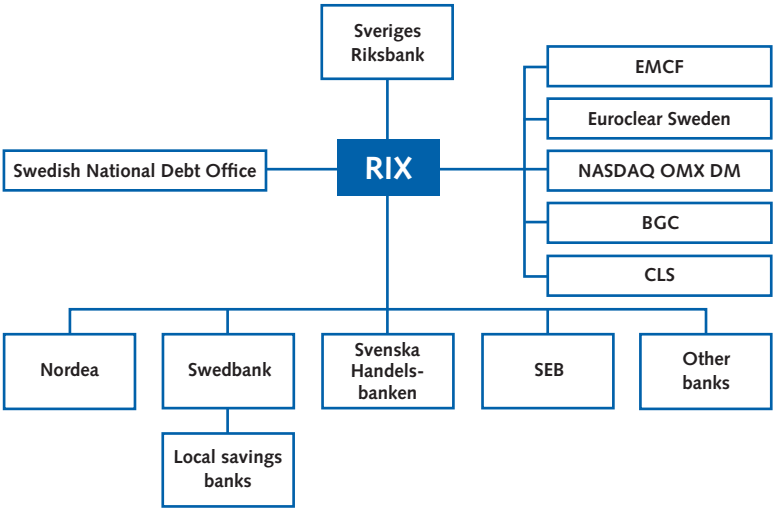
The systems that are used to manage large-value payments and trading in financial instruments in Sweden today are described below. These systems form the cornerstones of the Swedish financial infrastructure.

RIX – the system for large-value payments[115]

A large proportion of the banks' payments are made via their accounts in the Riksbank's system for large-value payments, RIX. Apart from the Riksbank, which owns and runs the system, the major banks and clearing organisations participate in RIX (see Figure 8).[116] This system thereby acts an important hub in the infrastructure. The banks' accounts with the Riksbank are used for both the direct payments between 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 are settled through the banks' accounts in RIX. Payments arising from transactions in financial instruments are also settled in RIX.

Settlement is based on the principle of Real Time Gross Settlement (RTGS). This means that the payments are settled immediately, one

Figure 8. The Swedish payment system



[115] For more information on RIX, the Riksbank's system for large-value payments, see "Assessment of the Riksbank's Payment System, RIX, March 2010" on www.riksbank.com.
[116] 14 Swedish credit institutions, BGC, EMCF, Euroclear Sweden, NASDAQ OMX DM, CLS, the Swedish National Debt Office and the Riksbank are participants in RIX.

by one, on condition that the payer has sufficient liquid funds, that is money in his account. This settlement method reduces the risk associated with settlement, but on the other hand requires large amounts of liquidity.[117] In order to ensure the smooth settlement of payments, the banks are able to cover their liquidity requirements by borrowing intraday funds from the Riksbank. All such borrowing is fully secured. Some payments are first processed at one of the clearing organisations, i.e. BGC, Euroclear Sweden, NASDAQ OMX DM, EMCF or CLS (more information on these systems is presented below). Thereafter, only the remaining net sum is settled in RIX. However, the majority of the payments are sent directly from the participants for settlement in RIX. In 2009, the average number of transactions in RIX was approximately 10 000 per bank day and the average turnover per day was SEK 665 billion.

BGC – the system for retail payments[118]

In Sweden, Bankgirocentralen BGC AB (BGC) is the main intermediary of retail payments between the banks. BGC is owned jointly by most of the banks in Sweden and runs and develops BGC's payment system. This system is a clearing system for payments in Swedish kronor between bank accounts in Sweden. In addition, BGC also performs a number of other clearing and settlement services.

BGC's payment system is an open system, implying that all banks in Sweden that satisfy the criteria for entry are able to participate. In addition to these banks, the Swedish National Debt Office is also a direct participant in the Bankgiro system. At the end of 2009, BGC's payment system had 20 direct participants and 77 indirect participants.[119]

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 these payments are cleared and settled on a *bilateral gross basis*, that is to say, between two participants. The remainder are cleared and settled on a *multilateral net basis*, that is to say, between several participants. Payments are settled in SEK or EUR. The settlement of SEK payments is carried out in RIX on an Real Time

[117] In multilateral net settlement, all the participants' debts are offset against one another. This method requires less liquidity, but entails a higher level of risk, as the entire settlement process is stopped if one participant – regardless of size – cannot meet its obligations.
[118] For more detailed information on BGC and the retail payments processed by the system see "Assessment of Bankgirocentralen BGC AB's payment system 2009" on www.riksbank.com.
[119] An indirect participant gains access to BGC's system and products by entering into an agreement with a direct participant.

Gross Settlement basis. As regards payment orders in EUR, each paying bank receives settlement documentation from BGC and subsequently forwards this documentation to the European Central Bank's settlement system TARGET2, either directly or via its custodial bank. BGC is then responsible for matching and confirming the implementation of the settlement. This procedure is performed for a number of different types of payment product that are designed to meet different needs. These include credit transfers, direct debits, payments to suppliers from companies, salary payments into acounts and tax payments. BGC also provides clearing and settlement services for additional payment products. These are account-to-account transfers via Dataclearingen, form payments via Privatgiro, cash withdrawals and card payments via CEKAB and some parts of the Riksbank's cash management services.

For payments sent and received using Bankgiro products, BGC is responsible for authorisation, clearing and the creation of background data for settlement, and for providing payment information to the sending and receiving banks. However, the banks are responsible for the authorisation of online payments , while Privatgirot, on behalf of the banks, is responsible for the authorisation of paper-based Bankgiro products. Each of the payment services has one or more predetermined settlement times each day. In 2009, an average of 3.2 million payment transactions, amounting to an average of SEK 37 billion, were mediated per bank day via BGC's payment system.

