



# The Swedish Financial Market

2011





# The Swedish Financial Market

2011

**FOR INFORMATION** about this publication, please contact  
Lena Strömberg, phone +46 8 787 06 86 or  
e-mail: [lena.stromberg@riksbank.se](mailto:lena.stromberg@riksbank.se)

**TO ORDER** the publication, please contact  
Sveriges Riksbank, [Kontorsservicecenter@riksbank.se](mailto:Kontorsservicecenter@riksbank.se)  
Or from the web site: [www.riksbank.com](http://www.riksbank.com)

Production: Sveriges Riksbank  
Print: Printfabriken  
ISSN 1401-7348

Stockholm 2011

# Contents

- **Preface** 5
- **Introduction – The roles of the financial system** 6
  - Converting savings into funding 6
  - Managing risks 8
  - Efficient and safe payments 9
  - The interaction of intermediaries, markets and authorities 9
- **The financial markets** 16
  - The fixed income market 16
    - The money market – for short maturities 17
    - The bond market 33
    - Derivatives in the fixed income market 44
    - Issuance and the trading structure on the fixed income market 50
  - The foreign exchange market 52
    - Frequently used instruments in the Swedish foreign exchange market 56
    - Trading structure 57
  - The stock market 63
    - Issuers 64
    - Investors 65
    - Marketplaces 66
    - Trading in shares on NASDAQ OMX Stockholm 67
    - Share trading on other Swedish marketplaces 70
    - Equity derivatives 72
- **Financial intermediaries** 77
  - Credit institutions 84
    - Banks 84
    - Mortgage institutions 93
    - Other credit market companies 96
  - Private equity investment companies 98
  - Insurance companies, fund management companies and pension funds 99
    - Insurance companies 99
    - Fund management companies 103
    - State-owned pension funds 104
  - Securities institutions 105
    - Securities companies 106
    - Swedish credit institutions that engage in securities trading 107

- **The financial infrastructure 113**
  - Different types of payment 113
    - A simple payment 113
    - Payment using an intermediary 114
    - Payment using several intermediaries 114
    - Transfers when trading financial instruments 116
    - Transfers in foreign exchange transactions 119
    - Systems in the financial infrastructure 135
  - Payment flows in the Swedish financial infrastructure 141
  
- **Boxes**
  - Supervision and regulation of the financial sector in Sweden 11
  - Riksbank facilities for short-term borrowing and deposit requirements 23
  - Phase-out of the measures taken by the Riksbank during the financial crisis 28
  - Covered bonds in Sweden 36
  - The Swedish market for corporate bonds 40
  - The TED spread and the basis spread – different measures of risk 47
  - Covered interest rate parity 54
  - High frequency trading 74
  - Foreign operations – a part of the banking groups 80
  - The banks' market funding 89
  - Central laws in the financial sector 108
  - Risks in the financial infrastructure 121
  - New payment service laws 131
  - The payment behaviour of the Swedes 132
  
- **Appendices**
  - Appendix 1. Tables 145
  - Appendix 2. Market conventions in the Swedish fixed income and foreign exchange markets in SEK 154
  
- **Index 156**

## ■ 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 2011

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*<sup>1</sup>, 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.<sup>2</sup> 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.

---

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.

Unlike bonds and other fixed income instruments, shares do not generate interest. Instead, they represent shares in a company and 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 therefore usually regarded as 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. This makes the banks dependent on ongoing access to 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 on obtaining 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, and as far as possible ensure that it will get its money back, 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. Liquidity shortages arose on several occasions in connection with the latest financial crisis, 2008-2009, when trading on a number of markets came to a complete halt, at least temporarily.

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 (see the box on "Supervision and regulation of the financial sector in Sweden"). The same applies to international cooperation as financial companies increasingly operate across national borders.

## Supervision and regulation of the financial sector in Sweden

The financial sector is of great importance to the national economy as it provides important social functions. In the case of a financial crisis, the entire economy is affected. Decisions made by participants in the financial system may have consequences for others, both within the financial system and outside it. Financial stability in a country is therefore an important precondition for sustainable economic growth, which justifies the special regulation of the financial system. To prevent financial crises, special regulations have therefore been introduced for companies that conduct financial operations or provide parts of the financial infrastructure. The aim of these regulations is to ensure that the financial companies have sufficient resilience to avoid bankruptcy and to manage the risks that arise in their operations. Another reason for the regulations is to protect the assets and interests of the consumers in relation to the financial companies.

In Sweden, it is the Riksdag (the parliament) and the government that decide on these regulations, laws and statutes and that thus have ultimate responsibility for the financial system. However, responsibility for promoting financial stability and maintaining an effective financial system has been shared out between three authorities: the Riksbank, the Swedish National Debt Office and Finansinspektionen (the Swedish Financial Supervisory Authority). Each of these authorities, together with the Government (mainly the Ministry of Finance) plays an important role in the management of financial crises.<sup>3</sup> Put briefly, this means that the Riksbank is responsible for providing liquidity in the system. The government and the National Debt Office are responsible for more long-term forms of support, while Finansinspektionen is responsible for the supervision of the financial companies (read more about the Support to Credit Institutions Act in

<sup>3</sup> The cooperation between authorities in Sweden is governed by a written agreement, what is known as a Memorandum of Understanding. This agreement is published on [www.riksbank.com](http://www.riksbank.com).

the box “Central laws in the financial sector”).<sup>4</sup> There is therefore an agreement between these authorities, governing their cooperation on stability and crisis-management issues as well as an arrangement for consultation in a so-called stability council.

Sweden’s EU membership also means that the financial sector in Sweden is covered by the regulatory framework introduced in the EU, and is thus affected by changes in this regulatory framework. The increasing globalisation of the financial markets and of the participants on these markets also creates the need for strong coordination with authorities in other countries with regard to the oversight and supervision of financial operations.

#### *The Riksbank*

The Riksdag has delegated responsibility for monetary policy to the Riksbank and stipulated

in legislation that the objective of the Riksbank’s activities is to maintain price stability.<sup>5</sup> According to the Riksbank Act, the Riksbank shall also promote a safe and efficient payment mechanism.<sup>6</sup>

The Sveriges Riksbank Act does not describe in detail what is meant by promoting a safe and efficient payment mechanism. However, it is clear that the Riksbank has a responsibility for the supply of cash<sup>7</sup> and for providing a central payment system.<sup>8</sup> A safe and efficient payment system requires a stable financial system so that payments and the supply of capital can function smoothly. The Riksbank, like other central banks, must also be able to manage financial crises and other serious disruptions in the financial system to ensure the payment mechanism is safe and efficient. In this respect, the Riksbank plays a special role as Sweden’s central bank, because it can quickly supply money to

4 Under the Support to Credit Institutions Act (2008:814) the National Debt Office has also been appointed as a support authority.

5 Chapter 9, Article 13 of The Instrument of Government, Chapter 1, Article 2 of the Sveriges Riksbank Act (1988:1385). The document “Monetary Policy in Sweden” describes the Riksbank’s monetary policy objectives and strategies. Chapter 1, Article 2, the Sveriges Riksbank Act is not described in this section which focuses on financial stability.

6 Chapter 1, Article 2, Sveriges Riksbank Act.

7 Chapter 9, Article 14 of The Instrument of Government, Chapter 5, Article 3, Sveriges Riksbank Act.

8 Chapter 6, Article 7, Sveriges Riksbank Act.

the financial system if the need arises.<sup>9</sup>

A stable financial system is also a necessary condition for the Riksbank to be able to conduct an effective monetary policy. This is because the financial markets and their functioning affect the impact that monetary policy has through the interest rates that households and companies have to pay on their loans. Moreover, the economic consequences of a financial crisis have a direct impact on price stability, growth and employment.

“Promoting a safe and efficient payment system” thus has a fairly broad meaning. In practice it entails a responsibility to promote stability in the financial system. In addition to issuing banknotes and coins and providing a central payment system, the Riksbank supports the financial system in several ways. Under normal conditions, the Riksbank works on the general prevention of financial crises. The Riksbank draws the attention of banks and other participants on the financial markets to risks that the Riksbank has identified. In this work, the Riksbank has no binding statutory

tools to influence participants in the financial system. The Riksbank instead acts to exert influence by engaging in a public dialogue, for example by publishing its “Financial Stability Report” twice a year. The Riksbank also presents its views on proposed legislation and regulations from the EU, the Swedish Government and Finansinspektionen.

#### *Finansinspektionen*

Finansinspektionen is a supervisory authority for financial companies and marketplaces. The overall tasks and objectives of Finansinspektionen are to promote stability and efficiency in the financial system and consumer protection in the financial area. It does this by setting standards, issuing licences or permits and conducting supervision. Supervision can in turn be divided into three parts: operational supervision, issuing regulations and issuing licences. *Operational supervision* means that Finansinspektionen (FI) exercises supervision to ensure that the companies that conduct financial operations or provide elements of the financial

<sup>9</sup> This role is usually referred to as lender of last resort.

infrastructure comply with the special regulations that they are subject to. This task includes, for example, revealing shortcomings in internal governance and control if such shortcomings exist. FI is also responsible for issuing licences or permits to companies that wish to offer financial services to the public. In order to enable FI to achieve its overriding objectives, it has the authority to decide on new statutes and general guidelines, that is to *issue regulations*. The aim of the regulations imposed on the financial companies is to ensure that they have sufficient resilience by demanding that they have adequate capital and that they are able to manage any other risks in their operations. The new general guidelines on the loan-to-value ratio, with a limitation on mortgage loans, are an example of regulations issued in 2010.<sup>10</sup> Finansinspektionen, like the Riksbank, has the task of regularly monitoring and analysing developments in the financial sector, in order to be able to identify risks at an early stage. Finansinspektionen's

supervision provides the authority with information on the development of individual companies and thus on the financial sector as a whole. In the event of problems in a financial company, FI assesses the causes of the problems and can take measures against the company concerned.

#### *Ministry of Finance*

The Ministry of Finance is responsible for legislation in the financial sector, and its objectives are stability, efficiency and good consumer protection. The Ministry of Finance monitors the development of the financial system at an overall level. In the event of a crisis, the Ministry of Finance can initiate measures if it turns out that the tools available to FI and the Riksbank are inadequate. Some of the measures that the Ministry of Finance may need to implement require a decision by the Riksdag. In accordance with the Support to Credit Institutions Act, the government also makes decisions on support in certain cases.<sup>11</sup>

<sup>10</sup> See Finansinspektionen (2010), "Limitation on loans-to-value ratios for mortgages on residential property".

<sup>11</sup> Support to Credit Institutions Act (2008:814).



---

*The Swedish National  
Debt Office*

The Swedish National Debt Office is responsible for the government's payments and manages Sweden's national debt. The authority does this, for example, by selling government bonds and treasury bills. The National Debt Office can also issue government guarantees and loans. By being responsible for the deposit guarantee system and the bank support system, the Office also helps to safeguard the stability of the financial system. The deposit guarantee system, which is an important element of consumer protection, means that the state or another agent

reimburses deposits in accounts if a bank defaults. However, the deposit guarantee system does not just provide protection for consumers. It also reduces the risk of a bank run and thus contributes to the stability of the system. Apart from being responsible for the deposit guarantee system, the Office is also a support authority under the Support to Credit Institutions Act. This entails responsibility for entering into support agreements and administrative duties relating to the support provided on the basis of this Act. This may include, for example, guaranteeing the banks' long-term borrowing or injecting risk capital.

## ■ The financial markets

*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. Here the financial markets are categorised as the fixed income market, the foreign exchange market and the stock market. 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 yields 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 and pension funds.

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<sup>12</sup> 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 MONEY MARKET – FOR SHORT MATURITIES

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.

##### *Issuers on the money market in Sweden*

The central government, the mortgage institutions and the banks are the largest borrowers on the money 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<sup>13</sup> 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 and are used, among other things, to manage fluctuations in the government's short-term borrowing requirement. They still play a dominant role

---

<sup>12</sup> "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.

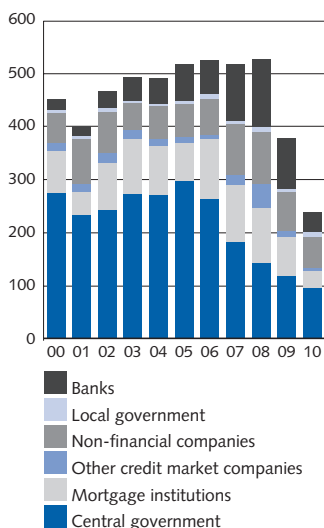
<sup>13</sup> The treasury bill is constructed as a zero-coupon bond, i.e. a security without interest payments during the term of the bill.

in the money market, even though the outstanding volume has decreased in recent years. At the end of 2010, treasury bills accounted for almost 40 per cent of the outstanding stock of short-term securities. However, the outstanding volume decreased by SEK 47 billion during 2010 and amounted to approximately SEK 92 billion at the end of the year.

A certificate is the same kind of debt instrument as a treasury bill but is issued by banks and companies, for example.

The banks' short-term borrowing in Swedish kronor decreased for the second consecutive year, falling by SEK 59 billion to SEK 37 billion at the end of 2010. The short-term borrowing of the mortgage institutions via certificates fell by SEK 40 billion to SEK 32 billion at year-end 2010. As recently, the mortgage institutions borrowing via certificates was over SEK 100 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.<sup>14</sup> The short-term borrowing of the non-financial companies fell by SEK 15 billion between 2009 and 2010. At year-end 2010, their borrowing amounted to SEK 58 billion.

**Chart 1. Issuers in the money market  
SEK billion**



Sources: Statistics Sweden and the Riksbank

<sup>14</sup> The mortgage institutions' borrowing via certificates is relatively small, however, in relation to their short-term fixed-rate lending. In order to match the fixed-rate periods of mortgage institutions' 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".

Finally, the borrowing volume for “other credit market companies” also continued to decline in 2010. The outstanding volume amounted to SEK 7 billion at year-end 2010 compared to SEK 12 billion at the end of 2009. The municipalities were the only category that increased its borrowing: borrowing in this sector increased by SEK 4 billion to SEK 10 billion at year-end 2010.

The value of the total outstanding stock of securities in the money market fell by as much as SEK 140 billion and amounted to SEK 235 billion at year-end 2010 (see Chart 1). Compared to the situation two years ago, the total stock has fallen by SEK 290 billion.

This substantial fall is partly due to the increase in borrowing in money market instruments denominated in foreign currencies. Two thirds of short-term borrowing was in foreign currencies at year-end 2010.

The government's issue of treasury bills has also declined in pace with the fall in the government's borrowing requirement. Borrowing at longer maturities through bonds has been given priority ahead of the issue of treasury bills.<sup>15</sup> Banks and mortgage institutions have also issued a greater proportion of long-term securities than previously. In the near future, international and national regulations will require funding at longer maturities, a situation that these participants have already begun to prepare for.<sup>16</sup> Moreover, the mortgage institutions are aiming to match their long-term lending with long-term borrowing to a greater extent than previously. The financial risk is reduced when liabilities and assets have the same maturity.

#### *Investors in the money market*

A smaller stock of outstanding money market instruments than previously means that investments in the money market also declined between 2009 and 2010. As previously, however, banks, insurance companies and funds formed the largest investor categories. The insurance companies are the only category that increased its investments in the money market in 2010 (see Chart 2). These investments increased by SEK 4 billion to SEK 35 billion, compared with year-end 2009. The insurance companies' investments thereby constituted approximately 15 per cent of the total market.

The banks almost halved their holdings in money market securities from SEK 119 billion to SEK 64 billion. Despite this, the banks' holdings

---

<sup>15</sup> When the government's borrowing requirement declines, the Swedish National Debt Office gives priority to maintaining a high level of liquidity in bonds ahead of treasury bills.

<sup>16</sup> For example the regulation “Net stable Funding Ratio”, within the regulatory standard Basel III, makes the requirement for a high proportion of funding at longer maturities more strict.

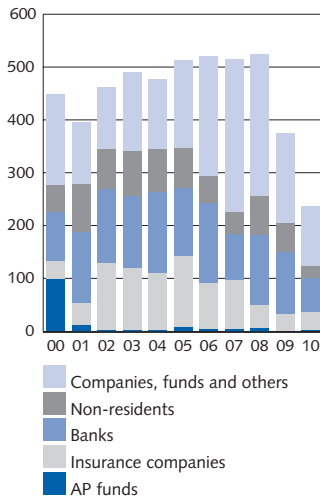
accounted for almost a third of the total money market at year-end 2010.

Companies, funds and others<sup>17</sup> reduced their investments for the third consecutive year in 2010, by around SEK 35 billion to approximately SEK 136 billion. Together, these investors have the largest holdings on the money market. At the end of 2010, this sector controlled almost 60 per cent of the outstanding stock of short-term debt securities.

Non-residential investors<sup>18</sup> reduced their holdings by almost SEK 30 billion between the end of 2009 and 2010. At the end of 2010 they owned securities on the money market to a value of almost SEK 23 billion, which constituted nearly 10 per cent of the market's total volume at that time.

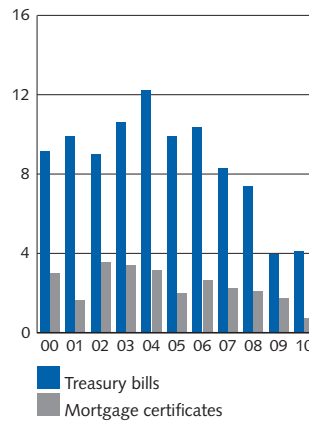
The AP funds increased their investments in the money market from SEK 4 million to SEK 630 million between 2009 and 2010.<sup>19</sup> The AP funds have radically reduced their holdings of short-term fixed income securities since 2000.

**Chart 2. Investors in the money market**  
SEK billion



Sources: The AP funds, Statistics Sweden

**Chart 3. Average daily turnover in the money market**  
SEK billion



Source: The Riksbank

17 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.

18 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.

19 Read more about the AP funds in the section state-owned pension funds in chapter Financial intermediaries.

### *Low turnover on the money market*

In historical terms, turnover in the money market was low in 2009 and 2010. According to the statistics obtained by the Riksbank from its primary monetary policy counterparties<sup>20</sup> the turnover in mortgage certificates issued in SEK continued to decrease between 2009 and 2010, from an average of SEK 1.1 billion to SEK 400 million per day between year-end 2009 and year-end 2010. On the other hand, the turnover in treasury bills remained almost constant (see Chart 3). The turnover in treasury bills and mortgage certificates accounted for 14 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 turnover in government and mortgage securities

### *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<sup>21</sup> who have a monetary policy counterparty agreement with the Riksbank may take advantage of a number of separate 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 "Riksbank facilities for short-term borrowing and investment needs").

On the overnight market the banks even out 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

---

20 More information on the Riksbank's counterparties is available at [www.riksbank.com](http://www.riksbank.com).

21 See the section on RIX in the chapter *The financial infrastructure*.

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 investing funds at predetermined interest rates, a potential alternative always exists to the interest rates offered by the market.<sup>22</sup> 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.<sup>23</sup> In this way, the terms for the overnight market are decided in practice by the Riksbank.<sup>24</sup>

---

22 For example, the Riksbank always offers an interest rate for deposits and lending overnight that is 75 points *below/over* the Riksbank's repo rate. These key interest rates are presented on the Riksbank's website at [www.riksbank.com](http://www.riksbank.com).

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

24 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 with the aim of governing short-term interest rates. These facilities are available to participants in the Riksbank's central payment system RIX or to those who have some 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.<sup>25</sup> At year-end 2010, the Riksbank had 23 RIX participants. Of these, 18 were also monetary policy counterparties. Five participants were also already primary monetary policy counterparties.<sup>26</sup>

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, 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 purchase Riksbank certificates or participate in monetary policy repos. They may also use the Riksbank's standing facilities and participate in the fine tuning operations that adjust liquidity in the banking system.