Euroclear Sweden – central securities depository[120]

As mentioned earlier, transactions relating to financial instruments require settlement in two phases; one for the securities and one for the payments. Systems for the registration of the securities and for keeping them in accounts are also required. In Sweden, the clearing and settlement of transactions on the stock market and fixed income market are performed by Euroclear Sweden. Some transactions on the derivatives market are also settled in this system. Euroclear Sweden is in turn a participant in RIX where the actual payments relating to securities trading are settled.

Securities exist almost exclusively as electronic records. The institution that keeps the central register for the various participants' holdings is therefore very important to the financial infrastructure. Euroclear Sweden registers all the transactions arising from the issue and pledging of, as well as the trading in, securities in Sweden.

[120] For more detailed information on Euroclear Sweden and the operation of a central securities depository, see "Assessment of Securities Settlement in Sweden 2009" on www.riksbank.com.

A transaction involving shares or debt securities begins with an investor placing an order with a broker to buy or sell. The brokers normally trade by taking on the role of counterparty or by seeking a counterparty on a marketplace, for example a stock exchange. When the broker has found a counterparty to trade with and the transaction is completed, the broker informs Euroclear Sweden. This marks the start of the matching process in which the buy and sell orders are paired. Euroclear Sweden verifies the identity of the broker and that the broker and the counterparty are in agreement on the securities concerned, the number/nominal amount, payment, completion date and settlement date. On the settlement date, all the matched instructions that have been registered under this particular settlement date are verified.

The system comprises a number of liquidity-saving processes. These processes are run continuously throughout the day so that several orders can be settled at the same time. This is called clearing and makes it possible for parties that have both bought and sold to have these orders settled without needing gross liquidity or holdings in the securities concerned. Euroclear Sweden then checks that the seller can deliver the securities and that the buyer can pay; the transaction is then settled and money and securtities exchange owners.

As transactions in financial instruments often involve large sums, it is important that both phases of the transaction are completed at the same time, that is that money and securities are transferred simultaneously.[121] To further reduce the risks, settlement is carried out using accounts provided by the central bank, which means that settlement is made in central bank money. For this purpose, the Riksbank permits Euroclear Sweden to administer accounts in RIX. In order to cover its liquidity needs in connection with securities settlement, a participant may transfer liquid funds between the Riksbank accounts administered by Euroclear Sweden and its regular RIX accounts at any time during the day. The Riksbank can also grant credit on these accounts during the day.

In 2009, the average gross sum for the settlement of share transactions amounted to SEK 40 billion per day. The corresponding figure for money market transactions was SEK 266 billion.[122] The value of fixed income market transactions is thus higher than that of transactions on the stock market. However, the number of transactions is

[121] This is called Delivery versus Payment (DvP).

[122] In addition to the debt securities traded by institutional investors on the fixed income market, Euroclear Sweden handles certain fixed income instruments that are mainly aimed at private individuals in the same way as share transactions. These are included in the stock market statistics and not in the fixed income market statistics.

much higher on the stock market with an average of 109 000 transactions per day compared to an average of 1 100 per day on the fixed income market.

NASDAQ OMX DM – the central counterparty in derivatives clearing[123]

NASDAQ OMX Derivatives Markets (NASDAQ OMX DM) operates in the field of trading in standardised derivatives contracts and acts as the central counterparty to manage the risks associated with open exposure to a transaction counterparty. When NASDAQ OMX DM acts as central counterparty in the deal between buyer and seller each transaction is replaced by two new deals, where NASDAQ OMX DM is seller to all buyers and buyer to all sellers. Consequently, the original parties have a claim on or a debt to NASDAQ OMX DM instead of on or to each other. This means that the settlement risks that the parties would have been exposed to in relation to each other are transferred to NASDAQ OMX DM.

The signing of a derivatives contract usually creates payment flows, for example in the form of option premiums.[124] Payments can also arise during the term of a derivatives contract. These payments are cleared on NASDAQ OMX DM and settled in RIX.

When a derivatives contract matures the contract is settled, either by making a cash payment or by delivering the agreed amount of the underlying instrument. In the case of cash settlement, the sum is cleared by NASDAQ OMX DM as described above and settled directly in RIX. In connection with the delivery of the underlying security, the securities phase of the deal is settled by transferring the securities concerned in Euroclear Sweden's system, while the payment phase is settled through the RIX accounts administered by Euroclear Sweden.

NASDAQ OMX DM is a secondary legal name of NASDAQ OMX Stockholm AB.[125] NASDAQ OMX Stockholm AB offers trading in, among other things, shares, premium bonds, convertibles, warrants, bonds and exchange-traded funds. In addition, trading and clearing in Swedish, Finnish, Norwegian, Danish, Baltic, and Russian derivatives are offered, such as stock options, index options, interest derivatives and share and index futures, as well as certain OTC derivatives.[126] In

[123] For more detailed information on NASDAQ OMX DM and derivatives trading, see "Assessment of NASDAQ OMX Derivatives Markets as a Central Counterparty 2009" on www.riksbank.com.
[124] The price of an option is called the option premium. It reflects the compensation for the risk that the issuer of the option takes.
[125] A secondary name is not a separate legal entity but relates to a particular part of a company's activity. A secondary name is registered with the Swedish Companies Registration Office.
[126] OTC stands for over-the-counter and means that the sale and purchase of products is conducted directly between buyers and sellers, normally by phone.

2009, an average of approximately 415 000 derivatives contracts were traded on NASDAQ OMX DM each day.

EMCF – the central counterparty for equities clearing[127]

Since October 2009, the European Multilateral Clearing Facility (EMCF) has offered an obligatory clearing service for certain share transactions on the Nordic exchanges of NASDAQ OMX and for European marketplaces such as Chi-X Europe, BATS Europe and Burgundy. The Swedish shares cleared by EMCF are those on the Large Cap list. This entails EMCF acting as the central counterparty in these share transactions and thus as the seller to all buyers and the buyer to all sellers. The counterparty risk (the risk that the buying or selling counterparty cannot deliver shares or money in accordance with the agreed share deal) that the parties would have had in relation to each other is transferred to the central counterparty. Clearing is performed in line with the multilateral netting principle. The settlement of payments for the share transactions is carried out using Euroclear Sweden's accounts in the RIX system. As EMCF was only in operation for a brief period in 2009, an average for its clearing operations in December 2009 is presented. In this period, share transactions amounting to a value of SEK 26 billion were cleared in EMCF.

EMCF is a subsidiary of Fortis Bank in the Netherlands and is 22 per cent owned by NASDAQ OMX. As EMCF is based in the Netherlands, it is the Dutch supervisory authority and central bank that are responsible for supervision and oversight.

CLS – the system for foreign exchange settlement[128]

As mentioned above, the settlement of foreign exchange transactions can give rise to substantial risks if the two phases in a transaction are settled separately in the respective countries. The time lag that arises leads to major exposures between the banks. In order to reduce the risks arising from foreign exchange transactions, Continuous Linked Settlement (CLS) was started in September 2002. In CLS, foreign exchange transactions are settled on a Payment versus Payment (PvP) basis. This entails the participating banks having accounts — one for each currency — with CLS through which the two currencies in a transaction are transferred simultaneously. CLS in turn has accounts with the central banks for the respective participating currencies. The net balance

[127] Read more on EMCF's website at www.euromcf.nl.
[128] Read more about CLS and the elimination of settlement risks in connection with foreign exchange transactions in "Progress in reducing foreign exchange settlement risk", Committee on Payment and Settlement Systems, BIS, May 2008.

of each member's transactions is paid to or by CLS using each country's system for large-value payments; in Sweden's case RIX. 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 2009, average turnover per day in CLS as a whole amounted to USD 3 392 billion. The daily turnover in the system is thus significantly higher than Sweden's annual GDP.[129] The Swedish krona accounts for only 0.09 per cent of the total turnover, which is SEK 412 billion. Three Swedish banks are direct participants in CLS and several currencies are included in the system.[130]

[129] In 2009, Sweden's GDP amounted to approximately USD 407 billion (calculated using an average exchange rate for 2009 of 7.65) or to around SEK 3 113 billion.

[130] The currencies included in the system at present are the US Dollar, the Australian Dollar, the Canadian Dollar, the Danish Krone, the Euro, the GB Pound, the Hong Kong Dollar, the Israeli Shekel, the Japanese Yen, the Korean Won, the Mexican Peso, the Norwegian Krone, the New Zealand Dollar, the South African Rand, the Singapore Dollar, the Swedish Krona and the Swiss Franc.

TARGET2-Securities – securities settlement on a common European platform

The sale of a security, for example in a stock exchange transaction between a buyer and a seller, is followed by the processes in which the security and money exchange owners: clearing and settlement. Settlement — and often clearing too — takes place at the market's central securities depository. In Sweden this is Euroclear Sweden.[131] Participants include securities institutions such as banks and securities brokers and other market players. They are responsible for settling deals conducted by themselves and their customers. Customers may be private individuals, institutional investors or other legal entities.

Clearing and settlement require an infrastructure in the form of IT systems, market practices, regulations and so on. At present, different European countries use different infrastructures. This makes it complicated, risky and costly for a participant to act on several markets. For customers too it is more expensive to trade in foreign securities compared to national securities. It also takes more time as several steps are required in the settlement of cross-border securities transactions.

TARGET2-Securities (T2S) is an initiative from the Eurosystem[132] that aims to provide a system for the settlement of securities transaction in the EU. The common, integrated platform,[133] which is owned and operated by the Eurosystem, is intended to make it possible to settle cross-border securities transactions between buyers and sellers in different European countries in the same way as national transactions. T2S will be run by four central banks[134] in the Eurosystem. T2S will offer settlement in euro and also in certain currencies outside the eurozone.[135]

The platform is based on the principle that the affiliated central securities depositories will handle the administration of the securities accounts while T2S will handle

[131] Read more in the separate section on Euroclear Sweden.
[132] The Eurosystem consists of the European central bank ECB and the Euro area member states central banks.
[133] An "integrated platform" is a platform in which securities accounts and cash accounts are managed on the same platform. Such a platform exists in Sweden where the Riksbank has outsourced the management of special settlement accounts for securities transactions to Euroclear Sweden. Integration of this type is said to increase efficiency and reduce operational risks.
[134] The central banks in France, Germany, Italy and Spain.
[135] It has not yet been established which currencies will be included.

the settlement of the security leg in the securities transactions on behalf of the central securities depositories. The affiliated national central banks will in turn handle the administration of the cash accounts while T2S will handle the settlement of the cash leg in the securities transactions on behalf of the central banks.[136] The platform will be closely integrated with the cash settlement in euro that takes place in the TARGET2-system[137].