### *Intra-day facilities (intra-day credits) – for RIX participants*

As a central bank, the Riksbank helps to ensure that payments between banks can be made efficiently and without delay. Banks participating in RIX are therefore 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

<sup>25</sup> On 2 April 2009, the Riksbank also introduced "restricted monetary policy counterparties". These have been given the possibility to get Riksbank loans in Swedish kronor.

<sup>26</sup> More information on the Riksbank's counterparties is available at [www.riksbank.com](http://www.riksbank.com).



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.

*From monetary policy repos to Riksbank certificates*

The extraordinary measures introduced by the Riksbank to manage the financial crisis in 2008-2009 led to a large *structural liquidity surplus* in the banking system. In order to neutralise this surplus, the Riksbank began to issue certificates with a term of seven days and with a fixed interest rate equivalent to the repo rate. These certificates replaced the weekly repos that the Riksbank conducted until October 2008 with the aim of supplying the banking system with liquidity. The banking system thus had a *structural deficit* of liquidity up to September 2008.

Irrespective of whether the Riksbank supplies liquidity to or withdraws liquidity from the banking system, it is the Riksbank's forecast for liquidity in the banking system that determines the extent of the weekly measures.

Normally, the level of liquidity in the banking system depends primarily on changes in the stock of banknotes and coins in circulation. However, between October 2008 and January 2011, the size of the banks' loans with the Riksbank determined the level of liquidity in the banking system, and thus the amount that the Riksbank offered certificates for. However, the banking system will still have a surplus of liquidity even after these loans have matured, which is due to several factors.<sup>27</sup>

In 2010, the Riksbank offered the banks the opportunity to buy certificates for approximately SEK 221 billion on average per week. However, the volume of the average bid that the banks submitted and were allocated certificates for was only SEK 160 billion. The banks chose to deposit the remainder

---

<sup>27</sup> For example, the Riksbank's annual transfers to the Treasury increase liquidity in the banking system. Another factor that increases the banks' liquidity is that the amount of banknotes and coins in circulation has decreased.

overnight with the Riksbank, primarily through the fine tuning operations. Since the Riksbank's last large fixed-rate loan matured on 6 October 2010, the banks have had no interest in investing in certificates. They have instead invested their entire surplus in the fine-tuning operations.

In order to generate interest in the certificates among the banks, the Riksbank has made it possible to sell them back before they mature. In such cases, the Riksbank pays a lower price for the certificate than the price at which it was issued. The price is equivalent to an interest rate that is 0.02 percentage points higher than the repo rate. Certificates with a longer period of maturity were also temporarily introduced in 2010. The period of maturity of these longer-term certificates was in principle the period between the monetary policy meetings in July and October 2010, and it was also possible to sell the certificates back during this period. However, the possibility to sell certificates back to the Riksbank has only been used in one single case.

#### *Fine-tuning operations*

Since October 2008 there has been too much liquidity in the banking system as a whole which means that some of the commercial banks have a *surplus* of liquidity at the end of the day. The part of this surplus that is not invested in Riksbank certificates is evened out in the Riksbank's fine-tuning operations.<sup>28</sup> These operations entail the banks depositing their surpluses with the Riksbank overnight. The counterparties that deposit their surpluses with the Riksbank receive the repo rate minus 10 basis points.

The sums deposited with the Riksbank at this rate have been substantial or very substantial since October 2008. In 2010, an average of SEK 72 billion was deposited in the fine tuning operations, which corresponds to approximately one third of the average liquidity surplus in the banking system. The remainder was invested in Riksbank certificates with a maturity of one week (Chart 4). It thus follows that if a larger part of the liquidity surplus had been invested

---

28 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 and 2010, however, the fine tuning operations were very substantial, both in relation to the weekly operations and in absolute amounts.

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 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.

All of the monetary policy counterparties may participate in the fine-tuning operations. Other counterparties that are not participants in RIX may contact the Riksbank through these monetary policy counterparties.

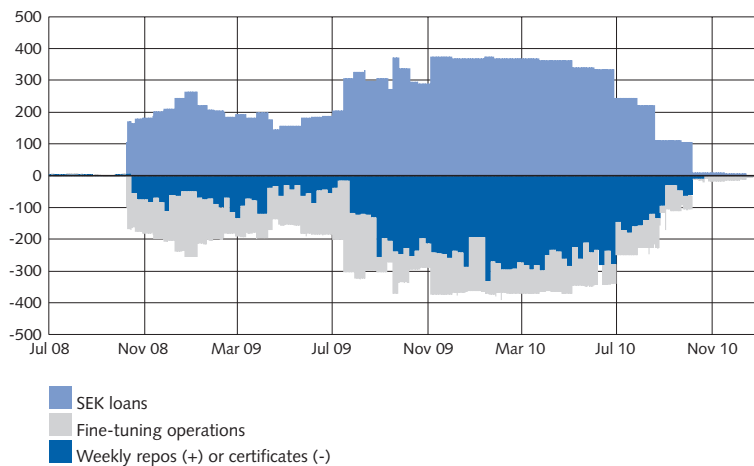
*Standing facilities – for monetary policy counterparties*

It may happen that the transaction accounts of individual banks at the Riksbank are not balanced when RIX closes. 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 75 basis points for an overnight loan. Making deposits overnight thus provides a return equal to the Riksbank's repo rate minus 75 basis points.<sup>29</sup> During 2009, the average deposit in the Riksbank via the standing facilities amounted to approximately SEK 27 million per day.

---

<sup>29</sup> Between 22 April 2009 and 6 July 2010, the deposit and lending rates in the standing facilities were equivalent to the repo rate +/- 50 basis points respectively. Both before and after these dates the width of this so-called corridor was/is +/- 75 basis points.

**Chart 4. The Riksbank's deposits and lending in Swedish kronor  
SEK billion**



Source: The Riksbank

## Phase-out of the measures taken by the Riksbank during the financial crisis

The extraordinary measures taken by the Riksbank during mainly 2008 and 2009 were phased out in 2010. Almost all of the loans taken from the Riksbank by commercial banks during the crisis had matured by the end of 2010. Therefore, no loans remained that affected the size of the Riksbank's assets and liabilities at the end of the year. Despite this, the Riksbank's balance sheet total was still over 20 per cent higher at the end of 2010 than it was prior to the crisis. This is largely because the Riksbank strengthened the foreign currency reserve in connection with the crisis.

The loans, or credit, that the Riksbank offered the banks during the financial crisis can be roughly divided into two categories. First, loans were offered at variable and fixed interest rates with the aim of increasing the banks' access to credit and thus promoting financial stability. These loans were provided in both US dollars and Swedish kronor. Second, three loans of SEK 100 billion each were offered at a fixed

interest rate to give monetary policy the desired effect in the form of lower interest rates for households and companies. These loans were offered in the second half of 2009 and had a maturity of approximately 12 months. These loans were current for most of 2010 and were thus mainly provided for monetary policy reasons, in contrast to the loans where the sole aim was to safeguard financial stability.

At most, the Riksbank's monetary policy counterparties had loans of SEK 374.3 billion in 2010, while the average volume during the year amounted to approximately SEK 225 billion (see Chart 5). The last of the three large fixed-rate loans matured in October 2010, and at the end of 2010 only a loan of SEK 0.5 billion remained.

The phase-out of the Riksbank's extraordinary lending has taken place in pace with the improvement in access to funding for the financial markets and the banks. However, some of the measures taken during the financial crisis remain in place. For example, 100 per cent of the collateral for intraday credit

from the Riksbank is permitted to come from closely-linked institutions. Prior to the crisis, such collateral was only permitted to make up 25 per cent of the collateral volume. The widening of the circle of counterparties for extraordinary loans and the possibility to deposit surpluses

with the Riksbank has also remained in place. Outside the Riksbank, the guarantee programme provided by the Swedish National Debt Office has been ceased as well. However, no institutions are now linked to this programme.<sup>30</sup>

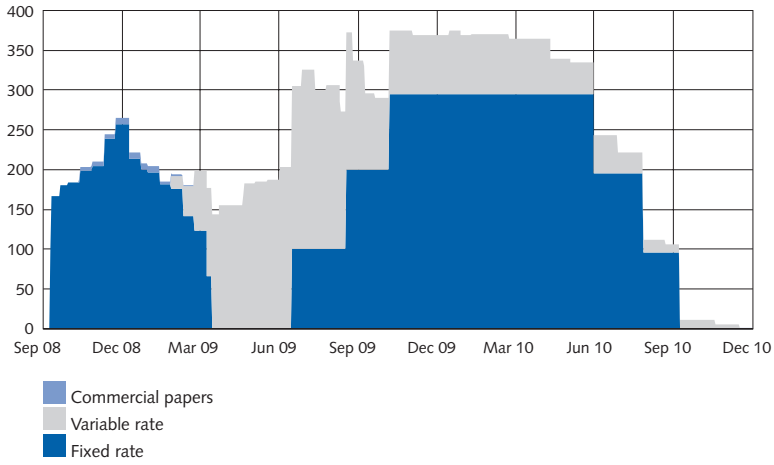
**Table 1. The Riksbank's balance sheet before and after the extra measures**  
SEK billion

ASSETS	30.9.2008	31.12.2010	LIABILITIES	30.9.2008	31.12.2010
Gold	28	39	Banknotes and coins	106	105
Claims on residents outside Sweden denominated in foreign currency	235	283	Deposit facility	0	0
Claims on residents in Sweden denominated in foreign currency	0	0	Fine-tuning operations	0	5
Lending to monetary policy counterparties denominated in Swedish kronor	4	0	Riksbank certificates	0	0
Other assets	1	5	Liabilities to residents outside Sweden denominated in Swedish kronor	0	0
			Liabilities to residents in Sweden denominated in Swedish kronor	0	0
			Liabilities to residents outside Sweden denominated in foreign currency	65	1
			Liabilities to residents in Sweden denominated in foreign currency	0	84
			Other liabilities	38	60
			Equity	59	72
<b>Total assets</b>	<b>268</b>	<b>327</b>	<b>Total liabilities</b>	<b>268</b>	<b>327</b>

Note. Any deviation from the Riksbank's annual financial report are due to rounded numbers.  
Source: The Riksbank

<sup>30</sup> The programme has been extended several times, in line with the European Commission's proposal, but ceased in the end of June 2011.

**Chart 5. The Riksbank's lending of SEK to financial institutions  
SEK billion**



Source: The Riksbank



## Deposits

*Deposits* are standardised deposit and lending agreements without requirements for underlying collateral. Normally, market participants do not use deposit contracts for depositing and lending for longer than a week. This is because the counterparty limits<sup>31</sup> and capital adequacy<sup>32</sup> requirements make this form of placement relatively more expensive than other financial contracts with longer maturities.<sup>33</sup> 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 assist each other with liquidity and, under normal conditions, to pay the Riksbank's repo rate for this.<sup>34</sup> 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.

Nearly all of the turnover in deposits thus relates to very short maturities.<sup>35</sup> In 2010, the Swedish institutions designated monetary financial institutions<sup>36</sup> in Statistics Sweden's statistics had had an average deposits volume of SEK 148 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.<sup>37</sup>

## 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.<sup>38</sup> 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

---

31 The amount a bank can lend to its counterparties is determined by the bank's own limits, 'counterparty limits'.

32 More information about capital adequacy requirements can be found in the box "Central laws in the financial sector" in the chapter Financial Intermediaries.

33 See the article entitled *The Swedish Market for Balancing Liquidity* in Economic Review 2005:4.

34 See the book "*Penningmarknaden*", Nyberg, Viotti and Wissén 2006.

35 Before the financial crisis 2008-2009 the major banks estimated that around 90 per cent of the turnover on deposit contracts involves maturities of up to two days. See the article entitled *The Swedish Market for Balancing Liquidity* in Economic Review 2005:4.

36 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).

37 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 the appendix on trade conventions).

38 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.

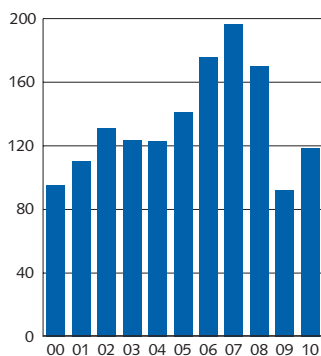
essentially as a collateralised loan over the maturity of the repo. The party that borrows the security pays an interest rate equivalent to the difference between the purchase and sale prices. Conversely, repos may be viewed as security loans collateralised with cash.

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 National Debt Office's dealers increased in 2010, following a fall during the financial crisis in 2008-2009. Between 2009 and 2010, turnover increased from SEK 92 billion to SEK 119 billion per day. Almost all the turnover in repos is in repos with maturities of up to one week. The turnover in repos is four times as high as the spot turnover in the underlying government and mortgage securities.<sup>39</sup> According to the statistics compiled by the Riksbank, spot turnover in these underlying securities amounted to SEK 31 billion in 2010 (see the 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 can also acquire securities quickly in order to meet their obligations under their dealer agreements. Another reason for the high turnover

**Chart 6. Average daily turnover in repos  
SEK billion**



Source: The Riksbank

<sup>39</sup> Includes treasury bills, nominal government bonds, mortgage certificates and mortgage bonds. Inflation-linked government bonds are not included in these figures.

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 221 billion in 2010. Two thirds of this amount, over SEK 152 billion, was attributable to the repo borrowing of Swedish monetary financial institutions.<sup>40</sup>

## THE BOND MARKET

The bond market brings together managers of long-term savings with those that need to borrow capital. The issuers are the same as on the money market, that is mainly the central government and the mortgage institutions. Companies and municipalities may also issue bonds. Bond issues often relate to a long-term funding requirement and trading takes place in debt securities – bonds – with maturities of one year and longer.

The bond market is much larger than the money market. In 2010, the outstanding volume of bonds issued in Swedish kronor was ten times greater than the volume on the money market.

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<sup>41</sup> (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 second-hand or 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.

Investors who have bought bonds at issue can choose to resell them in the second-hand market. On an effective second-hand market turnover is high and it is easy to buy and sell various securities. High

---

<sup>40</sup> The special conventions used in trading in the money market's short-term contracts are presented in Appendix 2.

<sup>41</sup> Interest payments.

turnover on the second-hand 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 can acquire liquidity by lending the bonds. The market for these repo transactions is larger than that for spot transactions in the same securities (see the section on repos).

#### *Issuers on the bond market in Sweden*

The largest issuers on the Swedish bond market are the central government and the mortgage institutions. They represent 32 and 43 per cent respectively of the total issued volume of SEK-denominated bonds. At year-end 2010, the total volume on the Swedish bond market amounted to SEK 2,516 billion, which was SEK 183 billion more than 12 months previously (see Chart 7). 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.<sup>42</sup> Issues are then conducted in other currencies.

Central government borrowing is used to finance the national debt.<sup>43</sup> At year-end 2010, the outstanding stock of government bonds amounted to SEK 802 billion, which was approximately SEK 61 billion more than at the end of 2009 (see Chart 7).<sup>44</sup> The government's borrowing on the bond market has thus increased despite the fact that the borrowing requirement has decreased. This is explained by the National Debt Office's borrowing strategy. In order to offer investors good liquidity in Swedish government bonds the stock of bonds has been increased at the expense of borrowing in treasury bills and loans in foreign currencies. The National Debt Office can use interest rate swaps to ensure that it can still meet its target of a certain average maturity for the central government debt. The same principle applies to borrowing in foreign currencies. To achieve the target of a certain currency exposure, despite extensive borrowing in Swedish kronor, the National Debt Office can use currency swaps.

The mortgage institutions primarily issue bonds to fund the loans (mortgages) provided to Swedish households in connection with

---

42 As a rule, issues 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 just over half of the total lending volume at the end of 2010. It is primarily the banking sector that secures funding in foreign currencies.

43 The Swedish National Debt Office manages central government borrowing on the bond market.

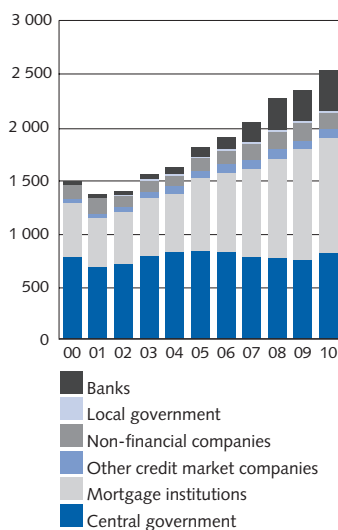
44 Of the total lending in government bonds of SEK 802 billion, nominal bonds accounted for SEK 591.2 billion and real bonds for SEK 34.5 billion.

the purchase of housing. Their total borrowing in 2010 increased by around SEK 52 billion, to SEK 1 087 billion by year-end. The increase in the mortgage institutions' borrowing in the form of bonds over the last ten years is a result of the increase in the households' borrowing for housing. It also became apparent during the financial crisis that it is increasingly important for the mortgage institutions to not fund their operations at too short maturities. Lending to households is a long-term commitment, which means that the financial risk is minimised if the maturity of the lending is also lengthened. The stock of bonds of the mortgage institutions has therefore increased at the expense of the volume of certificates issued.

The entire stock of mortgage bonds in Swedish kronor 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 increased substantially in 2010. The outstanding volume amounted to SEK 376 billion at year-end, which was SEK 86 billion more than 12 months previously. However, approximately half of this substantial increase is explained by re-classifications in the statistics.<sup>45</sup>

**Chart 7. Issuers in the bond market in Sweden**  
SEK billion



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

45 SBAB's parent company is now included in the category Banks instead of in the category Mortgage institutions. A similar re-classification took place in 2007 when SEB Bolån was merged with SEB. Since then all bonds, including mortgage bonds, have fallen within the category Banks.

## Covered bonds in Sweden

Swedish banks' primary source of funding to meet the public's mortgage requirements at a competitive interest rate are so-called covered bonds. These have been issued by Swedish banks and credit market companies since 2006.<sup>46</sup> 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.<sup>47</sup>

Seven Swedish banks or their mortgage institutions have permits from Finansinspektionen to issue covered bonds.<sup>48</sup>

The outstanding volume is

approximately SEK 1 087 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 87 per cent of the four major banks' total amount of outstanding issued securities in kronor and thus easily comprise the greatest source of funding for mortgages.<sup>49</sup>

Covered bonds differ from traditional bonds in several ways. *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

<sup>46</sup> However, it has been possible to issue covered bonds since 2004, for more information see *The Swedish Financial Market, 2009*.

<sup>47</sup> Traditional mortgage bonds, without a priority claim to a Cover Pool, no longer exist in Sweden.

<sup>48</sup> The seven institutions are Swedbank, Stadshypotek, Nordea hypotek, SBAB, SEB, Landshypotek and Länsförsäkringar hypotek.

<sup>49</sup> If the major banks' borrowing in currencies other than kronor is included, the percentage of covered bonds amounts to 51 per cent. Approximately 78 per cent of the banks' borrowing via covered bonds is in kronor, while most of the remaining 22 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.

Pool, what types of collateral can be included in the Cover Pool and how this may be composed (see Table 2). In addition, the issuer must keep a register of the covered bonds and 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 collateral volume 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.<sup>50</sup>

*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 mortgage and 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.<sup>51</sup> *Fourthly*, covered bonds have the attractive 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 are thus good reasons to regard the creditworthiness of covered bonds as being higher than the creditworthiness of traditional bonds issued by banks and companies. 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

50 This work is partly being conducted within The Association of Swedish Covered Bond Issuers, see [www.ascb.se](http://www.ascb.se).