The aim of the European Central Bank for T2S is that the interaction between national securities depositories will become standardised and thus cheaper, more efficient, safer and more harmonised. The idea is that standardised settlement will make it simpler for the participants to expand to new markets in Europe and for their customers to trade in foreign securities at a lower price. T2S will only be a platform for the central securities depositories. This means that a participant will continue to be a participant at one or several national depositories and will not be a direct participant in T2S. T2S will only handle settlement and will not offer any of the other services that a central securities depository normally offers otherwise.

Participation in T2S will be voluntary for central securities depositories and central banks outside the Eurosystem. In July 2008, Euroclear Sweden announced that it intends to participate in T2S, but believes that it should be up to the participants to decide where settlement should take place and therefore requested clarification about some aspects of the platform. The Riksbank's stance is that it is mainly the needs and wishes of the market players that should guide the decision on whether the Riksbank should enable settlement in Swedish kronor in T2S. In February 2009, the Swedish Bankers' Association requested that the Riksbank make it possible to use the T2S platform for securities settlement in Swedish kronor. It is estimated that the final decision on whether, and if so to what extent, T2S will be used for the Swedish market will be made by the market players, Euroclear Sweden and the Riksbank by the spring of 2011 at the latest. The intention is to put T2S into operation during the second half of 2014.

[136] Read more in the separate section on Euroclear Sweden.
[137] TARGET2 is a system provided by the Eurosystem that enables real time settlement in central bank money in euro between the participants in the system. The Riksbank is not a participant in TARGET2.

Payment flows in the Swedish financial infrastructure

The Riksbank's payment system, RIX, is the central system in the financial infrastructure. In 2009, an average of approximately SEK 665 billion flowed through the system each day. This means that a value corresponding to Sweden's GDP passes through RIX in the course of a week. The banks account for the largest flows in RIX. It is through the banks that households, companies and authorities manage most of their payments.

Figure 9 illustrates how the payment flows from different types of payment reach RIX, either directly or following clearing in Euroclear Sweden, NASDAQ OMX DM, BGC, EMCF or CLS. The figures presented in Figure 9 should only be regarded as indicative as they are calculated in different ways for the different systems. The presentation of the figures is not intended to show the turnover in the systems but to provide an estimate of the payment flows that passed through them on a normal day in 2009. Figure 9 also shows to what extent the different systems reduce the total flow by converting gross positions to net positions.

EMCF and NASDAQ OMX DM act as central counterparties. This means that they act as a counterparty between two other parties and one transaction in practice becomes two. Consequently, the figures presented for these two systems may be regarded as being counted double. The figures for CLS are also counted double. The reason for this is that both of the values in a foreign exchange transaction, that is both the part in Swedish currency and the part in foreign currency, generate a payment flow.

As shown in Figure 9, trade in the fixed income market gives rise to the largest payment flows in the infrastructure. In 2009, Euroclear Sweden settled an average of SEK 266 billion per day from the fixed-income market.[138] The fixed-income market refers to spot and derivatives trading to the extent that they lead to the delivery of an underlying security. The remaining SEK 40 billion per day comes from the stock market. These values were settled using the accounts that Euroclear Sweden administers in RIX and relate to the delivery of underlying securities, excluding internal transactions in which a clearing member is its own counterparty on the exchange. The figure includes trade both on and outside the exchange. The participants in RIX also have the possibility to transfer some of their liquidity in the system between the regular accounts and the accounts administered by Euro-

[138] In addition to the debt securities traded by institutional investors on the fixed income market, Euroclear Sweden handles certain fixed income instruments that are mainly aimed at private individuals in the same way as share transactions. These are included in the stock market statistics and not in the fixed income market statistics.

clear Sweden during the course of the day. SEK 59 billion a day passed over this liquidity bridge in 2009.

EMCF is a new player on the market and began its operations in the autumn of 2009. Consequently, the figures in Figure 9 are not an average per day for 2009 as a whole but only for December. The figures show that the netting effect that arises as a result of the clearing of share transactions reduces the payment flow by approximately 60 per cent.

Derivatives trading on NASDAQ OMX DM generates relatively small payment flows. These consist of payments for derivative transactions settled on the exchange, for example equity options, equity futures, index options and index futures. The statistics thus cover only the derivative transactions that actually generate a payment, which comprise a minor part of the turnover as derivative positions are to a great extent netted between participants. The underlying values may be significant in many cases, but the values that are actually settled, and thus paid, are very limited. The amounts are netted in NASDAQ OMX DM's system and only a small portion is finally settled in RIX.

The 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. An average of SEK 37 billion a day was cleared in BGC's system in 2009. After netting in BGC, SEK 33 billion per day remained to be paid between the major banks.