51 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 USA, for example but not in Sweden.

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.

**Table 2. 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 2010, borrowing by non-financial companies in the Swedish bond market totalled just over SEK 154 billion. This was a fall of around SEK 15 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 (six municipalities and one county council) had outstanding listed bond loans in their own name at year-end 2010. Of these seven, the Stockholm County Council had the largest outstanding volume, followed by the City of Stockholm, the Municipality of Södertälje, the Municipality of Sundsvall, the Municipality of Uppsala, the City of Helsingborg and the Municipality of Täby. At year-end, their total borrowing amounted to approximately SEK 9.6 billion.

The other municipalities and county councils, totalling 253 municipalities and seven county councils, had outstanding loans in association with the credit market company Kommuninvest.<sup>52</sup> At year-end 2010, Kommuninvest's lending to the municipalities affiliated to the company amounted to SEK 134 billion. In order to fund its lending to the municipalities, Kommuninvest issues bonds in Swedish kronor. Kommuninvest had an outstanding stock of bonds and certificates amounting to SEK 173.9 billion at year-end 2010. Of these securities, only SEK 36.5 billion were issued in Swedish kronor, some of which in certificates. Kommuninvest is included in the category *Other credit market companies* in Chart 7. Together with the borrowing of other credit market companies, the outstanding amount of issued bonds totalled SEK 78 billion at year-end 2010.

---

<sup>52</sup> 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](http://www.fi.se).

---

## The Swedish market for corporate bonds

**T**here is reason to believe that the Swedish market for corporate bonds will grow and become an important funding alternative for the Swedish companies. Following the recent financial crisis, the companies have begun to use bonds as an alternative source of funding to an increasing extent. This is due in part to the fact that many of the loans that Swedish and foreign banks gave to Swedish companies prior to the crisis will fall due within the next two years. Also bank loans have in general become more expensive since the crisis as well, for example as the result of new capital adequacy requirements for the banks.

At present, bank loans are still the primary loan-based source of funding for Swedish companies. Approximately 80 per cent of the Swedish companies' funding comes from such loans. Bank loans are almost the only source of funding used by small and medium-sized companies. One explanation of this is that many companies have developed a good relationship with their banks over time. They have thus

been able to get the funding they need through bank loans. Another explanation of this pattern may be that it often requires larger sums to issue bonds on the market than the small and medium-sized companies are in need of. Yet another explanation may be that there are relatively few small and medium-sized companies in Sweden that have a credit rating. This makes it more difficult for the investors to assess the credit risk in the companies that issue bonds and to know whether the companies will be able to meet their financial commitments in time. The companies that acquire a credit rating often gain access to more investors. The reason for this is that investors usually have investment regulations that are based on the credit ratings of the credit rating agencies. However, several medium-sized companies have chosen to issue corporate bonds over the last year.

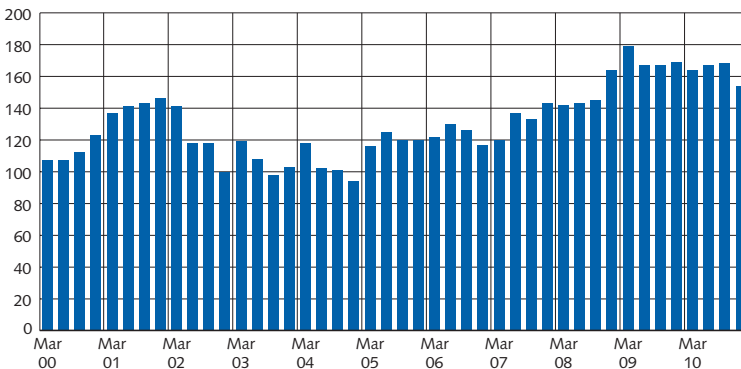
The market is also limited today by the fact that access to it is relatively difficult for investors. Companies that issue bonds register them with Nasdaq OMX Stockholm. However,

trading on the secondary market is not conducted on any trading platform but is carried out by phone. It is therefore difficult for investors to get current information on prices and turnover on the market. Large sums are also often required to invest in corporate bonds. For private individuals who want to invest in corporate bonds it may therefore be simpler to invest in a corporate bond fund consisting of a basket of corporate bonds. In general, corporate bonds provide a higher return than government bonds or mortgage bonds. On the other hand, they also usually entail a higher credit risk and poorer liquidity.

The Swedish market for corporate bonds is relatively small

in an international perspective. According to Nasdaq OMX Stockholm, approximately 100 corporate bonds are listed on the exchange in Stockholm. The market is dominated by a few large, well-established companies that rarely experience problems in getting the funding they want. The 10 largest companies that issue bonds account for around 70 per cent of the market. The largest Swedish issuers in Swedish kronor are Vattenfall, TeliaSonera, Volvo, Vasakronan and Atlas Copco. At year-end 2010, the outstanding volume of corporate bonds issued by Swedish companies in Swedish kronor was SEK 154 billion (see Chart 8).

**Chart 8. Outstanding volume of corporate bonds denominated in Swedish kronas issued by Swedish non-financial companies SEK billion**



Source: Statistics Sweden

### *Investors on the bond market*

At year-end 2010, insurance companies were the category of investors with the largest holding in SEK in the bond market. They accounted for 43 per cent of total holdings. However, after having increased their holdings in bonds in 2009, they reduced their holdings by SEK 27 billion in 2010 as the development of the stock market was more favourable than in the preceding year (see Chart 9). At year-end 2010, the insurance companies accounted for SEK 1 087 billion of the total outstanding sum of SEK 2 516 billion. The banks' holdings in bonds also fell between 2009 and 2010, from SEK 473 billion to SEK 346 billion.

However, foreign (non-residential) investors<sup>53</sup> increased their holdings on the bond market. At year-end 2010, their holdings amounted to almost SEK 581 billion, which was SEK 119 billion more than 12 months earlier. Given the uneasy international situation, the strong macroeconomic development in Sweden and Sweden's stable public finances probably helped to increase the interest of foreign investors' in Swedish bonds.

Companies and others<sup>54</sup> increased their bond holdings by almost SEK 178 billion in 2010, following a substantial reduction in the previous year. This category had invested SEK 334 billion in bonds at year-end 2010.

The Swedish bond holdings of the AP funds (the Swedish national pension funds) increased by SEK 39 billion in 2010, following a decrease in three consecutive years. Their holdings on the bond market totalled SEK 168 billion at year-end 2010.

### *Turnover on the bond market*

According to the statistics that the Riksbank compiles from its primary monetary policy counterparties, turnover on the bond market fell by just over 30 per cent during the financial crisis in 2008-2009. The daily turnover in government and mortgage bonds averaged SEK 31 billion at year-end 2010, which was still SEK 12 billion lower than three years previously (see Chart 10).<sup>55</sup> It is primarily the turnover in government bonds that has fallen during these years. From a level of around SEK

---

53 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.

54 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.

55 The statistics compiled by the Riksbank cover approximately 60 per cent of the turnover in repos at monetary financial institutions.

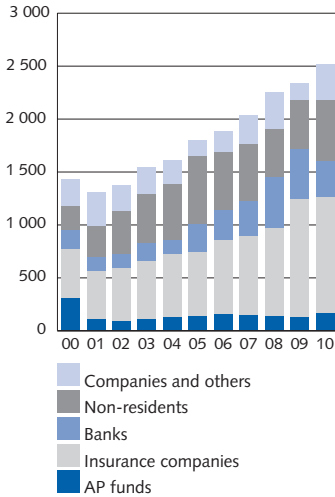
30 billion per day in 2005-2007, turnover has fallen over the last three years to SEK 18 billion per day in 2010. The turnover in mortgage bonds has been more stable and increased from SEK 12 billion to SEK 13 billion per day in 2010.

The main explanation for the fall in the turnover in bonds is that many investors chose to retain primarily government bonds in their portfolios until they matured due to the financial crisis. The demand for government bonds usually increases during periods of financial unease as investments in securities issued by the central government are safer than other securities.<sup>56</sup>

Government bonds are primarily bought and sold on the secondary market. In 2010, over 99 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.

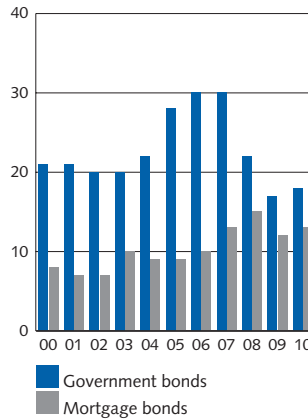
Alongside the institutional trading in bonds, trading also takes place in private bonds. A private bond is a debt security primarily aimed at private individuals and other small investors. They are listed on NASDAQ OMX Stockholm or on NDX (Nordic Derivatives Exchange). Unlike institutional trading, this trading is conducted electronically. The most common private bonds are structured

**Chart 9. Investors in the bond market**  
SEK billion



Sources: The AP funds, Statistics Sweden and the Riksbank

**Chart 10. Average daily turnover in the bond market**  
SEK billion



Source: The Riksbank

<sup>56</sup> The phenomenon of increased investments in securities issued by central governments during periods of turmoil is also commonly known as 'flight to quality'.

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.

#### 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. There is a distinction between *forwards* and *futures* in the English language, while in Sweden both are called "*terminer*". 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 most common way to use forwards on the Swedish fixed income market is to trade in *IMM-FRA (International Money Market Forward Rate Agreements)*.<sup>57</sup> These are standardised interest rate forwards that have deposit contracts as the underlying asset and specific maturity dates known as IMM days.<sup>58</sup> The turnover in IMM-FRAs among the Riksbank's primary monetary counterparties averaged SEK 128 billion per day during 2010. The equivalent figure for the previous year was SEK 113 billion. Contracts based on the outcome for the Riksbank's policy rate, the repo rate, were also introduced a couple of years ago. These are called RIBA-futures or Riksbank futures.<sup>59</sup> 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.

---

57 However, when a contract for an IMM-FRA matures, the underlying instrument (the 3-month deposit contract) 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.

58 IMM days (IMM – international money market) always fall on the third working Wednesday in March, June, September and December.

59 See *The Swedish Financial Market 2009*.

A RIBA contract gives the buyer and seller the possibility to speculate in the level at which the Riksbank will set its policy rate (the repo rate). FRA contracts are primarily used to manage interest rate risk, which in part is affected by the repo rate set by the Riksbank. Like the FRA contracts, the RIBA contracts are settled on the IMM days.<sup>60</sup> Both of these types are also fictitious contracts, that is the underlying loan sums are not transferred. The turnover in RIBA is moderate compared to that for IMM-FRA. In 2010, the turnover in RIBA contracts averaged SEK 8.8 billion a day. The corresponding figure for 2009, the year in which they were introduced, was SEK 4.3 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. However, the average turnover in bond forwards with government bonds as the underlying asset increased somewhat from SEK 19 billion per day to SEK 23 billion per day between 2009 and 2010. The turnover in forwards with mortgage bonds as the underlying asset increased from an average of SEK 7 billion per day in 2009 to SEK 8 billion per day in 2010.

On the other hand, the turnover in treasury-bill forwards fell from SEK 120 million per day to SEK 102 million per day between 2009 and 2010. Viewed in a longer perspective, the turnover in treasury-bill forwards has decreased since 2000. The likely explanation for this is the 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.<sup>61</sup> Swaps can also be regarded as a portfolio of interest-rate forwards. Since swaps are closely related to*

---

<sup>60</sup> An important difference between the RIBA and FRA contracts is that the RIBA designated the "March contract" is finally settled against the average repo rate during the three-month period December to March, while the FRA "March contract" is finally settled against the average STIBOR during the period March to June.

<sup>61</sup> 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 an addition.

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 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.<sup>62</sup> This enables a participant to protect themselves against changes in the variable rate, which in this case is the tomorrow next rate.

The daily turnover in STINA swaps among the Riksbank's primary monetary policy counterparties fell from SEK 23 billion to SEK 14 billion between 2009 och 2010.

---

<sup>62</sup> Reconciliation takes place in relation to the tomorrow next rate (T/N), which is the underlying interest rate in the contract.



## 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 can provide 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 2010, 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 highest and lowest rates are discounted when calculating the average.

In 2010, the three-month Swedish TED spread was lower than at the height of the financial crisis. However, the TED spread is still considerably higher than it was prior to the crisis (see Chart 11). It is, however, not self-evident that risk premiums will fall to the same historically-low levels that prevailed before the financial crisis.

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 tying them up for a certain period. In times of

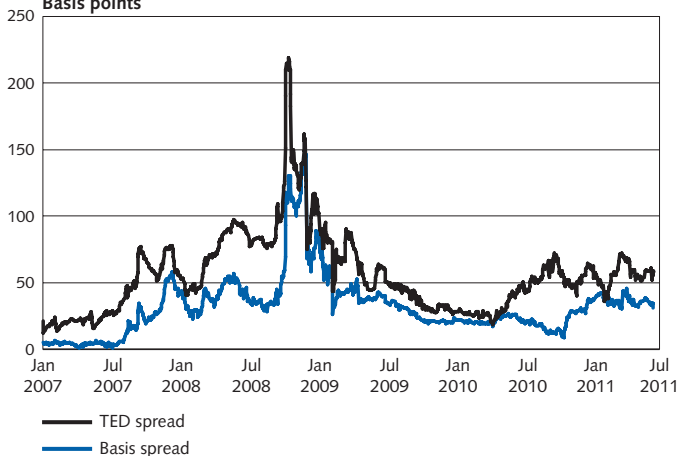
financial turmoil, banks often want to invest less cash at longer maturities, thus widening the basis spread.

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, measured as the tomorrow-next 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 - from tomorrow until the next banking day*).

Chart 11 shows that the basis spread has increased since the Riksbank's last large fixed-rate loan to the banks matured in October 2010 (see the box "Phase-out of the measures taken by the Riksbank during the financial crisis").

**Chart 11. Measures of risk on the Swedish interbank market, three-month Swedish TED spread**  
Basis points



### *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 only approximately SEK 2 million.<sup>63</sup>

One type of derivative instrument that has instead become more common in recent years is *structured products*. In most cases, these instruments combine securities with various types of options. Among the more discussed instruments in this group are *credit derivatives* (see the chapter on the financial infrastructure).<sup>64</sup>

One example of credit derivatives are so-called *credit default swaps* (CDS). These attracted a lot of attention during the recent 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.

### *The trading structure on 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 of the standardised type. Some of these OTC derivatives are cleared by NASDAQ OMX Stockholm, which thus acts as a counterparty to the buyers and sellers.<sup>65</sup> The active trading in derivative instruments

---

63 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.

64 More information about credit derivatives and structured products can be found in the book *Penningmarknaden*, Nyberg, Viotti and WissZn, 2006, and in the publication *Financial Stability 2006:2*, Sveriges Riksbank 2006.

65 See also the description in the chapter *The financial infrastructure*.

is conducted in a market where a number of dealers set prices by telephone or electronically.

#### 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 securities companies with which the Swedish National Debt Office has signed contracts. At present, there are six or seven such dealers depending on the kind 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 then customise the maturity of a treasury bill according to its borrowing requirement by choosing both the date of issue and the date when it falls due.

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 a wide circle 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*

The fixed income market has an active secondary market. Government bonds are the securities that have the highest turnover, although this turnover has fallen in recent years. Turnover is high because these bonds are issued in large volumes and are exposed to low credit risk.<sup>66</sup> 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.

Trading in government bonds is still conducted largely by telephone, although electronic trading does take place on a limited scale.<sup>67</sup> At present, electronic trading covers three benchmark bonds.<sup>68</sup> The electronic trading system is called 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 mortgage securities. 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

---

66 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.

67 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.

68 Benchmark bonds consist of the most frequently traded government bonds, with maturities of two, five and ten years.

basis. It is rather the case that prices for corporate bonds are quoted in response to a client's request.

## 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.

This section primarily deals with the *Swedish* foreign exchange market, in other words the 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 described as the trade in (all) currency pairs that is performed by institutions in Sweden. Therefore a description 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".

SEK may be exchanged either by *spot transactions*, where the deal is concluded directly and 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).

In relation to the fixed income market and the stock market, the largest turnover in terms of *amounts* is on 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 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. Thus this so-called *netting* 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 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 in theory 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 in this context 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. The total cost will therefore be the same irrespective of the currency

in which the loan is taken.<sup>69</sup> 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 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). The second alternative is to 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 opportunities for arbitrage<sup>70</sup> 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

<sup>69</sup> In practice, a difference between these alternatives may still arise for an individual player. This may be because different players have access to different information or that the market is not effective for some reason.

<sup>70</sup> Arbitrage is a term that describes the use of imbalances, expressed as differences in market prices, between two or more markets.



---

prevails, i.e. that the total cost is 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 convert their foreign currency loan to SEK.

The interest rate parity relationship was clearly illustrated during the financial crisis. When, for various reasons, market rates did not reflect the market participants' "true" expectations, the price of foreign exchange forwards was changed instead.

## FREQUENTLY USED INSTRUMENTS IN THE SWEDISH FOREIGN EXCHANGE MARKET

The following section presents the instruments most commonly used in trading where Swedish kronor constitute part of the transaction and describes the structure of trading in the foreign exchange market. This is followed by a description of the turnover in the Swedish foreign exchange market from two separate perspectives.

### *Spot*

The definition of spot is “a system of trading in which commodities are delivered and paid for immediately after a sale”<sup>71</sup>. 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 basis 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 instruments in the foreign exchange market is *foreign exchange swaps* (or 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 (with liquidity in two days' time) and sold as a forward sale (that is 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 at a later date (see the section on “The fixed income market – the money market's shortest segment”). FX swaps can be

---

71 Concise Oxford Dictionary, 11<sup>th</sup> edition.

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 in their pricing of interest rate spreads for different currency pairs<sup>72</sup>.

A *cross currency basis swap* (or more simply a *currency swap*) is another type of instrument 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.<sup>73</sup> 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 mainly using electronic trading systems. The more traditional telephone trading is still important, but has decreased considerably in recent years. A standard spot transaction by telephone involving the EUR/SEK currency pair is EUR 5 million. Trading in the electronic systems is more order-driven<sup>74</sup> and standard transactions do not exist to the same extent. Like fixed income derivatives, foreign exchange derivatives in SEK are only traded OTC (see the description in the

---

72 Currency rates are stated in pairs, such as USD/SEK, EUR/USD, GBP/SEK, EUR/SEK.

73 See the description in the section "The fixed income market – Derivatives in the fixed income market".

74 Orders submitted are automatically matched without the brokers having to contact one another.

section "The fixed income market – Trading structure in market for interest 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.<sup>75</sup> According to the latest study, 39 per cent of turnover on the international foreign exchange market during April 2010 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 2007, interbank trading's share of the total turnover was approximately 42 per cent. The primary reason for the slight 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 2010, this trade accounted for approximately 48 per cent of the global turnover, according to the BIS survey. Three years previously, these participants accounted for 40 per cent of the turnover.

Interbank trading is often, in turn, the result of *customer trading*, that is 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. The bank will give a price for the euro. 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

---

<sup>75</sup> This survey is known as "The Triennial Central Bank Survey". More information is available at [www.bis.org](http://www.bis.org).

accept the rate by pressing a buy or sell key. As a result, an order may be immediately entered into the system. Almost all of the spot trade in SEK between the Riksbank's counterparties is performed via electronic systems. Most SEK trading is conducted via systems such as Reuter 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 two thirds 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 Reuter Dealing) in which several banks participate. These quote the customer rates from several banks, enabling the customer to compare rates. At least 75 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. However, large buy and sell orders are usually submitted by phone.<sup>76</sup>

In the case of electronic platforms, systems already exist that are anonymous and have central clearing (for example, FXMarketSpace). 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 that offers the safe settlement of currency transactions (see also the chapter The financial infrastructure).

Electronic trading has also made highly-frequent trading, sometimes referred to as *black box* trading, possible on the foreign exchange market, just as in trading in shares and fixed income instruments (see the box "High frequency trade").

### *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

---

<sup>76</sup> According to telephone conversations with the major Swedish banks.

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 base currency but USD. Until the end of the 1960s, the base 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 2010, these counterparties consisted of the four major Swedish banks plus five large international participants.<sup>77</sup> The Riksbank’s counterparties account for around a half of the global turnover in SEK.<sup>78</sup>

According to the statistics collected by the Riksbank, average turnover amounted to SEK 328 billion per day during 2010, which is marginally lower than in 2009 (see Chart 12).<sup>79</sup>

Of this, the daily turnover in spot transactions averaged around SEK 72 billion per day in 2010, a decrease of over SEK 11 billion per day compared to the previous year.

The turnover in foreign exchange swaps was approximately SEK 217 billion per day in 2010, which was marginally lower than in 2009. However, the average maturity of foreign exchange swaps increased between 2009 and 2010. A possible explanation of the higher turnover in longer foreign exchange swaps is that Swedish participants are funding their operations to a greater extent by issuing certificates in

---

<sup>77</sup> More information about the Riksbank’s counterparties is available at [www.riksbank.com](http://www.riksbank.com).

<sup>78</sup> According to the BIS study “The Triennial Central Bank Survey” and the Riksbank’s turnover statistics for the foreign exchange market (the SELMA database).

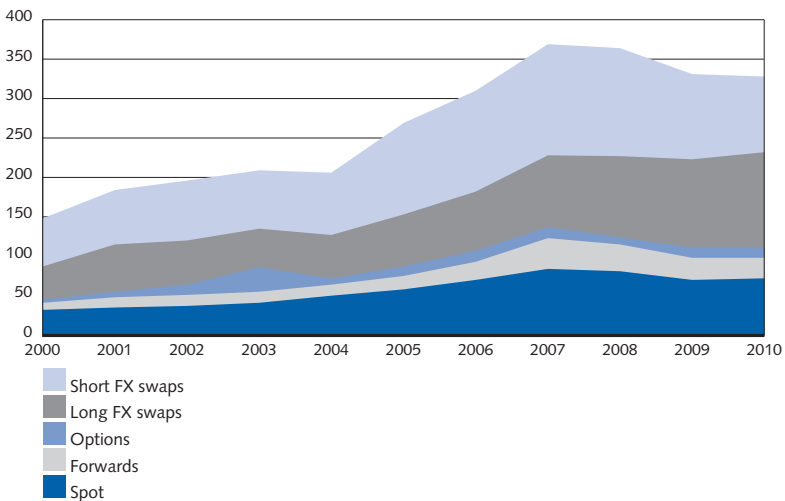
<sup>79</sup> Only one leg of the swap transaction is included in these figures.

foreign currencies. As these participants still need kronor, but wish to minimise the currency risk, they use foreign exchange swaps. The turnover in foreign exchange swaps with maturities from two days to 18 months increased by SEK 9 billion to SEK 121 billion between 2009 and 2010.<sup>80</sup> On the other hand, the turnover in foreign exchange swaps with maturities up to two days fell by SEK 12 billion to SEK 96 billion.

The turnover in foreign exchange options among the Riksbank's counterparties remained constant between 2009 and 2010. The turnover in foreign exchange forwards in SEK at the Riksbank's counterparties totalled approximately SEK 26 billion per day in 2010. This represented a decrease of around SEK 2 billion, compared to the figure for 2009.

According to the BIS study, over three-quarters of the trade in SEK took place outside Sweden in April 2010. Banks based in the United Kingdom accounted for 31 per cent of the turnover. 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

**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

<sup>80</sup> The Riksbank's definition, when collecting turnover statistics, is short FX swaps with maturities within two days and long FX swaps with maturities from two days until 18 months. This definition of the FX swaps is not in line with the definition on the market described in the section about derivatives.

important elements in well-diversified foreign portfolios focused on Europe. Other countries where there is extensive trading in SEK are Denmark (18 per cent), the United States (9 per cent) and Finland (8 per cent).

#### *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 2010 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 1998 and 2010, foreign exchange trading in Stockholm increased by around 9 per cent per year. Viewed over the longer term turnover has increased from an average of USD 16 billion per day in 1998 to USD 45 billion per day in 2010. Foreign exchange trading in Stockholm has thus expanded at somewhat higher rate than the global foreign exchange market overall (which grew by just under 8 per cent annually between 1998 and 2010).

The *currency pair* with the highest turnover in Stockholm is USD/SEK. However, its share of the total turnover has fallen somewhat, from 39 per cent in 2007 to 27 per cent in 2010 (see Table 3). The next largest currency pair is EUR/USD, representing 25 per cent of trading in Stockholm during 2010. The third largest currency pair is EUR/SEK. In 2010, this currency pair accounted for 18 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 2010 was not SEK but USD, which formed one part of approximately 69 per cent of all the currency pairs traded. This was followed by EUR (around 50 per cent) and SEK (around 50 per cent).



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

	1995		1998		2001		2004		2007		2010	
1	USD/SEK	28	USD/SEK	28	USD/SEK	33	USD/SEK	31	USD/SEK	39	USD/SEK	27
2	DEM/USD	19	DEM/USD	16	EUR/USD	14	EUR/USD	16	EUR/USD	26	EUR/USD	25
3	DEM/SEK	18	DEM/SEK	7	EUR/SEK	12	EUR/SEK	11	EUR/SEK	23	EUR/SEK	18
4	USD/CHF	4	USD/JPY	4	GPB/USD	4	GPB/USD	5	GPB/USD	2	GPB/USD	3
5	DEM/FRF	2	GBP/USD	2	USD/JPY	3	USD/JPY	2	USD/JPY	4	USD/CHF	2
6	USD/JPY	2	GBP/SEK	2	GBP/SEK	1	USD/CHF	2	USD/CHF	2	USD/JPY	2
	Other	27	Other	40	Other	32	Other	33	Other	4	Other	23
	Total	100	Total	100	Total	100	Total	100	Total	100	Total	100

Note. The figures represent the month of April.

Source: BIS

## 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. This gives investors access to investments with 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 lenders, 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. A part of the company's profits is distributed to the shareholders in the form of dividends. In Sweden, these dividends are usually paid out once a year. The remaining profits are 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.<sup>81</sup>

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

<sup>81</sup> 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.

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 needs 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 shares, for instance a stock exchange. Companies use stock exchanges to issue shares and investors to buy and sell shares.

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 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 2010, the total value of shares listed on Swedish marketplaces amounted to approximately SEK 4 300 billion (see Table 5). This is an increase of almost 25 per cent since 2009, which is largely the result of a general increase in share prices during the year. Table 4 shows that foreign investors owned 38 per cent of the share value at the end of 2010, thereby forming the sector with the greatest holding. Foreign investors have been accounted for the largest proportion of shareholding for several years. Just over 13 per cent of shareholding 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 2010, the proportion of holdings held by financial companies was approximately 29 per cent. Non-financial companies accounted for just over 9 per cent of total share assets.

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

SECTOR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Non-financial companies	6.8	8.2	8.5	9.2	8.7	8.4	9.0	9.4	9.5	9.1	9.2
Financial companies											
Banks, finance institutions, etc.	2.4	2.0	2.5	2.3	3.4	2.8	2.5	2.2	1.6	2.1	2.2
Investment companies <sup>1</sup>	6.4	6.1	5.6	5.6	5.3	5.3	5.2	5.6	5.4	5.3	5.4
Mutual funds	8.5	9.8	10.5	11.6	11.1	11.8	11.2	10.9	11.4	12.6	12.3
Insurance companies, pension institutions	9.8	11.6	10.4	9.2	8.7	8.7	8.1	8.3	9.0	9.1	8.9
Financial companies, total	27.2	29.5	29.0	28.7	28.5	28.6	27.0	27.0	27.4	29.1	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	3.8
Local government	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Social insurance funds	4.1	3.7	4.1	4.1	3.8	3.5	3.2	3.2	3.5	3.4	3.1
Public sector, total	9.3	9.3	10.0	9.8	9.2	8.0	7.8	7.8	8.2	8.1	6.9
Households	13.1	13.7	14.3	14.4	15.0	14.8	14.3	13.4	14.5	13.9	13.3
Non-profit organisations											
Companies	2.1	1.9	1.8	1.8	1.8	2.1	2.1	2.0	2.1	1.8	1.6
Households	2.6	2.9	2.9	2.9	2.8	2.7	2.7	2.4	2.5	2.5	2.4
Non-profit organisations, total	4.7	4.7	4.7	4.7	4.6	4.8	4.8	4.4	4.6	4.3	4.0
Outside Sweden	39.0	34.6	33.5	33.1	33.9	35.3	37.2	38.0	35.8	35.4	37.8
ALL SECTORS, TOTAL	100	100	100	100	100	100	100	100	100	100	100

<sup>1</sup> 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

## MARKETPLACES

Marketplaces typically provide two main services. They assist companies that wish 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 traditional stock exchanges) and trading platforms, which are usually called MTFs (Multilateral Trading Facilities).

There were 527 public limited companies in Sweden in 2010 (see Table 5). Of these, 280 were listed on a regulated market and 247 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 corporate 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. The simpler regulations of the MTFs mean that it is usually less complicated to sell shares on these marketplaces. On the other hand, they usually entail 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 thus do not entail a higher level of risk. MTFs, with their less stringent requirements, are usually more appropriate for newer and smaller companies.

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

**Table 5. Swedish marketplaces 2010 (2009 within parentheses)**

	NUMBER OF COMPANIES		MARKET VALUE, SEK BILLION	
NASDAQ OMX Stockholm	258	(258)	4 230	(3 413)
NGM Equity	22	(26)	2	(4)
Aktietorget	130	(120)	8	(5)
First North	99	(100)	26	(22)
NGM Nordic MTF	18	(21)	1	(1)
Burgundy		(–)	–	(–)
Total excl. Burgundy <sup>1</sup>	527	522	4 267	3 445

<sup>1</sup> 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

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.

At year-end 2010 there were two regulated markets in Sweden<sup>82</sup>: NASDAQ OMX Stockholm, which has a predominant position, and Nordic Growth Market (NGM). There are four MTFs in Sweden: *First North*, *Nordic MTF*, *Burgundy* and *Aktietorget*. Table 5 shows that the market value of NASDAQ OMX Stockholm was SEK 4 230 billion, or 99 per cent measured as the market value of the shares traded on Swedish marketplaces. This is despite the fact that only 49 per cent of the public limited companies are listed on NASDAQ OMX Stockholm. The market value of NASDAQ OMX Stockholm increased by almost 24 per cent compared to 2009 as a result of a general increase in share prices during the year. 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 overwhelming 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.

#### 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

---

<sup>82</sup> Since 1 January 2011, Burgundy has had a permit to run a regulated market for trading in warrants, certificates, structured products and fund units. Burgundy has also received a permit to run an MTF.

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<sup>83</sup> 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.<sup>84</sup> The trading day begins and ends with an auction, which is intended to find the prices that provide 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 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. 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 year-end 2010, 258 companies were listed on NASDAQ OMX Stockholm.<sup>85</sup> Public companies listed on NASDAQ OMX Stockholm are presented on a Nordic list which also presents the companies listed on the stock exchanges in Helsinki, Copenhagen and Iceland.

---

<sup>83</sup> Source: NASDAQ OMX membership statistics 2011.

<sup>84</sup> 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.

<sup>85</sup> Three companies are also listed on the Xterna list, which has been established by NASDAQ OMX Stockholm for trading in shares in foreign companies not listed on the stock exchange.

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 ownership must be sufficiently spread and that the business must have existed for a sufficiently long period (three years). The company must also show stable profitability or have financial resources to cover operations for at least 12 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 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 3 627 billion in 2010. This is somewhat higher than in 2009, but much lower than in 2008 (see Chart 13). Although turnover has still not returned to its pre-crisis level, activity on the stock market increased significantly during the year. The number of transactions completed increased by 44 per cent to just under SEK 44 million. The average turnover per trading day thus amounted to just over SEK 14 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 is considerably

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

Market value 31/12 2010, SEK billion	4 230
Turnover 2010, SEK billion	3 627
Average daily turnover, SEK billion	14.3
Annual turnover, billion shares	52
Total number of deals closed during the year, million	43.5
Average amount per deal	83 298
Average number of deals per day	172 119
Rate of stock turnover, per cent	95

Source: NASDAQ OMX Stockholm

higher (see the section on the fixed income market). At year-end 2010, market value amounted to SEK 4 230 billion, an increase of 24 per cent compared with the previous year.

## SHARE TRADING ON OTHER SWEDISH MARKETPLACES

### *Regulated markets*

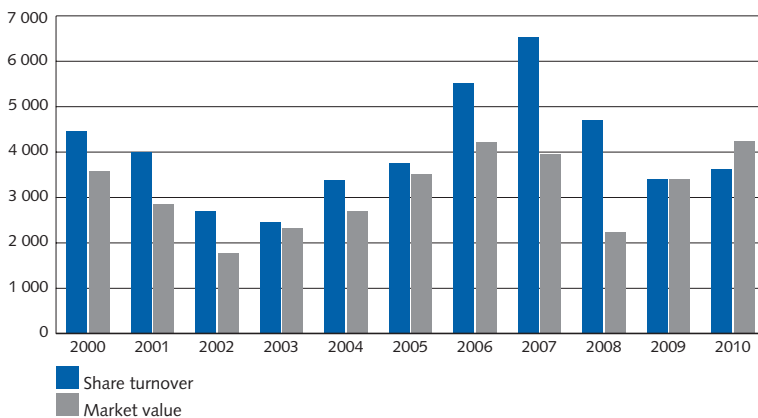
At year-end 2010 there were two regulated marketplaces. In addition to NASDAQ OMX Stockholm, Nordic Growth Market (NGM) has also been licensed by Finansinspektionen to operate a stock exchange in Sweden. NGM has specialised in small and medium-sized growth companies and offers listing and share trading on the NGM Equity list. There are 22 shares listed on NGM Equity. In addition, NGM offers derivatives trading on the Nordic Derivatives Exchange (NDX) list.

### *Trading facilities (MTFs)*

At year-end 2010, 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 Stockholm 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<sup>86</sup>

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



Source: NASDAQ OMX Stockholm

<sup>86</sup> The order depth shows how many shares the purchaser wishes to buy and the seller wishes to sell and at what price.



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 share distribution, market value and information.

In February 2009, a new segment, First North Premier, was introduced into First North. The companies trading on the First North Premier segment must fulfil the same requirements for accounting and information as companies trading on NASDAQ OMX Nordic. At year-end 2010, a total of 99 companies were traded on First North.

NGM operates Nordic MTF, a trading facility for small to medium-sized growth companies. In November 2010, NGM introduced a new trading system called Elasticia. NGM is responsible for monitoring the listed companies and for the trade in the companies' shares. At year-end, 2010, a total of 18 companies were listed on Nordic MTF, a slight decrease compared with the previous year.

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. They in turn ensure that the transactions are carried out in accordance with the "best possible result" principle.<sup>87</sup> 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.<sup>88</sup>

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

---

87 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.

88 Since 1 January 2011, Burgundy has had a permit to run a regulated market for trading in warrants, certificates, structured products and fund units. Burgundy has also received a permit to run an MTF.

in addition its own regulatory framework to protect the investor. At year-end 2010, a total of 130 companies were traded on Aktietorget.

## EQUITY DERIVATIVES

Derivative contracts 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 forwards. An *equity option* is a contract whereby the holder has the right, but not the obligation, to buy or sell a share at a specified price on a specified date in the future. In turn, the issuer of the option has the obligation to exercise the option if the other party wishes. An *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.<sup>89</sup> 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.<sup>90</sup> In addition to derivative contracts linked to individual shares, trading on NASDAQ OMX DM also includes options and forwards that are linked to NASDAQ OMX's own stock index. NASDAQ OMX DM also provides clearing for the derivatives traded on its exchange and for certain OTC derivatives that are not listed for trading (see the chapter "The financial infrastructure").

The number of standardised derivative contracts traded on NASDAQ OMX DM during 2010 amounted to just under SEK 99 million. Equity options and index futures accounted for approximately three-quarters, while the remaining quarter was divided between equity futures and index options.

### *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

---

<sup>89</sup> An auxiliary is not a separate legal entity but relates to a particular part of a company's activity.

<sup>90</sup> Certain Finnish derivatives, including Nokia derivatives, are traded on Eurex, in line with an agreement with NASDAQ OMX.

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 equity 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 equity options on NASDAQ OMX DM. In Sweden, warrants are traded on NASDAQ OMX Stockholm and also on the Nordic Derivatives Exchange (NDX). In 2010, the turnover in warrants on NASDAQ OMX Stockholm totalled SEK 20 million per day. Since 2008, the turnover in warrants and the number of warrant transactions per day have almost halved.

*Exchange traded funds* (ETFs) are also traded on NASDAQ OMX Stockholm. By investing in an exchange traded fund, the investor buys a basket of underlying securities. These funds are often index funds, i.e. funds structured to reflect a specific share index. However, the basket may also consist of commodities or fixed income investments, for example. Exchange traded funds, like shares, are traded in real time and are offered via market makers who guarantee the liquidity in the instrument. It is the market price that governs the value of the investment, which changes during the day as the index changes. Those who offer an exchange traded fund can increase the number of shares in the fund depending on the demand from investors. This form of investment has increased in Sweden in recent years. In 2010, the daily turnover for exchange traded funds amounted to SEK 604 million.

Outside the established marketplaces, trading is conducted in CDF contracts (Contract for Difference), which may be described as forward contracts without a set maturity date. A CDF 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 underlying 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.

---

## High frequency trading

**H**igh frequency trading means that computers are programmed to conduct securities transactions at high speed on the basis of predetermined codes, so-called algorithms. Algorithmic trading is an umbrella term for automated securities trading that is carried out with the help of mathematical formulas. High frequency trading is a type of algorithmic trading and is a relatively new phenomenon on the market. There is therefore yet no common definition on the market that sets clear limits between high frequency trading and other forms of securities trading. However, there are several characteristics that often distinguish this type of trading and these are presented below.

The term high frequency trading comes from the fact that an extremely high number of transactions can be carried out in a very short time. In only milliseconds, the computers search through a range of marketplaces and then place orders where the market conditions for a transaction are considered to be best. The rules

governing which order should be chosen are set with the help of sophisticated algorithms on the basis of parameters such as price, quantity and time. High frequency trading also differs from other types of trading strategy in that it is often short term. This means that all positions are closed before the end of the business day and no positions are held overnight. Often, high frequency trading is also used on behalf of those conducting the trading in the course of their own trading operations. This means that banks and securities companies that use high frequency trading do not do so on behalf of a customer.


The aim of high frequency trading is sometimes to try to make a profit by trading on the basis of historical patterns. In this case, banks and securities companies try to make use of small and short-lived price differences, where the price of a security relative to that of another temporarily deviates from the historical pattern. The profits per security are often small, but high turnovers per order are often involved as large volumes are traded simultaneously.

Trading is carried out extremely quickly. This means that the time between placing the order and completing the transaction is crucial. The MTFs therefore offer the customers, banks and securities companies that use high frequency trading the opportunity, for a fee, to locate their trading computers close to the MTF. This minimises delays in the network between the MTF and the customers' computers and increases the chances of a customer being the first to discover temporary price differences.