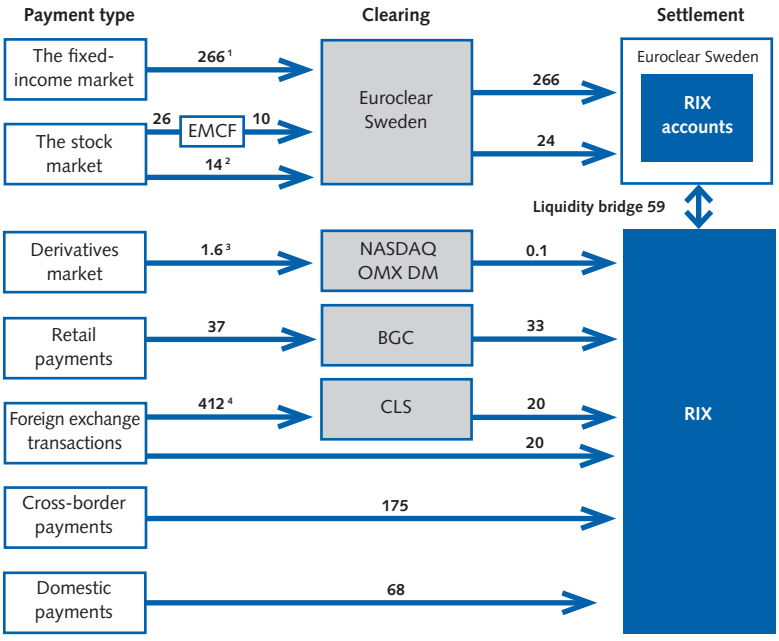
The clearing and settlement of foreign exchange transactions can be managed in two different ways, in CLS or through a correspondent bank. Payments in Swedish kronor for foreign exchange transactions are usually based on foreign exchange contracts, either spot or forward contracts, or are handled as currency swaps or options. Most of the payments are made through CLS. The foreign payments that arise directly from foreign exchange transactions are also largely made through CLS. The majority of these payments, SEK 412 billion a day, are also cleared in CLS. After netting, only SEK 20 billion per day remains to be finally settled in RIX. The foreign exchange transactions cleared through a correspondent bank and settled in RIX amounted to SEK 20 billion per day in 2009. These transactions consist of interbank payments in connection with foreign exchange trading, for example a transfer between a Swedish bank and a foreign bank's account with another Swedish bank.

One of the largest items in RIX is foreign payments, that is payments in Swedish kronor that go to a Swedish bank which in turn is a correspondent bank for a foreign bank, also known as foreign clearing.

These accounted for SEK 175 billion per 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 occurs. The reported value of SEK 175 billion per day therefore relates only to the payments that are made between Swedish banks in cases where one of the banks has acted as a correspondent bank for a foreign bank. The total value of foreign payments is therefore probably much higher.

Domestic payments, which gave rise to an average of SEK 68 billion per day, refer partly to payments stemming from the shortest segment of the money market and partly to pure interbank payments. These payments are in kronor and arise between Swedish banks in Sweden. 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. Smaller payments that are not urgent usually go through BGC.

Figure 9. Payment flows in the Swedish financial infrastructure
Indicative value in SEK billion per day in 2009



[1] The population studied is made up of Euroclear Sweden's 17 clearing members for trading in fixed-income instruments.
[2] The population studied is made up of Euroclear Sweden's 42 clearing members for trading in shares.
[3] The population studied is made up of NASDAQ OMX DM's just over 50 members on the derivatives market.
[4] The population studied is made up of CLS's member banks, from 17 different currency areas.
Sources: BGC, CLS, EMCF, Euroclear Sweden, NASDAQ OMX DM and the Riksbank

Appendix 1. Tables

Table A. Share turnover and market value on NASDAQ OMX Stockholm
SEK billion

	SHARE TURNOVER	MARKET VALUE
1999	2 609	3 717
2000	4 456	3 583
2001	3 994	2 856
2002	2 702	1 780
2003	2 453	2 314
2004	3 391	2 699
2005	3 764	3 507
2006	5 519	4 227
2007	6 525	3 959
2008	4 694	2 239
2009	3 393	3 413

Source: NASDAQ OMX

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

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Issuers in the bond market											
Central government	796	719	623	660	732	772	769	766	730	717	703
Mortgage institutions	591	505	462	488	549	565	706	770	826	953	1 035
Other credit market companies	38	40	42	45	52	59	61	73	79	81	75
Non-financial companies	99	123	146	119	122	113	137	130	143	164	176
Local government	8	6	8	13	14	13	16	20	21	18	20
Banks	44	39	32	36	46	66	89	112	192	261	256
Total	1 577	1 432	1 314	1 374	1 516	1 587	1 777	1 870	1 991	2 193	2 265
Issuers in the bond market											
Central government	250	271	230	240	269	267	294	259	180	139	116
Mortgage institutions	88	79	43	88	104	93	72	113	106	105	72
Other credit market companies	18	16	16	18	16	12	10	9	19	45	12
Non-financial companies	53	55	83	78	51	62	62	66	96	97	73
Local government	6	7	7	6	5	5	6	11	5	9	6
Banks	36	19	18	32	45	47	69	62	108	130	96
Total	451	448	396	463	490	486	515	520	515	525	375
Investors in the bond market											
AP funds	370	307	105	93	113	126	134	157	148	138	129
Insurance companies	472	462	455	493	542	599	613	701	744	834	1125
Banks	193	186	134	137	177	129	262	281	337	475	471
Non-residents	250	224	290	402	455	529	647	545	535	497	466
Companies and others	292	253	323	246	228	205	121	185	227	249	74
Total	1 577	1 432	1 307	1 371	1 516	1 587	1 777	1 870	1 991	2 193	2 265
Investors in the bond market											
AP funds	51	98	12	2	2	2	7	3	4	6	0
Insurance companies	48	35	40	126	116	108	135	87	90	41	33
Banks	88	91	135	141	138	152	129	151	87	133	119
Non-residents	72	53	91	75	85	82	75	52	43	75	54
Companies and others	192	171	118	119	149	133	168	226	291	270	169
Total	451	448	396	463	490	477	515	520	515	525	375