High frequency trading has both advantages and disadvantages, and as the phenomenon is relatively new its impact on the securities markets is still uncertain. One argument in favour is that it increases liquidity on the markets, thus making it easier for buyers and sellers to find each other. Increased liquidity helps to reduce the difference between the prices that the buyers and sellers have to pay, that is it reduces the spreads. An argument against is that there is a risk that a large number of computers will act as a flock over a very short space of time, which can create rapid and

dramatic price fluctuations on the market. High frequency trading also means that the number of orders can be so high that the market becomes overloaded. This overloading can lead to a shortage of liquidity in the event of rapid transaction flows and to the breakdown of the trading system.

One example of this is when the New York stock exchange fell by more than 6 per cent in the space of five minutes on 6 May 2010. This event is now referred to as the "Flash Crash". The main cause was that a mutual fund sold an unusually large amount of index futures using a computer that was programmed for algorithmic trading. The algorithm took no account of either price or time, but only of volume. As a result, an intensive pressure to sell on the market for index futures quickly spread to the stock market too. Following this event, several MTFs have taken action to try to prevent anything like this happening again. In the autumn of 2010, for example, NASDAQ OMX Stockholm introduced volatility guards that apply a break to the trading system in the event of such abnormal fluctuations. Similar functions




have also been introduced in the United States.

It has become much simpler to establish high frequency trading in recent years. This is due, among other things, to the development of the technology involved and to increasing competition between MTFs. This type of trading has therefore expanded in recent years. However, it is difficult to estimate high frequency trading's proportion of algorithmic trading as a whole, partly because there

is no common definition of what constitutes high frequency trading. In December 2010, the Bank of England calculated that algorithmic trading accounted for approximately half of the total volume of equity trading in Europe and the United States. NASDAQ OMX Stockholm has estimated that algorithmic trading accounted for approximately 30 per cent of all trading on the exchange in 2010 and that high frequency trading accounted for 9 per cent of all trading<sup>91</sup>.

---

91 NASDAQ OMX Stockholm uses the following definition of higher frequency trading: companies that typically do not have clients, enter and exit trading positions very quickly, have essentially no overnight risk, do not form fundamental opinions about the outlook for a stock.



## ■ 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 in the financial sector"). Several different kinds of intermediaries 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 banking 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 when assessing the stability of the Swedish financial system. 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, nor the operations conducted in the banks' foreign subsidiaries. As regards the foreign participants active on the Swedish

**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	Stads-hypotek 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 <sup>1</sup>	Provided by the bank <sup>2</sup>	Danske Capital <sup>3</sup>	Provided by the bank	Danica Pension Försäkringsaktiebolag <sup>3</sup>	Provided by the bank
Skandia AB	Skandia-banken 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.

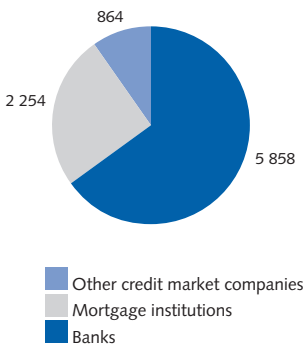
Source: The banks' annual reports



financial market, branches in Sweden and Swedish subsidiaries are included in the statistics.<sup>92</sup> To provide a complete picture of the four largest Swedish bank 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”.<sup>93</sup>

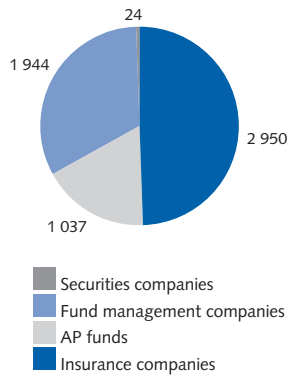
Banks, mortgage institutions, insurance companies, securities companies and so on will be dealt with separately in this chapter. Charts 14 and 15 provide an overview of the extent of the operations conducted in the most important categories of financial intermediaries.

**Chart 14. Total assets of Swedish banks, mortgage institutions and other credit market companies at year-end 2010 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 2010 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.

Sources: The AP funds' annual reports, Finansinspektionen and the Riksbank

92 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.

93 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 significant operations outside of Sweden. The operations of a group's various companies, both within Sweden and overseas, 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 overseas operations, 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 significance for the major banking groups as a whole.

In recent years, major banks' operations in other countries have increased. For example, at the end of 2010, 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.

**Table 8. Operations of the four major banking groups on the Swedish financial market at year-end 2010**  
SEK billion

	HANDELS- BANKEN	NORDEA	SEB	SWEDBANK	TOTAL, FOUR MAJOR BANKS
Total assets	2 154	5 208	2 180	1 716	11 257
Loans to public, of which:	1 482	2 817	1 059	1 146	6 505
– loans to Swedish public	1 012	689	652	969	3 322
– loans to public abroad	470	2 128	407	177	3 182

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

94 Unlike the rest of the statistics in this publication, the statistics in this overview refer to the entire operation of the group, i.e. operations in all companies and countries.

Consequently, in order to obtain a complete view of the major banks' operations, the scope and geographic extent of the foreign operations should also be examined.

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 nevertheless 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 conducts a small portion of its lending in these countries. Both SEB and Swedbank conduct a significant portion of their lending in the Baltic countries. 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 2010.

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.

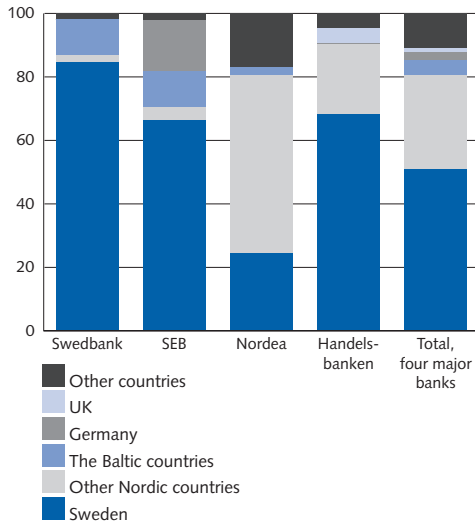
The *deposit deficit* shows the proportion of a bank's lending in foreign currency that cannot be funded by deposits in the same currency and accordingly has to be funded in some other way. The deposit deficit in foreign currency amounted to around SEK 1,400 billion at the end of 2010, which corresponds to 43 per cent of the lending in foreign currency. The chart shows that the banks' lending abroad has increased steadily since 2004, but began to slow down in 2009, mainly as the result of a decline in demand. As the percentage of deposits has remained relatively constant, the banks' dependence on market funding has increased at the same rate as the lending. Market funding on capital markets abroad is used not only

to fund the deposit deficit in foreign currency, but also to fund parts of the lending in Sweden. The banks convert, or swap, this lending into Swedish kronor, to protect themselves against foreign exchange risk.

The banks' funding may differ, depending on whether they have a centralised or decentralised funding strategy. Swedish banks largely have *centralised funding*, where liquidity management is carried out as a central function and the

parent company holds a liquidity reserve.<sup>94</sup> Foreign subsidiaries which are dependent on market funding obtain liquidity through the parent company, which in turn borrows on the global securities market. Centralised funding is cheaper, 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 obtained in the same place, the fixed costs are also kept down. One disadvantage may

**Chart 16. Geographical breakdown of the major banks' lending in 2010**  
Per cent



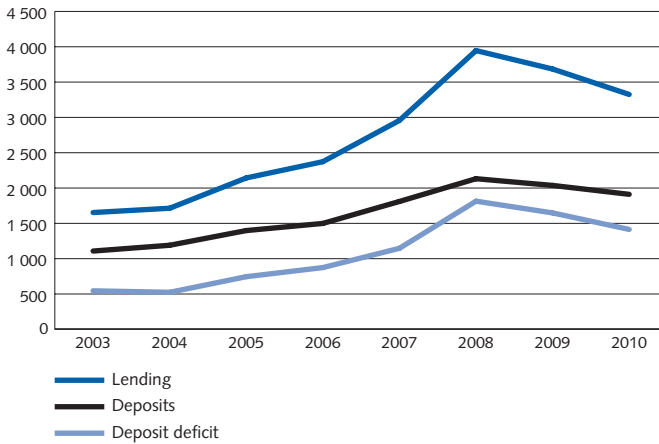
Sources: Bank reports and the Riksbank

<sup>94</sup> One exception is Nordea, which has significant operations in Denmark, and largely obtains funding on the Danish securities market.

be, however, that potential financial problems on the foreign market could spread to operations in other markets. With a decentralised strategy the banks allow foreign subsidiaries and branches to manage their own funding and liquidity. This leads to a developed local market

that is less dependent on the parent bank's home market. The strategy also leads to diversified funding and reduces the group's dependence on a small number of participants. However, decentralised funding also leads to higher costs because of the lack of economies of scale.

**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 3 200 billion at the end of 2010.

Sources: Bank reports and the Riksbank

## Credit institutions

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

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, also enabling credit market companies to accept deposits from the public. As with banks, these deposits are covered by the Swedish deposit guarantee scheme.<sup>95</sup>

One of the most important functions 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 almost SEK 2,100 billion (see Chart 18). In the Swedish market, the four largest banks together account for 76 per cent of the banks' total assets (see Table 9).<sup>96</sup>

---

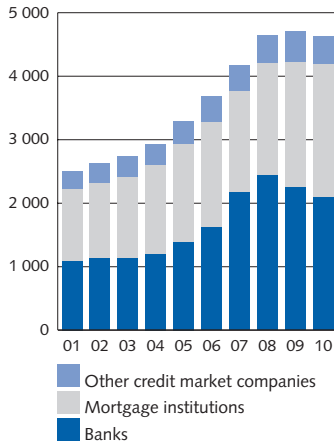
<sup>95</sup> According to the Act that came into force on 1 July 2004, other undertakings besides banks and credit market companies may, subject to certain conditions, also accept deposits from the public. However, these deposits are not covered by the deposit guarantee scheme. The deposit guarantee 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.

<sup>96</sup> All of the Swedish banks' balance sheet totals as a percentage of GDP amounted at the year-end 2010 to 180 per cent.

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 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-

**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

**Table 9. The ten largest banks' total assets at year-end 2010**  
SEK billion

SEB	1 234
Swedbank	1 222
Nordea Bank	1 034
Handelsbanken	965
Danske Bank <sup>1</sup>	626
Länsförsäkringar Bank	91
DnB NOR Bank <sup>1</sup>	71
SkandiaBanken	34
Volvofinans Bank	28
Sparbanken Finn	25
<b>Total 10 largest</b>	<b>5 331</b>
<b>Total all banks</b>	<b>5 858</b>

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 2010 to 77 per cent.

<sup>1</sup> Foreign branch.

Source: The Riksbank

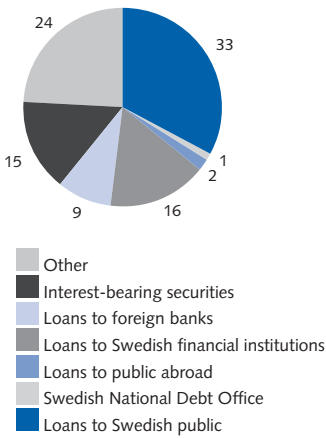
invested in the business and can, to a certain extent, be distributed to the bank's members in the form of a bonus dividend.

At the end of 2010, there were a total of 111 banks established in Sweden. These comprised 34 limited liability banks, of which one was the subsidiary of a foreign bank, 25 foreign-owned branches, 50 savings banks and two co-operative banks. Compared with 2009, three co-operative banks and one foreign-owned branch have been withdrawn from the Swedish banking market.

*The banks' assets and liabilities*

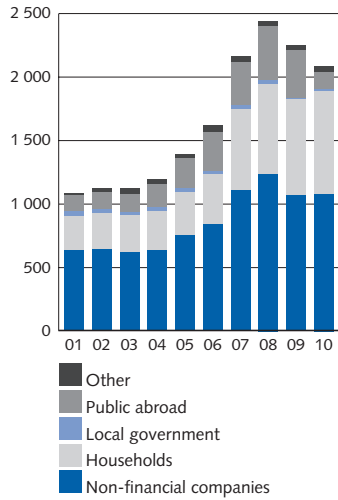
The banks' assets consist for the most part of loans to the public. At the end of 2010, lending to the public in Sweden and abroad totalled SEK 2,091 billion, corresponding to around 35 per cent of the banks' total assets (see Chart 19). Almost 50 per cent of lending to the public went to Swedish non-financial companies and almost 40 per cent to Swedish households (see Chart 20). Just over 5 per cent of the lending was to the foreign public.<sup>97</sup>

**Chart 19. The banks' assets at year-end 2010**  
Per cent



Note. Claims on the Riksbank will amount to 0.1 per cent of total assets. Equivalent figure for the Swedish National Debt Office is 1 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

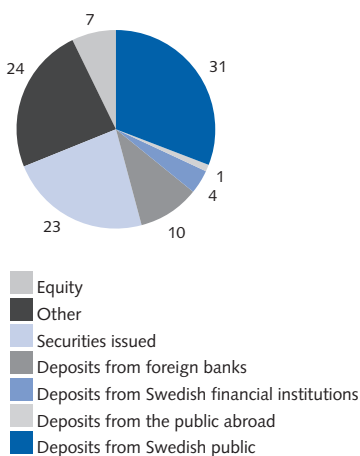
97 This represents only a small part of the Swedish banking groups' lending to the public abroad. The remainder of the banks' lending to the public abroad was thus comprised of the banks' foreign subsidiaries. For a brief outline of the total lending abroad, see the box "Foreign operations – a part of the banking groups".



In addition to lending to the public, the banks also have large claims on Swedish financial institutions<sup>98</sup> and foreign banks. These claims comprised around 16 per cent of the banks' assets. In addition, around 15 per cent of the assets consisted of bonds and other interest-bearing securities.

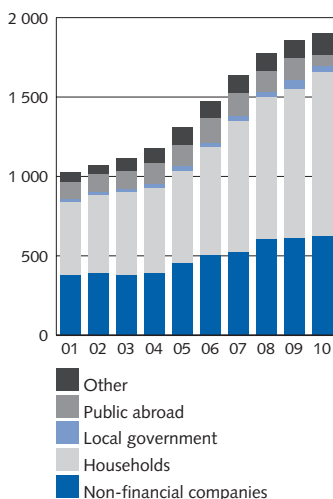
The largest item on the liabilities side of the banks' balance sheets is deposits from the public. During 2010 deposits from the public in Sweden and abroad amounted to around 32 per cent of the banks' total liabilities and at the end of 2010 they amounted to SEK 1,902 billion (see Chart 21). Swedish 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 4 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.

**Chart 21. The banks' liabilities and equity at year-end 2010**  
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

98 The financial institutions include other banks, finance companies and securities companies.

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 (SIVs)* are also placed off-balance sheet.<sup>99</sup> The common factor for these items is that the bank, as yet, does not have a real and quantifiable liability. That is, there is uncertainty regarding whether the bank's commitments will actually result in a liability and, if so, the date when this will occur and the total amount involved.

During the financial crisis 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 authorities undertook a number of measures to ease the financing of the banks and improve the functioning of the financial markets. For example, the Riksbank increased the availability to the banks of credits with terms of up to twelve months.<sup>100</sup> These credits were issued in exchange for collateral. The increased lending from the Riksbank can be seen in Chart 21, which shows the banks' liabilities and equity. It can also be seen in the banks' assets (see Chart 19), as the banks deposited 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 in February 2010 the Riksbank decided to stop offering the variable-interest rate loans with a twelve-month maturity.

During the financial crisis a guarantee programme was also established to facilitate the banks' funding. This guarantee programme entailed the government, for a fee, promising to step in if the institution offering the guaranteed loan was unable to pay its lenders. The programme has been extended several times but expired 30 June 2011. Prior to the guarantee programme becoming established, the Swedish National Debt Office made additional issues of treasury bills during a transition period.

More information on the implications of the Riksbank's measures can be found in the box "The impact of the Riksbank's extra lending on the balance sheet" in the chapter on financial markets.

---

<sup>99</sup> Conduits and SIVs are not very common in Sweden.

<sup>100</sup> A complete list of the measures adopted by the Riksbank is available on the Riksbank's website, [www.riksbank.com](http://www.riksbank.com).

## The banks' market funding

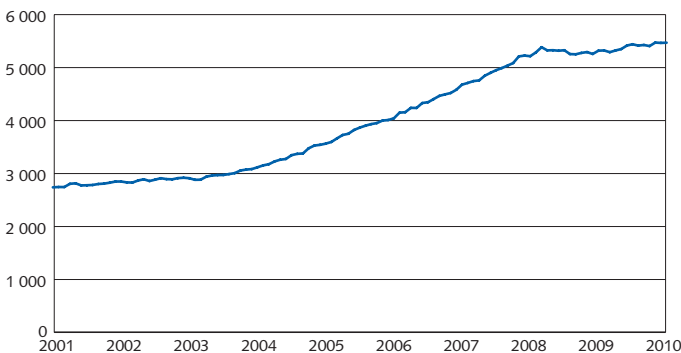
**D**uring the 2000s bank lending to the general public increased substantially (see Chart 23). The banks have partly funded the increased lending by issuing larger volumes of securities on the financial markets (see Chart 24). Another explanation why the proportion of securities borrowing from Swedish banks is increasing is that their centralised liquidity management means they issue securities on behalf of their foreign subsidiaries.

As the Swedish banks have increased their market funding, they have also issued greater

volumes of securities in foreign currency (see Chart 25). The banks issue in foreign currency partly because they are funding foreign subsidiaries' lending in foreign currency and partly because they wish to diversify with regard to countries and markets. If the banks were to fund all of their assets in Swedish kronor on the kronor market they would be forced to pay a higher interest rate to investors, which would increase their funding costs and ultimately lead to higher interest rates for bank customers.

The increased market funding also creates risks for

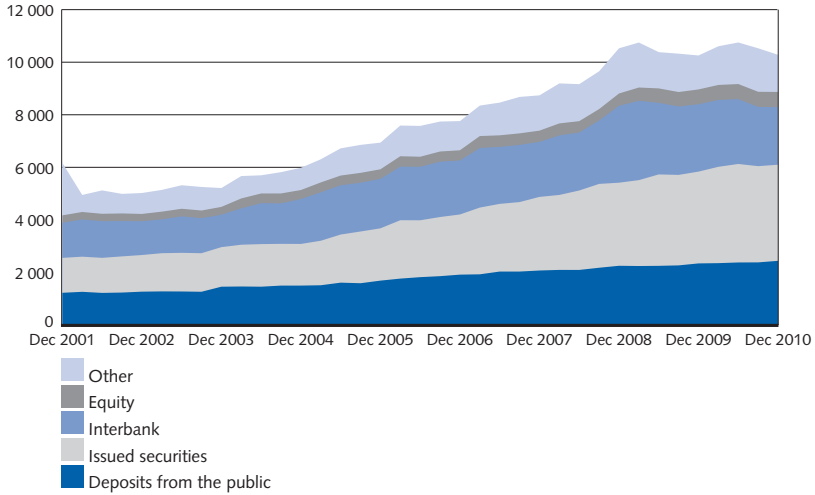
**Chart 23. Swedish MFIs' lending to the general public**  
SEK billion



Note. Monetary Financial Institutions (MFIs) include banks, mortgage institutions, other credit market companies and monetary securities companies. These include the Swedish branches of foreign banks.