Sources: Annual reports (AP funds) and the Riksbank

Table C. Average turnover per day in the bond market
SEK billion

	GOVERNMENT BONDS	MORTGAGE BONDS
1999	32	10
2000	21	8
2001	21	7
2002	20	7
2003	20	10
2004	22	9
2005	28	9
2006	30	10
2007	30	13
2008	22	15
2009	17	12

Source: The Riksbank

Table D. Average turnover per day in the money market
SEK billion

	TREASURY BILLS	MORTGAGE CERTIFICATES
1999	12	2
2000	9	3
2001	10	2
2002	9	4
2003	11	3
2004	12	3
2005	10	2
2006	10	3
2007	8	2
2008	7	2
2009	4	2

Source: The Riksbank

Table E. Average turnover per day in repos
SEK billion

1999	113
2000	95
2001	110
2002	131
2003	124
2004	123
2005	141
2006	176
2007	196
2008	170
2009	92

Source: The Riksbank

Table F. The monetary base in Sweden 2009
SEK billion

	BANKNOTES AND COINS IN CIRCULATION	THE BANKS DEPOSITS WITH THE RIKSBANK	THE BANKS' HOLDINGS OF RIKSBANK CERTIFICATES
Jan	106	88	112
Feb	105	135	57
Mar	105	120	76
Apr	106	30	125
May	106	56	127
Jun	107	54	132
Jul	107	123	201
Aug	107	257	47
Sep	106	228	109
Oct	106	214	77
Nov	106	259	116
Dec	111	192	171

Source: The Riksbank

Table G. Average daily turnover in the Swedish foreign exchange market
SEK billionr

	SPOT	FORWARDS	OPTIONS	LONG-TERM FX-SWAPS	SHORT-TERM FX-SWAPS
1999	31	7	2	32	42
2000	32	9	4	42	61
2001	35	13	7	60	69
2002	37	14	13	56	76
2003	41	14	31	49	74
2004	50	14	8	55	79
2005	58	17	12	66	116
2006	70	23	14	75	128
2007	84	39	14	91	141
2008	81	34	9	103	137
2009	70	28	13	112	108

Note. This is the definition of short and long FX swaps used by the Riksbank when collecting turnover statistics. The distinctions made by the market participants with regard to maturity periods for FX swaps are described in the section on derivatives.
Source: The Riksbank

Table H. Total assets of the financial intermediaries at year-end 2009
SEK billion

	TOTAL ASSETS/ INVESTMENT ASSETS	LENDING TO THE PUBLIC	OTHER LENDING	INTEREST-BEARING SECURITIES	EQUITIES	OTHER
Credit institutions						
Banks	5 863	2 251	1 820	1 021	373	398
Mortgage institutions	2 284	1 972	182	44	10	77
Other credit market companies	856	478	68	283	7	20
Total credit institutions	9 003	4 701	2 069	1 348	390	495
Investors						
Insurance companies	2 724	37	9	1 145	1 337	197
AP funds	931	-	-	362	519	50
Fund management companies	1 583	-	-	324	923	336
Total investors	5 065	37	9	1 830	2 778	583
Securities companies	30	0.6	2	2	0.1	25

Note. The figures in column one show the balance sheet totals for banks, mortgage institutions, other credit market companies and securities companies, while the figures for insurance companies and AP funds show invested assets and the figures for mutual funds show assets under management.
Sources: Statistics Sweden, annual reports and the Riksbank

Table I. Geographical breakdown of the major banks' lending 2009
Per cent

	SWEDEN	OTHER NORDIC COUNTRIES	THE BALTIC STATES	GERMANY	UK	REST OF THE WORLD
Swedbank	80.5	0.0	14.2	0.0	0.0	5.4
SEB	56.4	4.3	13.0	24.3	0.0	2.0
Nordea	24.9	62.7	2.6	0.0	0.0	9.8
Handelsbanken	67.3	22.6	0.0	0.9	4.3	5.0
Four major banks	49.4	33.0	5.9	4.2	0.9	6.7

Source: The Riksbank

Table J. Lending to the public by credit institutions
SEK billion

	TOTAL	BANKS	MORTGAGE INSTITUTIONS	OTHER CREDIT MARKET COMPANIES
2001	2 508	1 088	1 130	290
2002	2 629	1 127	1 196	306
2003	2 740	1 130	1 283	327
2004	2 928	1 197	1 393	339
2005	3 286	1 391	1 528	367
2006	3 680	1 619	1 663	398
2007	4 175	2 167	1 595	413
2008	4 647	2 440	1 764	443
2009	4 701	2 251	1 972	478

Source: The Riksbank

Table K. The bank's assets
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Loans to Swedish public	939	986	1 003	1 024	1 157	1 304	1 797	1 998	1 806
Swedish National Debt Office	34	23	5	6	13	32	56	55	104
Loans to public abroad	115	118	122	167	220	283	311	392	341
Loans to Swedish financial institutions	491	458	444	610	669	721	624	757	776
The Riksbank	4	0,2	7	5	0,3	0,0	0,2	207	159
Loans to foreign banks	60	54	298	352	442	547	748	713	736
Interest-bearing securities	303	318	361	369	503	569	634	927	1 021
Other	514	557	350	630	637	730	783	1 233	919
Total	2 458	2 514	2 590	3 163	3 642	4 185	4 952	6 282	5 863