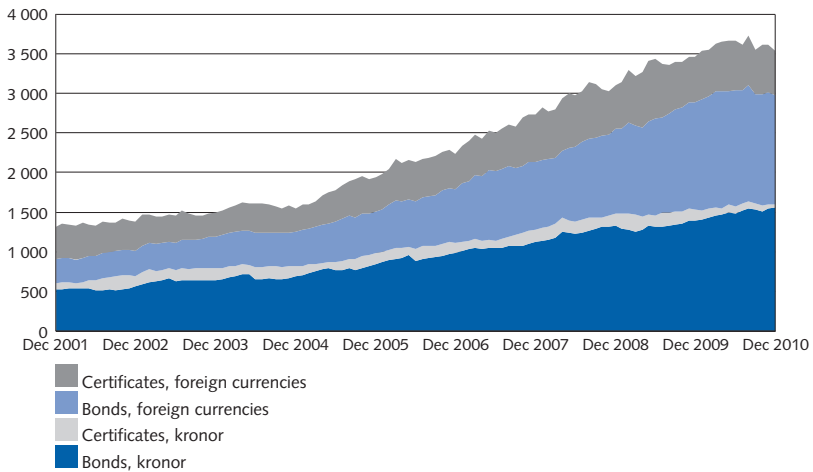
Source: The Riksbank

**Chart 24. Swedish MFIs' liabilities  
SEK billion**



Note. MFIs' liabilities also include centralised funding that is then forwarded to subsidiaries abroad. Lending from these subsidiaries to the public is not included in Chart 23.  
Source: The Riksbank

**Chart 25. MFIs' long-term and short-term market funding, broken down into SEK and foreign currency  
SEK billion**



Note. Certificates are regarded as short-term funding when they have a maturity of less than one year. Bonds have maturities of more than one year and are therefore regarded as long-term funding.  
Source: The Riksbank

the banks. The banks' market funding consists of both long-term and short-term funding. The short-term funding is to some extent used to fund long-term liabilities. The banks thus expose themselves to a liquidity risk, which became evident during the financial crisis when the banks experienced difficulty in refunding their short-term liabilities. Unlike short-term market funding, deposits were not significantly affected during the financial crisis; that is, customers retained their savings in their accounts. One explanation for this may be that many customers were protected by the deposit guarantee. The crisis showed that short-term market funding can be a more volatile funding form than deposits in times of turmoil and when problems arise in the financial markets. As the Swedish banks have moved away from more traditional funding in the form of deposits to fund

themselves through the financial markets, increasingly long conversion chains are required when savings are to be converted into lending. Figure 1 shows an example of how a traditional bank receives savings that are then converted into mortgage loans. In this type of system, all bank liabilities are thus deposits.

Today, households have part of their savings in mutual funds, for instance, rather than as deposits in accounts. Converting savings into mortgages thus requires more intermediaries and leads to more complex connections between different financial agents. Each intermediary in the chain must have a funding rate that is lower than the rate on the asset it is funding. To achieve this, each intermediary added to the chain must find an even cheaper source of funding. When the chain gets longer, more short-term funding tends to be used as this is usually

Figure 1. Traditional conversion of savings into mortgage loans



---

cheapest as there is an additional maturity premium on more long-term funding. In this way, the emergence of short-term funding is a natural consequence of the increasingly long conversion chains between savings and mortgage loans.

To summarise, one can thus say that the Swedish banks' funding methods have changed. They have moved from deposits as the largest share of funding

towards increased funding through the financial markets. This has in turn meant that parts of the stable funding and short-term conversion chains have been replaced by more transitory funding and longer conversion chains. This sort of system usually works well, but makes considerable demands on all links in the chain functioning for the conversion to be made.

## 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 45 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 85 per cent of the mortgage institutions' total assets (see Table 10).

At year-end 2010, lending by the mortgage institutions to the public amounted to SEK 2,105 billion. Lending with single-family dwellings and multi-family dwellings as collateral comprised the largest part – just over 70 per cent (see Chart 26). Lending with tenant-owner apartments as collateral has increased very sharply and is now 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 26, the mortgage institutions' lending to the public appears to decline between 2006 and 2007. This is due to SEB Bolån being incorporated into SEB's banking arm during 2007 and thus no longer being included in the statistics for mortgage institutions.

The interest rates on loans from mortgage institutions can be fixed, for different terms, or variable.<sup>101</sup> The choice of fixed-interest period is affected, for instance, by customers' expectations regarding

**Table 10. Mortgage institutions in Sweden, total assets and lending at year-end 2010**  
SEK billion

	TOTAL ASSETS	LENDING
Swedbank Hypotek	744	695
Stadshypotek AB	741	704
Nordea Hypotek	430	409
SBAB <sup>1</sup>	224	210
Länsförsäkringar Hypotek	106	80
Frispar Bolån	9	8
Total	2 254	2 105

<sup>1</sup> Including SBAB's subsidiary AB Sveriges Säkerställda Obligationer (The Swedish Covered Bond Corporation). Source: The Riksbank

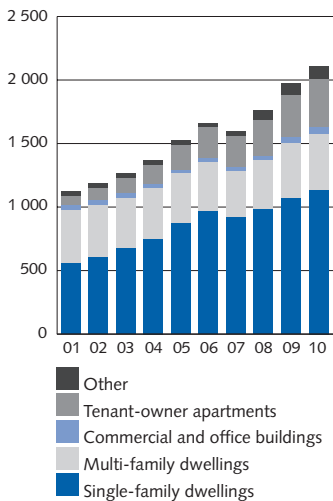
<sup>101</sup> The major banks no longer offer loans with entirely variable rates. A three-month fixed period has replaced the earlier variable rate. Variable rate in this report thus refers to an interest rate fixed for three months.

the development of short-term and long-term interest rates. In 2010, the percentage of new loans granted at variable rates was 67 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 7 per cent and 25 per cent respectively of total new loans (see Chart 27).

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. However, during 2010 there was a break in the trend as interest rates with longer fixed terms increased. At year-end 2010, 55 per cent of the total consisted of variable-rate loans, while 38 per cent of loans at fixed rates were for terms of up to five years and around 7 per cent had fixed rates for more than five years (see Chart 28).

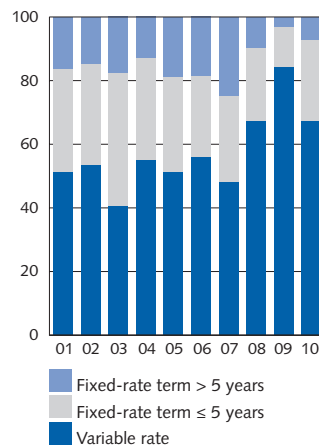
The mortgage institutions mainly obtain funding for the credit granted by issuing bonds, what are known as covered bonds, and

**Chart 26. 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 organizational change in SEB.  
Source: The Riksbank

**Chart 27. New lending per year by mortgage institutions according to the original fixed-rate term**  
Per cent



Source: The Riksbank

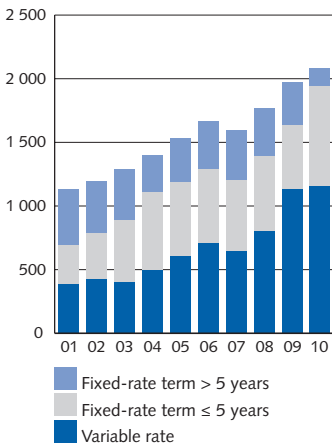


certificates (see Chart 29). These are purchased primarily by large asset managers, such as the insurance companies, the banks and the AP funds. Funding by the bank-owned mortgage institutions also largely consists of loans from their parent bank. Mortgage institutions also borrow from domestic companies 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.<sup>102</sup> The mortgage institutions 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 (see the description of interest-rate swaps in the section on the Fixed income market).

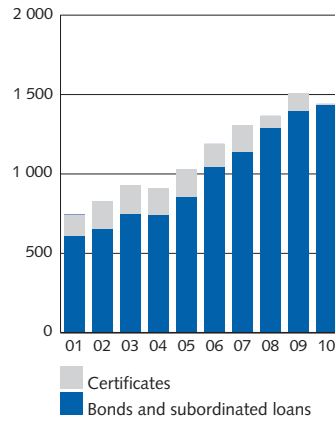
At year-end 2010, borrowing through bonds amounted to SEK 1,432 billion, most of which comprised covered bonds – SEK 1,431 billion, while short-term borrowing through certificates amounted to only SEK 10 billion (see Chart 29).

**Chart 28. Loan stock of mortgage institutions according to the original fixed-rate term**  
SEK billion



Source: The Riksbank

**Chart 29. Funding by mortgage institutions**  
SEK billion



Source: The Riksbank

<sup>102</sup> See the box "Effects of liquidity requirements for banks on Swedish mortgage rates" in Financial Stability Report 2010:1.

## OTHER CREDIT MARKET COMPANIES

Credit market companies also include *finance companies* other than mortgage institutions. At year-end 2010, lending by these institutions comprised ten per cent of total lending by credit institutions. Approximately 15 per cent of the total assets of SEK 864 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 these restrictions, the banks were able to increase lending. Today, finance companies have typically specialised in one specific form of financing. They offer, for example, leasing and factoring services for corporate customers and promissory note loans and credit card accounts to households.<sup>103</sup> 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 they 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

**Table 11. The ten largest institutions in the category other credit market companies, total assets at year-end 2010 SEK billion**

Svensk Exportkredit AB	339
Kommuninvest i Sverige	203
Landshypotek AB	64
Handelsbanken Finans	52
Nordea Finans Sverige AB	48
Swedbank Finans AB	31
Volkswagen Finans Sverige AB	15
Wasa Kredit AB	11
Entercard Sverige AB	8
SEB Kort AB	7
Total 10 largest	779
Total	864

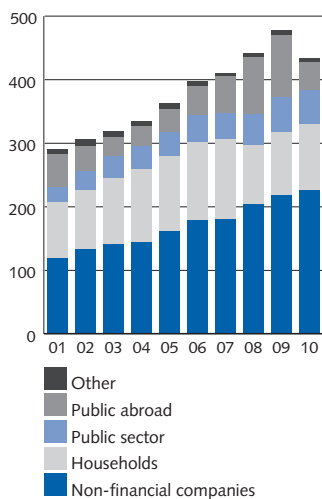
Note. Excluding the foreign operations of the Swedish institutions conducted by branches and subsidiaries abroad.  
Source: The Riksbank

<sup>103</sup> 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.

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 financing 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.

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 2010, to SEK 435 billion (see Chart 30). Of these loans, 50 per cent were made to Swedish companies, while 24 per cent went to Swedish households and 12 per cent went to public borrowers abroad. There are 48 companies categorised as other credit market companies on the Swedish market, of which 41 are finance companies.

**Chart 30. Lending by other credit market companies to the public  
SEK billion**



Source: The Riksbank

## Private equity investment companies

Banks do not normally contribute private equity<sup>104</sup>, as this does not lie within their business concept as such loans entail higher risk and often require active involvement in the company. 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.

Private equity investment companies invest in the equity of unlisted companies. 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 rapidly, especially in recent years. According to the Swedish Private Equity and Venture Capital Association (SVCA), 128 private equity investment companies were operating in Sweden in December 2010. 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 470 billion at year-end 2010.<sup>105</sup> Approximately half of the assets managed are invested in portfolio companies.<sup>106</sup>

In Sweden, an amount equivalent to a half per cent of GDP is invested in private equity through private equity investment

---

<sup>104</sup> 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.

<sup>105</sup> Swedish Venture Capital Association: [www.svca.se](http://www.svca.se)

<sup>106</sup> European Private Equity and Venture Capital Association: [www.evca.eu](http://www.evca.eu).

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 investor.<sup>107</sup>

### 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*, *fund management companies* and *pension funds*. 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.

The insurance companies supply the general public with life and non-life assurance. Non-life assurance enables the public to manage risks associated with property. Life assurance, on the other hand, is linked to one individual and can provide compensation in the event of the injury or death of the insured individual, but can also include pension assurance. Life assurance 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 2010, 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 most of the market is concentrated to a few major companies. Taken together, the insurance companies had investment assets amounting to SEK 2,950

---

<sup>107</sup> Ibid.

billion at year-end 2010. Approximately 85 per cent of this amount was held by the ten largest insurance companies (see Table 12).<sup>108</sup>

Insurance companies are divided into life assurance and non-life assurance companies. It is not permitted to carry on these types of business in one and the same company, although it is common to have both 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 into traditional life assurance and unit-linked insurance. *Traditional life insurance* 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

**Table 12. The ten largest insurance companies' investment assets at year-end 2010, groups SEK billion**

INSURANCE COMPANY	INVESTMENT ASSETS
Alecta	494
Skandiakoncernen	432
SEB Trygg Liv	334
AMF Pension	340
Folksam	272
Länsförsäkringsgruppen	243
SPP	137
Swedbank Försäkring	100
If Skadeförsäkring	75
Handelsbanken Liv	61
Others	460
<b>Total</b>	<b>2 950</b>

Sources: Statistics Sweden and company reports

<sup>108</sup> The total investment assets indicated in Table 13 and in Chart 12 at the start of the chapter differ. This is because the figures in Table 13 do not include the AFA group, unlike the figures in Chart 12. The investment assets of the AFA group amounted to approximately SEK 215 billion at the end of 2008 (source: The Swedish Insurance Federation).

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 what are known as 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.<sup>109</sup> 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. The total investment assets of the nationwide life assurance and non-life assurance companies amounted at year-end 2010 to SEK 2,950 billion. Of these assets, the life assurance companies accounted for roughly 80 per cent (see Chart 31).

The investment assets of insurance companies comprise mainly equities and bonds. This means that the breakdown into equity and other assets varies depending on developments on the stock

---

<sup>109</sup> 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 used to calculate the present value of the company's future commitments.

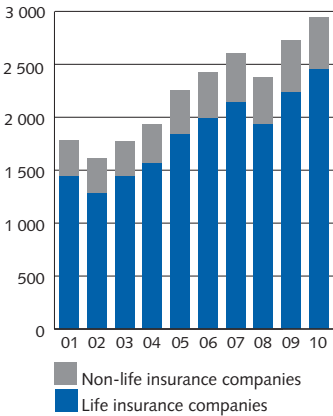
exchange. In December 2010, equity accounted for a good 50 per cent of the investment assets and the capital managed. Holdings of bonds and short-term investments made up 37 per cent and 4 per cent respectively of the investment assets. Investments in properties only accounted for a minor part (see Chart 32) and 30 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.

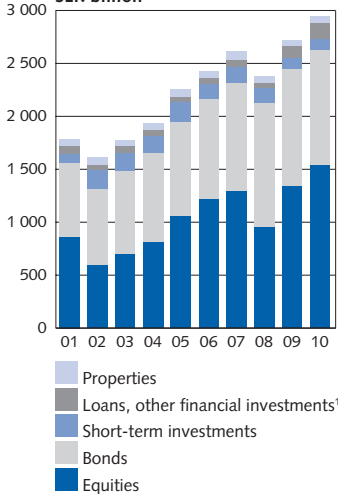
Insurance associations are associations that conduct insurance business on behalf of employees at one or more companies. Their activities are aimed at individuals in the same professional group or members of certain communities of interest. Most insurance associations only offer pension insurance, but a few also offer health insurance. At year-end 2010, a total of 82 insurance associations were operating, with total assets amounting to approximately SEK 118 billion.<sup>110</sup>

**Chart 31. Insurance companies' investment assets SEK billion**



Source: Statistics Sweden

**Chart 32. 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

<sup>110</sup> 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.



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 2010, there were around 2,200 active pension foundations in Sweden, which, together, had SEK 180 billion in assets.<sup>111</sup>

#### 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 60 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 1,944 billion in managed capital at year-end 2010, which is equivalent in size to Swedish households' total deposits with the banks.

The assets managed in equity funds amounted to SEK 1,160 billion at year-end 2010. 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

**Table 13. The ten largest fund managers, assets under management, year-end 2010**  
SEK billion

Robur	464
S E B	296
Nordea	228
Handelsbanken	177
Sjunde AP-Fonden	110
Länsförsäkringar	72
Skandia	58
AMF Pension	65
SPP Fonder	57
Brummer	40
Skagen	39
Total 10 largest	1 607
All	1 944

Source: Svensk Fondstatistik (part of MoneyMate)

<sup>111</sup> Information on the assets held by pension foundations is based on data reported at year-end 2010. For pension foundations with a split financial year, the reported figures thus refer to the financial year 2009.

amounted to SEK 403 billion and SEK 297 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 SEK 84 billion at year-end 2010 (see Table 14).

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 2010; at year-end 2010 it was above the pre-crisis levels. Of total mutual fund wealth at the end of 2010, equity funds accounted for 60 per cent, fixed income funds 20 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

**Table 14. Mutual fund assets, by type of fund  
SEK billion**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Equity funds	522	343	445	514	733	868	895	543	863	1 160
Fixed income funds	162	205	244	275	310	340	354	373	378	403
Mixed funds	154	119	141	158	202	238	247	204	254	297
Hedge funds	28	36	43	50	71	82	76	66	88	84
<b>Total</b>	<b>867</b>	<b>702</b>	<b>873</b>	<b>997</b>	<b>1 316</b>	<b>1 528</b>	<b>1 572</b>	<b>1 185</b>	<b>1 583</b>	<b>1 944</b>

Source: Svensk Fondstatistik (part of MoneyMate)

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.<sup>112</sup> 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 instrument, 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 2010, the investment assets of the AP funds totalled SEK 1,037 billion. This can be compared with life assurance companies and the fund management companies, whose investment assets amounted to SEK 2,452 billion and SEK 1,944 billion respectively in December 2010.

## 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

---

<sup>112</sup> 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.

Authority can license eight different kinds of investment activities (see the box “Central laws in the finance sector”).

*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 of market maker.<sup>113</sup> Being a market maker involves quoting two-way prices (i.e. bid and ask prices). All market makers must therefore be prepared to buy and sell securities at all times. 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 2010, 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 2010, five 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 2010, one company held the eighth license for “operation of a trading facility”.<sup>114</sup>

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, the size of their balance sheets

---

<sup>113</sup> The role of market-makers is described in more detail in the chapter The financial markets.

<sup>114</sup> See the review of trading facilities in the chapter The financial markets.

are often relatively modest. At year-end 2010, the total assets of the securities companies amounted to about SEK 24 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 36 banking companies registered in Sweden at year-end 2010, 25 were licensed for securities trading. Ten of these banking companies held seven of the eight licenses for securities trading.<sup>115</sup> The four major banks 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 to facilitate their securities trading business.

Besides the securities companies and banking companies referred to above, 61 savings banks had one or more securities trading licences at year-end 2010. 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.

---

<sup>115</sup> See review of investment business licenses in the box "Central laws in the financial sector".

## 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 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 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 Terrorist 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 first of these laws includes provisions on cancellation rights for credit agreements, good lending practices, credit assessment, information to consumers and repayment of debts in advance, among others. The Act on the Deposits Guarantee Scheme aims to guarantee funds in accounts of up to EUR 100 000 per customer and institution. However, any such amounts are paid in Swedish kronor. 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 temporary programme for borrowing with a government guarantee was introduced during the crisis, as well as a capital injection programme.

#### *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. In addition, a distinction is made between

insurance companies providing direct insurance and reinsurance companies. Reinsurance companies may not conduct any other business activities than reinsurance operations. However, there is nothing to prevent life assurance and non-life assurance companies from conducting reinsurance operations. Among other measures, policyholders are protected by the requirement that companies have a certain capital buffer beyond the commitments held by that company.

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 portfolio 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, whose 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 which particular operating requirements are made of the companies conducting this business and which 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 Mutual Funds Act contains provisions on fund operations.** A Swedish mutual fund is a portfolio of securities, for example shares and bonds. The fund's assets are owned by those who have deposited money in the fund. The funds are administered by a fund management company. The fund management company, which requires a permit for its operations, selects the securities in which the fund is to invest. However, the assets of a fund, as well as incoming or outgoing payments relating to the fund, are administered by a depository. This also implements the decisions taken by the fund management company and, at the same time, ensures that these comply with the law or fund rules. The 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

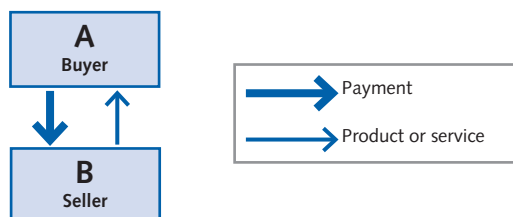
There are different types of payment, for example simple payments such as those made in cash or more complicated payments, for example card payments. Three different types of payment and the demands they impose on the financial infrastructure are described below.

#### 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 2 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 2. 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.

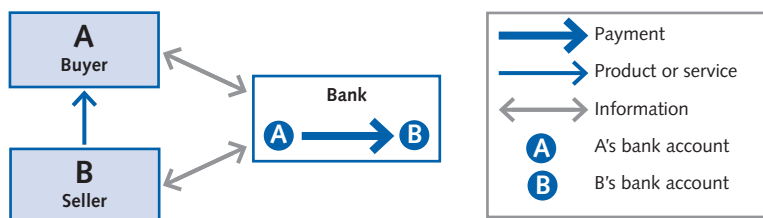
Figure 3 illustrates the transaction between A and B. A and B have accounts with the same bank. The bank receives the information on the transaction, debits A's account and credits B's account with the same amount.

## 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 4.

Figure 3. Example of a payment using an intermediary

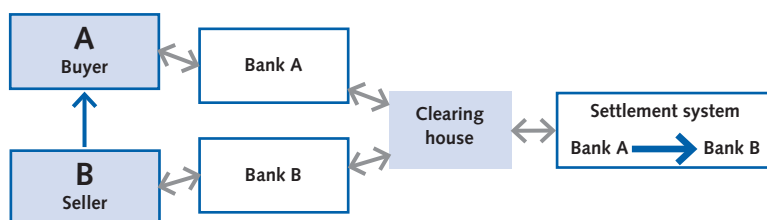


The processes managed within this infrastructure can generally be summarised in three steps.<sup>116</sup> In the first step the payment is *verified* and *authorised*. This often takes place in connection with the actual payment and involves verifying the identities of the parties and checking that 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 4, 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 then will

Figure 4. Example of a payment using several intermediaries



<sup>116</sup> 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.

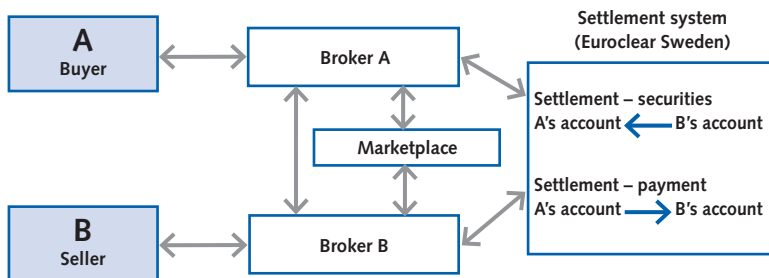
have a single amount due from or payable to the other participants.<sup>117</sup> In some cases, clearing can instead be conducted through a central counterparty.<sup>118</sup>

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.<sup>119</sup> 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 largely the same as those in the example of a payment using

Figure 5. Example of a financial instrument transaction



<sup>117</sup> If we instead assume that there are three participants, where A is to pay SEK 100 to B and SEK120 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 SEK 170 to B and C pays SEK 10 to B.

<sup>118</sup> Read more about central counterparty clearing in the section on transfers in trading with financial instruments.

<sup>119</sup> Read more about this in the section on RIX.

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 the latter 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 5.

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 securities trading involves large amounts of money, the safety aspect is especially important. Any misunderstanding during such a trade could have serious financial consequences for the parties involved. 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.<sup>120</sup> 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.

---

<sup>120</sup> The underlying instrument may be a security, a certain currency or a commodity.

The clearing and settlement of financial instruments sometimes involves a *central counterparty*. A central counterparty is said to improve 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 6 and 7 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 6, 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 7, 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

Figure 6. Exchange of funds in securities transactions without a central counterparty

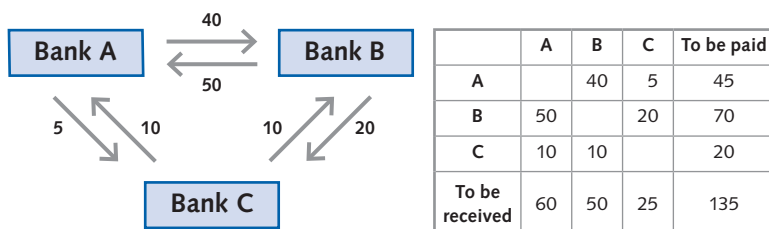
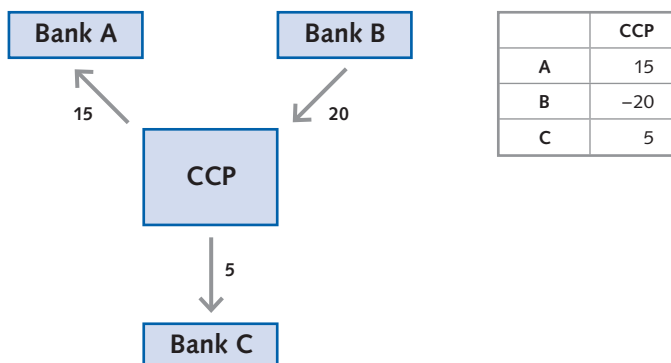


Figure 7. Exchange of funds in securities transactions with a central counterparty





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 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.<sup>121</sup> 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 system require mediation by banks in other countries. Such mediation 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

---

<sup>121</sup> Credit risk is the risk of a borrower failing to meet his commitments. In foreign exchange transactions this risk is often called Herstatt risk.

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.

---

## 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 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 been created to manage these risks, for example Delivery-versus-Payment (DvP) where payment and delivery are executed simultaneously in a securities system, or 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 certainly 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 different systems have been merged with each other. At the same time, the current clearing and settlement systems require that large amounts of liquidity can be delivered at specific times during the day. The fact that today's markets are interlinked, combined with the fact that that a participant may quickly need to transfer the liquidity received in one system in order to meet commitments in another system, creates liquidity risks. If a participant lacks liquidity, this may lead to liquidity

---

shocks rapidly spreading from one system to another and thus also from one market to another. The effect of these contagion risks has therefore been identified as a significant risk in the financial

system and is something that the systems themselves, as well as central banks and supervisory authorities, are striving to come to terms with.

## RETAIL PAYMENTS

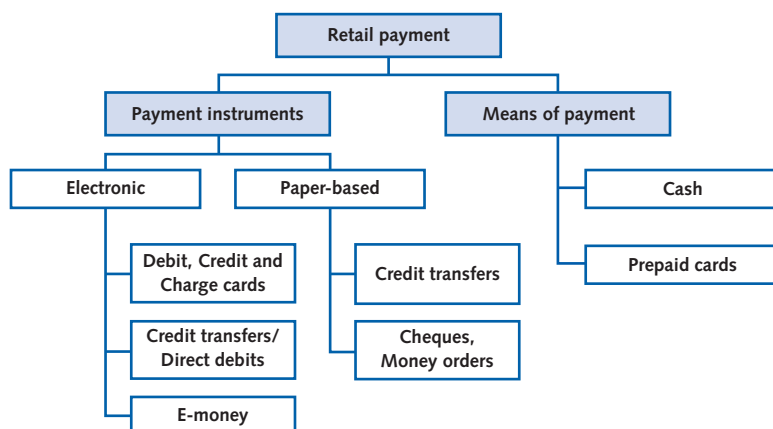
Retail payments are for relatively small amounts but entail a very large number of payments. These can be made in two ways. Either the payment is made directly, for example by paying in cash – in which case a means of payment is used – or payment takes place through a bank account, for example by paying by card – in which case a payment instrument is used. 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 includes different types of prepaid card, no financial infrastructure is needed for the actual transaction. However, such an infrastructure is required when using a payment instrument; otherwise it will not be possible to carry out the payment. Payment instruments include retail payments such as credit transfers, direct debits, various forms of card and cheques. New payment instruments and means of payment have also 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 types of retail payments used in Sweden. The different ways that retail payments can be made are outlined in Figure 8.

### *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

Figure 8. Outline of retail payments



only 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 extent 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 below 3 per cent today. In 2010, the curve returned to a declining trend compared with 2009, when it showed a slight upturn as a result of the fall in GDP at that point. The proportion of banknotes and coins in circulation is actually almost unchanged compared to the preceding years (see Chart 33).

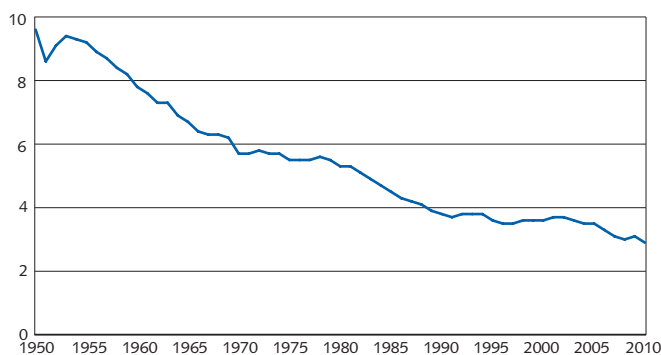
Statistics on cash withdrawals from ATMs show that the total transaction value has fallen in recent years. Between 2004 and 2010 it fell by over 30 per cent. On the other hand, the number of transactions using ATMs has not fallen to the same extent, which indicates that the size of the cash withdrawals is decreasing (see Chart 34).

Demand for the possibility of making secure payments without needing to use cash or any type of payment instrument has led to the introduction of various types of prepaid card. 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

**Chart 33. Banknotes and coins in circulation (M0) relative to GDP**  
Per cent



Source: Statistics Sweden

transferred from the buyer's account to the seller's account. This entails three important differences compared to a means of payment:

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

### Electronic payment instruments

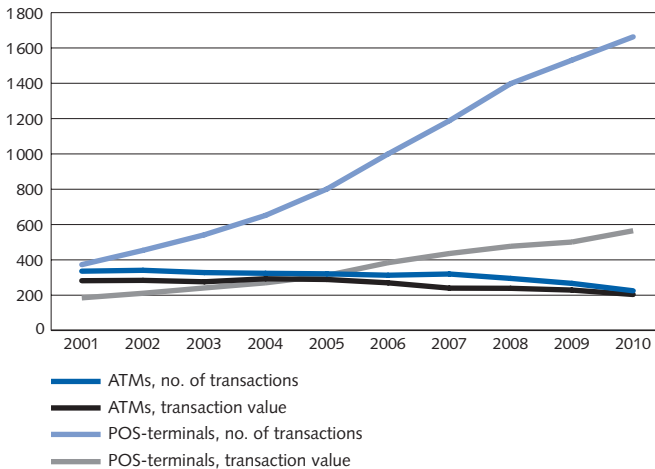
#### **Card payments**

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 which 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

**Chart 34. Card transactions in POS-terminals and ATM withdrawals**  
Million transactions and SEK billion



Source: The Riksbank

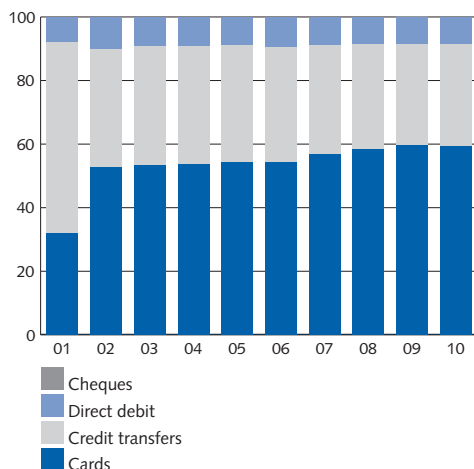
paid after a specified period. In the latter case, the outstanding debt is rolled over into a new period. Interest must then be paid on the remaining debt.

- 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 and cannot be used to withdraw cash from an ATM.

The use of cards has increased rapidly in Sweden in recent years. Between 2001 and 2010, the number of card payments increased four fold, from 403 million transactions in 2001 to 1 846 million in 2010. The value of these transactions has increased almost three fold, from SEK 261 billion in 2001 to SEK 792 billion in 2010 (see appendix 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 2004, the transaction value in card payment terminals exceeded the transaction value of cash withdrawals from ATMs. According to statistics from 2010, the number of card transactions in point of sale (POS) terminals was seven times higher than the number of cash withdrawals from ATMs (see Chart 34). In terms of the number of payments and the transaction value, cards are the most widely used payment instrument (see Chart 35).

The value of an average card payment has fallen over the last ten years, from approximately SEK 650 to around SEK 420 (see Chart

**Chart 35. Use of payment instruments**  
Per cent



Source: The Riksbank



36). Swedes are thus using cards to a greater degree to pay smaller amounts. Cards are therefore increasingly acting as a substitute for cash.

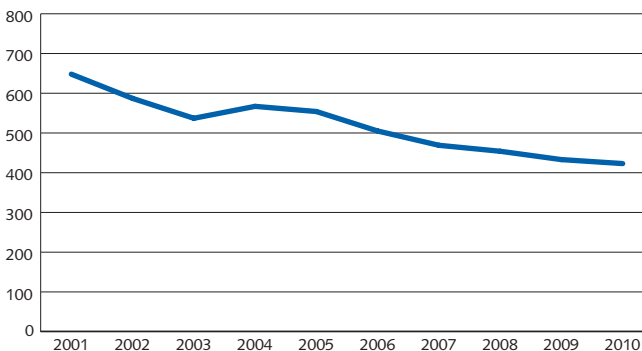
### Credit transfers

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 2010, the transaction value of credit transfers and direct debits amounted to SEK 12 427 billion, and the total number of such transactions was 1 265 million. Payments of this type are relatively few in number compared, for example, with card payments (see Chart 35), 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.<sup>122</sup>

Most credit transfers and account-to-account transfers are now initiated electronically (see Chart 37).<sup>123</sup> 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 households using credit transfer forms that are posted, or over the counter at a bank.

Chart 36. Average value of a card payment  
SEK



Source: The Riksbank

<sup>122</sup> This statistic does not include transfers between accounts within the same bank or transfers between PlusGiro accounts in Nordea.

<sup>123</sup> 90 per cent of the transaction volume and 97 per cent of the transaction value.

### 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.

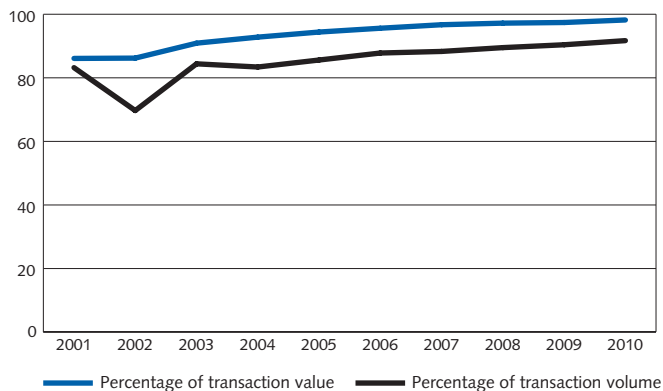
### E-invoices

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 providing the payer with the option of approving 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 that exist independently on a card or a computer. In practice, however, cash and e-money do not have exactly the same characteristics, as e-money also has 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

Chart 37. 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

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. 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 also 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 best-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.

---

## New payment service laws

**A**s of 1 July 2010, two new laws have entered into effect in Sweden, with the aim of both harmonising legislation on payments in Europe and increasing consumer protection in connection with payments. The two new laws are the Payment Services Act and the Act on Unauthorised Transactions with Payment Instruments. These two acts bring Swedish legislation into line with the EU Payment Service Directive (PSD), which has been introduced in all 27 EU countries as well as the EES countries Norway, Lichtenstein and Iceland.

The new laws cover all accounts, services and products dealing with payments.

The Payment Services Act includes clearer and more consumer-friendly rules for payments. Among other provisions, the law forbids traders from charging fees for card payments. In addition, the length of time it takes to execute a payment has been regulated,

normally to one to two banking days, depending on the type of transaction in question. The law also regulates the information that the banks are to provide to their customers.

The Act on Unauthorised Transactions with Payment Instruments clarifies account holders' obligations in the use of payment instruments. In this case, a payment instrument could be a debit card, a PIN code or a security authenticator for online banking. Among other areas, the law regulates how losses are to be allocated in the event that a card falls into the wrong hands. Unlike previously, if an account holder has shown gross negligence, payment liability is limited to SEK 12 000. On the other hand, if an account holder has handled the card in a particularly blameworthy manner, such as leaving it unwatched in a changing room, the account holder must stand for the entire amount lost.

## The payment behaviour of the Swedes

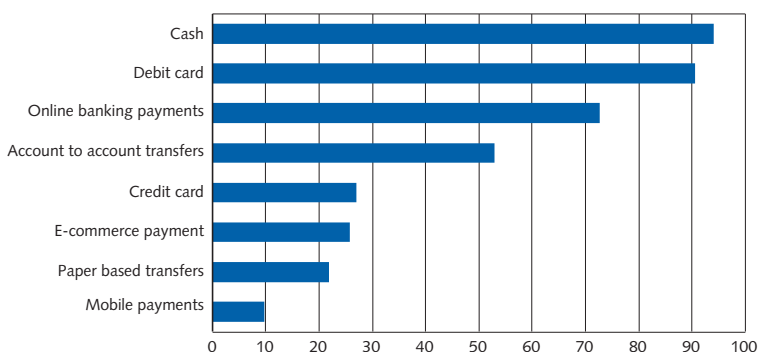
In the autumn of 2010, the Riksbank conducted a survey aimed at increasing its knowledge of the payment behaviour of the Swedish people. This investigation was intended to reflect typical payment behaviour in Sweden by including people of various ages and educational backgrounds in both rural and urban areas.

The results of the investigation show that almost all respondents, just over 90 per cent, have access to a debit card. Almost 80 per cent of respondents have access to online banking, and significantly fewer, just over 40 per cent, have access to a credit card.

When asked to specify the means of payment used in the last month, nine of ten respondents stated cash and debit cards (see Chart 38). Almost three-quarters had also paid bills via online banking. Slightly more than half stated that they had transferred money directly to another person's bank account in the last month, while a quarter stated that they had made a payment to an online shop.

The interviewees were also asked which means of payment they used the last time they made a purchase. Slightly more than half answered that they had used a debit card, while slightly

Chart 38. Different types of means of payment used in the last month  
Per cent



Source: The Riksbank

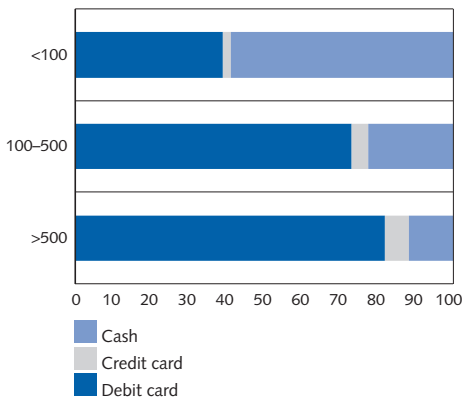
fewer than 40 per cent stated that they had used cash. As Chart 39 shows, cash is the most usual means of payment for purchases totalling less than SEK 100, while debit cards are the most usual means of paying for purchases totalling more than SEK 100. The chart also shows that willingness to pay by debit card seems to successively increase in step with the amount of the purchase. The same pattern seems to apply for credit cards, which also tend to be used more frequently for larger purchase amounts.