Source: The Riksbank

Table L. The banks' lending to the public
SEK billion

	NON-FINANCIAL COMPANIES	HOUSEHOLDS	LOCAL GOVERNMENT	PUBLIC ABROAD	OTHER
2001	635	275	33	126	19
2002	640	289	33	133	32
2003	617	292	30	138	52
2004	636	307	31	181	41
2005	750	345	31	237	28
2006	838	394	30	304	53
2007	1 105	640	35	335	52
2008	1 236	709	29	428	38
2009	1 070	752	15	372	43

Note. The table includes lending from Swedish entities only. Lending conducted through the Swedish banks' branches or subsidiaries abroad are not included. For foreign banks, only branch operations in Sweden are included.
Source: The Riksbank

Table M. The banks' liabilities and equity
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Deposits from Swedish public	914	955	988	1 043	1 158	1 291	1 475	1 599	1 699
Swedish National Debt Office	2	1	7	0	14	21	17	47	17
Deposits from the public abroad	108	116	115	134	134	162	145	139	140
Deposits from Swedish financial institutions	158	133	135	154	168	216	298	307	259
The Riksbank	60	23	21	14	13	6	7	438	309
Deposits from foreign banks	660	668	473	735	825	925	983	1 113	963
Securities issued	130	110	133	240	377	470	762	996	1 171
Other	259	353	552	636	732	868	982	1 329	923
Equity	166	154	165	208	221	227	283	313	383
Total	2 458	2 514	2 590	3 163	3 642	4 185	4 952	6 282	5 863

Source: The Riksbank

Table N. The banks' deposits from the public by depositor category
SEK billion

	NON-FINANCIAL COMPANIES	HOUSEHOLDS	LOCAL GOVERNMENT	PUBLIC ABROAD	OTHER
2001	379	460	18	108	60
2002	391	493	16	116	56
2003	378	521	20	115	77
2004	388	537	26	134	93
2005	451	584	28	134	109
2006	505	676	27	162	103
2007	520	829	27	145	115
2008	603	900	29	139	104
2008	609	938	51	140	117

Källa: Riksbanken

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

	LENDING RATES	DEPOSIT RATES	TREASURY BILL YIELDS 6 MONTHS
1999	5.53	1.65	3.78
2000	5.82	2.15	4.23
2001	5.55	2.10	3.74
2002	5.64	2.26	3.58
2003	4.79	1.51	2.65
2004	4.00	1.00	2.03
2005	3.31	0.79	1.95
2006	4.35	1.87	3.13
2007	5.17	2.83	4.19
2008	4.30	1.76	1.15
2009	2.38	0.27	0.22

Note. Several major amendments have been made to the statistics since September 2005.
Source: The Riksbank

Table P. Mortgage institutions' lending to the public
SEK billion

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Single-family dwellings	499	511	555	603	673	749	869	966	915	979	1 069
Multi-family dwellings	428	418	419	415	400	400	395	391	369	389	432
Commercial and office buildings	35	37	40	34	33	28	28	28	31	35	52
Tenant-owner apartments	44	58	75	96	119	152	196	240	241	279	329
Other	42	44	37	40	42	40	40	37	39	83	88
Total	1 048	1 068	1 126	1 187	1 267	1 369	1 528	1 662	1 595	1 763	1 970

Source: The Riksbank

Table Q. New lending by mortgage institutions by original fixed-rate term
Per cent

NEW LOANS PER MONTH	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Variable rate	49.4	64.9	51.1	53.5	40.4	54.8	51.1	55.8	47.9	67.1	84.1
Fixed-rate term ≤ 5 years	24.0	21.0	32.5	31.7	42.0	32.3	29.9	25.7	27.2	23.2	12.6
Fixed-rate term > 5 years	26.6	14.1	16.4	14.7	17.6	13.0	19.1	18.6	24.8	9.7	3.2

Source: The Riksbank

Table R. Mortgage institutions' loan stock by original fixed-rate term
SEK billion

AT MONTH END	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Variable rate	232	344	386	426	402	496	604	705	645	799	1130
Fixed-rate term ≤ 5 years	323	261	306	356	487	615	584	588	557	593	505
Fixed-rate term > 5 years	493	463	438	415	395	283	340	370	393	371	337
Total	1 048	1 068	1 130	1 196	1 283	1 393	1 528	1 663	1 595	1 763	1 972

Source: The Riksbank

Table S. Mortgage institutions' funding
SEK billion

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Certificates	115	130	136	171	182	171	175	146	167	81	116
Bonds and subordinated loans	708	634	604	649	744	743	861	1 051	1 152	1 294	1 404
Intra-group funding	169	203	252	237	236	352	363	403	226	383	469
Other funding	20	14	10	9	9	31	24	0	12	65	9
Total	1 011	980	1 003	1 066	1 172	1 297	1 423	1 600	1 557	1 824	1 999

Source: The Riksbank

Table T. Lending by other credit market companies to the public
SEK billion

	NON-FINANCIAL COMPANIES	HOUSEHOLDS	PUBLIC SECTOR	PUBLIC ABROAD	OTHER
1999	131	44	16	9	0
2000	134	47	19	12	0
2001	119	88	24	51	9
2002	133	94	29	40	10
2003	141	104	34	31	9
2004	144	115	37	30	8
2005	161	118	38	37	8
2006	179	123	41	46	8
2007	180	126	42	57	6
2008	204	93	49	89	7
2009	218	100	54	99	7

Source: The Riksbank

Table U. Insurance companies' investment assets
SEK billion

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-life insurance companies	334	350	1 436	1 281	1 443	1 567	1 833	1 990	2 141	1 931	2 238
Life insurance companies	1 430	1 478	346	331	329	363	420	439	468	448	485
Total	1 764	1 828	1 782	1 612	1 771	1 930	2 253	2 429	2 609	2 379	2 724

Source: Statistics Sweden

Table V. The insurance companies' allocation of investment assets
SEK billion

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Equities	902	892	861	589	697	807	1 051	1 215	1 290	947	1 337
Bonds	653	713	695	725	783	844	894	953	1 026	1 179	1 114
Short-term investments	72	60	86	175	176	160	188	140	148	133	98
Loans	50	66	71	55	57	59	51	49	69	54	112
Properties	87	96	68	68	59	61	70	72	76	66	63
Total	1 764	1 828	1 782	1 612	1 771	1 930	2 253	2 429	2 609	2 379	2 724

Source: Statistics Sweden

Table X. Use of different payment instruments

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of transactions, millions											
Cards	255	323	403	621	759	845	970	1 114	1 351	1 574	1 697
Debit cards	198	256	327	541	670	674	777	873	1 017	1 226	1 337
Credit cards	57	67	76	80	89	172	193	240	334	348	360
Credit transfers	797	793	764	436	530	588	654	743	820	890	908
Electronic	626	639	636	304	447	491	560	653	724	797	821
Forms	171	154	128	132	83	98	94	91	96	93	87
Direct debit	85	91	98	119	130	143	160	197	208	229	241
Cheques, including money orders	4	2	2	2	1	1	1	1	1	1	1
Totalt	1 140	1 209	1 267	1 178	1 420	1 578	1 785	2 054	2 380	2 694	2 847
Transaction value, SEK billion											
Cards	174	211	261	365	408	479	537	562	634	715	735
Debit cards	119	143	186	297	331	369	413	432	477	538	550
Credit cards	55	68	75	68	77	110	124	130	157	177	185
Credit transfers	8 619	8 910	8 531	6 202	6 633	7 209	8 090	8 998	10 377	11 100	11 152
Electronic	7 231	7 580	7 341	5 348	6 032	6 689	7 635	8 600	10 031	10 793	10 862
Forms	1 388	1 330	1 190	854	601	520	456	397	346	307	290
Direct debit	227	257	261	250	268	302	344	384	424	452	469
Cheques, including money orders	30	22	16	21	46	59	55	54	60	69	42
Total	9 050	9 400	9 069	6 838	7 355	8 049	9 027	9 998	11 496	12 335	12 398

Source: The Riksbank

Table Y. Card transactions in POS-terminals and ATM withdrawals
Number of transactions (millions) and SEK billion

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
ATMs											
No. of transactions	310	322	336	341	328	324	321	313	320	295	267
Transaction value	257	271	282	284	276	293	289	270	240	239	229
Payment terminals											
No. of transactions	227	287	373	454	542	652	801	1 000	1 188	1 398	1 531
Transaction value	127	146	185	211	241	270	312	384	436	477	501

Source: The Riksbank

Table Z. Average value of a card payment
SEK

1999	683
2000	653
2001	648
2002	587
2003	537
2004	567
2005	554
2006	505
2007	469
2008	454
2009	433

Source: The Riksbank

Table AA. Percentage of electronically initiated credit transfers
Per cent

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Percentage of transaction value	83.9	85.1	86.1	86.2	90.9	92.8	94.4	95.6	96.7	97.2	97.4
Percentage of transaction volume	78.6	80.6	83.2	69.7	84.4	83.4	85.6	87.8	88.3	89.5	90.4

Source: The Riksbank

Appendix 2. Market conventions in the Swedish fixed income and foreign exchange markets in SEK

A. Conventions in the Swedish bond market

Day count basis: Bonds have 30E/360 days per year, where 30E refers to "End-of-month".

Coupon Frequency: Annual coupon.

Quotations Basis: Prices/interest rates are expressed in decimals.

Trade date: Designated as T0.

Maturities: The designation of the bond indicates the maturity. Common maturities are for example 2, 5 or 10 years. Longer maturities also exist.

Settlement date: Three business days from the trade date (also called T+3). When the maturity of a bond falls below one year the bond is termed a "period bond" (the bond is traded T+2).

B. Conventions in the Swedish money market

Day count basis: Deposits, repo rates, treasury bills and bank, mortgage and Riksbank certificates, actual number of days /360 days per year (Actual/360).

Quotations Basis: Prices/interest rates are expressed in decimals.

Trade date: Designated as T0.

Maturities: Up to 12 months. Common maturities are 1, 3, 6, 9 or 12 months.

Settlement date: Two business days from the trade date (also called T+2).

C. Conventions in the shortest maturity segment of the money market

Day count basis: Deposits and repos and the Riksbank's repos: actual number of days/360 days per year (Actual/360).

Quotations Basis: Prices/interest rates are expressed in decimals.

Trade date: Designated as T0.

Maturities:

O/N (Overnight) = today (T0) to tomorrow (T1).

T/N (Tomorrow/next) = tomorrow (T1) to the day after tomorrow (T2).

S/N (Spot/next) = the day after tomorrow (T2) to the day after (T3).

1w (One week) = the day after tomorrow (T2) and one week thereafter (T2 to T9).

D. Conventions for the foreign exchange market in SEK

Foreign Exchange Quotation:

1 euro = x units SEK.

Quotations Basis: Prices/interest rates are expressed in decimals.

Trade date: Designated as T.

Value date: Two business days from the trade date (also called T+2).

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PRODUCTION: SVERIGES RIKSBANK. PRINT: PRINTFABRIKEN
ISSN 1401-7348