The respondents considered that, on the whole, they feel secure using cards, cash and online banking.

Most respondents stated that they make ATM withdrawals one to three times per month. Only two in ten withdraw cash one or more times per week. The most common amounts withdrawn are between SEK 200 to SEK 500. Almost half of respondents never withdraw money in shops in conjunction with card purchases. Of those who withdraw money in conjunction with card purchases, three-quarters withdraw between SEK 100 and SEK 500.

If background variables are considered in the investigation, certain differences become apparent. One of these is that individuals over 45 years of age use cash to a greater extent,

**Chart 39. Means of payment for different purchase amounts SEK**



Source: The Riksbank

---

particularly for purchases amounting to SEK 500 or less. The fact that individuals of 44 years of age or younger also use debit cards for smaller purchases indicates a generational aspect to the choice of means of payment. This generational aspect is also indicated by behaviour patterns surrounding ATM withdrawals. While younger people more frequently withdraw smaller sums from ATMs, older people more frequently withdraw sums exceeding SEK 1 000.

Gender differences can also be discerned in the investigation's results. Men have a stronger

tendency to use cash and make more frequent use of ATMs, while women use debit cards to a greater degree and withdraw money in shops in conjunction with purchases more frequently than men.

Levels of education and income also seem to influence payment behaviour. Respondents with an annual income of less than SEK 240 000 use cash to a greater degree than respondents with higher incomes. University and college graduates tend to use both debit and credit cards to a greater extent than those with lower levels of education.



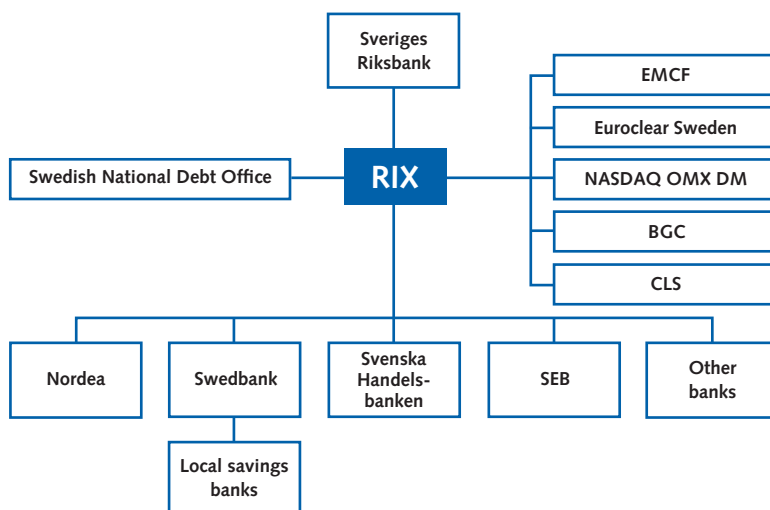
## SYSTEMS IN THE FINANCIAL INFRASTRUCTURE

The systems that are used to manage 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<sup>124</sup>*

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, all of the major banks and clearing organisations participate in RIX (see Figure 9).<sup>125</sup> This system thereby acts as 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.

Figure 9. The Swedish payment system



<sup>124</sup> For more information on RIX, the Riksbank's system for large-value payments, see "Assessment of the Riksbank's system for the settlement of payments 2010" on [www.riksbank.com](http://www.riksbank.com).

<sup>125</sup> 14 Swedish credit institutions, BGC, EMCF, Euroclear Sweden, NASDAQ OMX DM, CLS, the Swedish National Debt Office and the Riksbank are participants in RIX.

Settlement is based on the principle of Real Time Gross Settlement (RTGS).<sup>126</sup> This means that the payments are settled immediately, one 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.<sup>127</sup> 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 2010, the average number of transactions in RIX was approximately 11 800 per bank day and the average turnover per day was SEK 545 billion.

#### *BGC – the system for retail payments*<sup>128</sup>

BGC is a bank-owned clearing organisation that was established in 1959 and which owns and operates a general payment system, Bankgirot. As clearing organisation, BGC also offers a clearing and settlement service which, together with Bankgirot, forms BGC's payment system. Retail payments, consisting of both BGC's own Bankgiro products and payment products with external owners, are mediated via BGC's payment system. In addition to this, BGC offers services unconnected with ordinary payments, such as electronic identification and electronic invoicing.

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 a Real Time 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

---

<sup>126</sup> Real Time Gross Settlement, RTGS.

<sup>127</sup> 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.

<sup>128</sup> For more detailed information on BGC and the retail payments processed by the system see "Assessment of Bankgirocentralen BGC AB's payment system 2010" on [www.riksbank.com](http://www.riksbank.com).

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 accounts 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 via EDB and Swedbank, card payments via MasterCard and some parts of the Riksbank's cash management services.

The participant requirements set by BGC for access to Bankgirot differ from those for the clearing and settlement service. Bankgirot is a general payment system and consequently, under the Payment Services Act, BGC is obliged to provide banks and payment service providers with access to the system, provided they fulfil BGC's participant requirements.

Which of these may participate in the clearing and settlement service is specified by the Securities Market Act<sup>129</sup> and the Act on Systems for the Settlement of Obligations on the Financial Market. According to this law, BGC is not obliged to provide payment institutions and registered payment service providers with access to its clearing and settlement service.

A common denominator for both Bankgirot and the clearing and settlement service is that, in addition to regulatory requirements, participants must comply with BGC's participant requirements.<sup>130</sup>

In 2010, an average of 3.4 million payment transactions per bank day, amounting to an average of SEK 39.2 billion, were mediated via BGC's payment system.

#### *Euroclear Sweden – central securities depository<sup>131</sup>*

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

---

<sup>129</sup> See the box "Central laws in the financial sector" in the chapter on financial intermediaries.

<sup>130</sup> Participation in both Bankgirot and the clearing and settlement service can be either direct or indirect. At the end of 2010, Bankgirot had 22 direct and 62 indirect participants, while the clearing and settlement service had 14 direct and 19 indirect participants.

<sup>131</sup> Usually designated CSD, which stands for Central Securities Depository. For more detailed information on Euroclear Sweden and the operation of a central securities depository, see *Assessment of securities settlement in Sweden 2010* on [www.riksbank.com](http://www.riksbank.com).

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 transactions arising from the issue in Swedish kronor, pledging of and trading in securities in Sweden.

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 processes that reduce the liquidity requirement. 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 securities 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.<sup>132</sup> 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

---

<sup>132</sup> This is called Delivery versus Payment (DvP).

RIX accounts at any time during the day. The Riksbank can also grant credit on these accounts during the day.

In 2010, the average gross sum for the settlement of share transactions amounted to SEK 27 billion per day. The corresponding figure for money market transactions was SEK 336 billion.<sup>133</sup> The value of fixed income market transactions is thus higher than that of transactions on the stock market. However, the number of transactions is much higher on the stock market, with an average of 43 000 transactions per day, compared to an average of 1 200 per day on the fixed income market.

*NASDAQ OMX DM – the central counterparty in derivatives clearing*<sup>134</sup>

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, an option transaction creates an option premium.<sup>135</sup> 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 financial security concerned in Euroclear Sweden's system, while the payment phase is settled through the RIX accounts administered by Euroclear Sweden.

---

133 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.

134 For more detailed information on NASDAQ OMX DM and derivatives trading, see "Assessment of NASDAQ OMX Derivatives Markets 2010" on [www.riksbank.com](http://www.riksbank.com).

135 The price of an option is called the option premium. It reflects the compensation for the risk that the issuer of the option takes.

NASDAQ OMX DM is a secondary name for NASDAQ OMX Stockholm AB.<sup>136</sup> NASDAQ OMX Stockholm AB offers trading in several different types of instrument and on several markets.<sup>137</sup> In 2010, an average of approximately 428 000 derivatives contracts were traded on NASDAQ OMX DM each day.

*EMCF – the central counterparty for equities clearing*<sup>138</sup>

The European Multilateral Clearing Facility (EMCF) offers 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. 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 final settlement of the share transactions is carried out using Euroclear Sweden's accounts in the RIX system. In 2010, Swedish share transactions amounting to a value of SEK 18 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 the supervision and oversight of EMCF.

*CLS – the system for foreign exchange settlement*<sup>139</sup>

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. To reduce these risks, Continuous Linked Settlement (CLS) was started in September 2002. In CLS, foreign exchange transactions are settled in accordance with the principal of Payment versus Payment (PvP). This entails the participating banks having accounts – one for each currency – with CLS through which the two currencies in a transaction are transferred

---

<sup>136</sup> 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.

<sup>137</sup> See the section on the stock market in the chapter on the financial markets.

<sup>138</sup> Read more on EMCF's website at [www.euromcf.nl](http://www.euromcf.nl)

<sup>139</sup> 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.

simultaneously. In turn, CLS has accounts with the central banks for the respective participating currencies. The net balance 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 2010, average turnover per day in CLS as a whole amounted to USD 2 038 billion. Daily turnover in the system is thus significantly higher than Sweden's annual GDP.<sup>140</sup> The Swedish krona accounts for only 0.09 per cent of the total turnover, which is SEK 425 billion. Three Swedish banks are direct participants in CLS and several currencies are included in the system.<sup>141</sup>

### Payment flows in the Swedish financial infrastructure

The Riksbank's payment system, RIX, is the central system in the financial infrastructure. In 2010, an average of approximately SEK 545 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 10 illustrates how the payment flows from different types of payment reach RIX. Equivalent deliveries of securities also take place, but the figures presented in Figure 10 show payment flows in SEK. This takes place either directly or following clearing in Euroclear Sweden, NASDAQ OMX DM, BGC, EMCF or CLS. The figures presented in the figure have been calculated using different methods for each system. Consequently, the figures do not give an entirely correct view of turnover in the systems, but rather an estimate of the payment flows that passed through then on a normal day in 2010. The figure also shows the extent to which 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

---

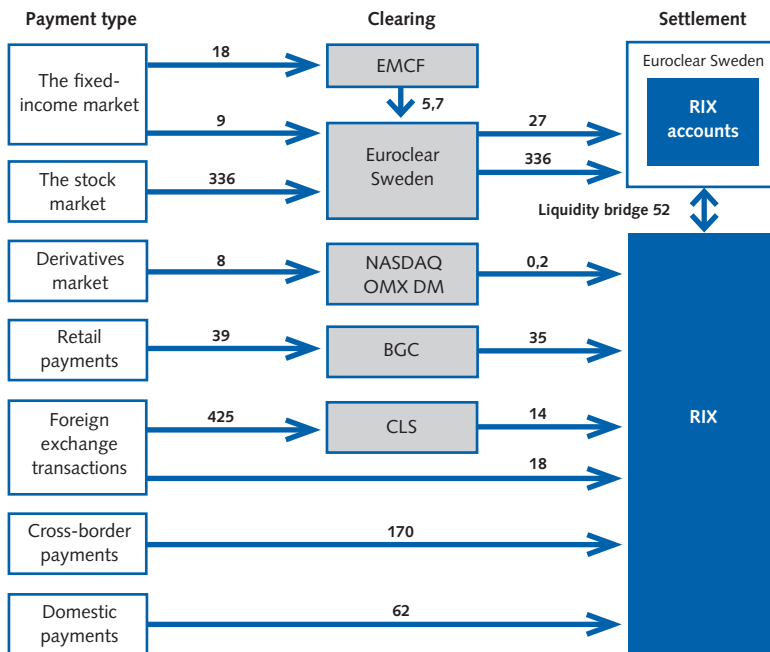
140 In 2010, Sweden's GDP amounted to approximately USD 407 billion (calculated using an average exchange rate of 7.65) or to around SEK 3 301 billion.

141 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.

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 the figure, trade in the fixed income market gives rise to the largest payment flows in the infrastructure. In 2010, Euroclear Sweden settled an average of SEK 336 billion per day from the fixed income market.<sup>142</sup> The fixed income market refers to spot trading and derivatives trading to the extent that these lead to the delivery of an underlying security. The remaining SEK 27 billion per day comes

**Figure 10. Payment flows in the Swedish financial infrastructure, SEK billion, daily averages 2010**



1 The population studied is made up of Euroclear Sweden's 18 clearing members for trading in fixed income instruments.

2 The population studied is made up of Euroclear Sweden's 37 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.

142 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.



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 Euroclear Sweden during the course of the day. SEK 52 billion a day passed over this liquidity bridge in 2010.

EMCF, which acts as central counterparty on the stock market, started its operations during the autumn of 2009. The figures in Figure 10 show the netting effect that arises as a result of the clearing of share transactions and which 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 39 billion a day was cleared in BGC's system in 2010. After netting in BGC, SEK 35 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 foreign exchange 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 425 billion a day, are also cleared in CLS. After netting, only SEK 19 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 18 billion per day in 2010. 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 170 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 170 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 62 billion per day in February 2010, refer partly to payments stemming from the shortest segment of the money market and partly to pure interbank payments. These payments are in SEK 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.

# Appendix 1. Tables

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

	SHARE TURNOVER	MARKET VALUE
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
2010	3 627	4 230

Source: NASDAQ OMX

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

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Issuers in the bond market</b>										
Central government	623	660	732	772	769	766	730	717	703	802
Mortgage institutions	462	488	549	565	706	770	826	953	1 035	1 087
Other credit market companies	42	45	52	59	61	73	79	81	75	78
Non-financial companies	146	119	122	113	137	130	143	164	176	154
Local government	8	13	14	13	16	20	21	18	20	18
Banks	32	36	46	66	89	112	192	261	256	376
<b>Total</b>	<b>1 314</b>	<b>1 374</b>	<b>1 516</b>	<b>1 587</b>	<b>1 777</b>	<b>1 870</b>	<b>1 991</b>	<b>2 193</b>	<b>2 265</b>	<b>2 516</b>
<b>Issuers in the money market</b>										
Central government	230	240	269	267	294	259	180	139	116	92
Mortgage institutions	43	88	104	93	72	113	106	105	72	32
Other credit market companies	16	18	16	12	10	9	19	45	12	7
Non-financial companies	83	78	51	62	62	66	96	97	73	58
Local government	7	6	5	5	6	11	5	9	6	10
Banks	18	32	45	47	69	62	108	129	96	37
<b>Total</b>	<b>396</b>	<b>463</b>	<b>490</b>	<b>486</b>	<b>515</b>	<b>520</b>	<b>515</b>	<b>524</b>	<b>375</b>	<b>235</b>
<b>Investors in the bond market</b>										
AP funds	105	93	113	126	134	157	148	138	129	168
Insurance companies	455	493	542	599	613	701	744	834	1125	1087
Banks	134	137	177	129	262	281	337	475	471	346
Non-residents	290	402	455	529	647	545	535	497	466	581
Companies and others	323	246	228	205	121	185	227	249	74	334
<b>Total</b>	<b>1 307</b>	<b>1 371</b>	<b>1 516</b>	<b>1 587</b>	<b>1 777</b>	<b>1 870</b>	<b>1 991</b>	<b>2 193</b>	<b>2 265</b>	<b>2 516</b>
<b>Investors in the money market</b>										
AP funds	12	2	2	2	7	3	4	6	0	1
Insurance companies	40	126	116	108	135	88	92	42	33	35
Banks	135	141	138	152	129	151	87	133	119	64
Non-residents	91	75	85	82	75	52	43	75	54	23
Companies and others	118	119	149	133	168	226	289	268	169	113
<b>Total</b>	<b>396</b>	<b>463</b>	<b>490</b>	<b>486</b>	<b>515</b>	<b>520</b>	<b>515</b>	<b>524</b>	<b>375</b>	<b>235</b>

Sources: Annual reports (AP funds) and the Riksbank

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

	GOVERNMENT BONDS	MORTGAGE BONDS
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
2010	18	13

Source: The Riksbank

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

	TREASURY BILLS	MORTGAGE CERTIFICATES
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	3	2
2010	4	1

Source: The Riksbank

**Table E. Average turnover per day in repos**  
SEK billion

2001	110
2002	131
2003	124
2004	123
2005	141
2006	176
2007	196
2008	170
2009	92
2010	119

Source: The Riksbank

**Table F. The monetary base in Sweden 2010**  
SEK billion

	BANKNOTES AND COINS IN CIRCULATION	THE BANKS DEPOSITS WITH THE RIKSBANK	THE BANKS' HOLDINGS OF RIKSBANK CERTIFICATES
Jan	105	95	274
Feb	104	98	272
Mar	105	115	250
Apr	104	89	283
May	103	107	241
Jun	105	104	146
Jul	105	71	157
Aug	104	24	95
Sep	103	46	68
Oct	103	19	0
Nov	102	14	0
Dec	105	5	0

Source: The Riksbank

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

	SPOT	FORWARDS	OPTIONS	LONG-TERM FX-SWAPS	SHORT-TERM FX-SWAPS
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
2010	72	26	13	121	96

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 2010**  
SEK billion

	TOTAL ASSETS/ INVESTMENT ASSETS	LENDING TO THE PUBLIC	OTHER LENDING	INTEREST- BEARING SECURITIES	EQUITIES	OTHER
Credit institutions						
Banks	5 858	2 091	1 465	864	373	1 065
Mortgage institutions	2 254	2 105	182	44	10	77
Other credit market companies	864	435	68	283	7	20
Total credit institutions	8 977	4 632	1 715	1 190	390	1 162
Investors						
Insurance companies	2 950	37	9	1 122	1 539	243
AP funds	1 037	-	-	362	519	50
Fund management companies	1 944	-	-	324	923	336
Total investors	5 931	37	9	1 808	2 981	629
Securities companies	30	0.6	2	2.0	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 2010**  
Per cent

	SWEDEN	OTHER NORDIC COUNTRIES	THE BALTIC STATES	GERMANY	UK	REST OF THE WORLD
Swedbank	84.6	2.2	11.3	0.0	0.0	5.4
SEB	61.5	4.0	10.5	21.8	0.0	2.1
Nordea	24.5	56.0	2.5	0.0	0.0	17.0
Handelsbanken	68.3	21.9	0.0	0.5	4.7	4.5
Four major banks	51.1	30.3	4.8	3.7	1.1	9.1

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
2010	4 632	2 091	2 105	435

Source: The Riksbank

**Table K. The bank's assets**  
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Loans to Swedish public	939	986	1 003	1 024	1 157	1 304	1 797	1 998	1 806	1 925
Swedish National Debt Office	34	23	5	6	13	32	56	55	104	48
Loans to public abroad	115	118	122	167	220	283	311	392	341	119
Loans to Swedish financial institutions	491	458	444	610	669	721	624	757	776	914
The Riksbank	4	0,2	7	5	0,3	0,0	0,2	207	159	6
Loans to foreign banks	60	54	298	352	442	547	748	713	736	545
Interest-bearing securities	303	318	361	369	503	569	634	927	1 021	864
Other	514	557	350	630	637	730	783	1 233	919	1 438
Total	2 458	2 514	2 590	3 163	3 643	4 185	4 952	6 282	5 863	5 858

Source: The Riksbank

**Table L. The banks' lending to and borrowing from the public  
SEK billion**

LENDING	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
2010	1 079	808	15	134	55

BORROWING	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	132	111
2009	610	942	52	139	117
2010	625	1 030	39	72	137

Source: The Riksbank

**Table M. The banks' liabilities and equity  
SEK billion**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Deposits from Swedish public	914	955	988	1 043	1 158	1 291	1 474	1 597	1 704	1 818
Swedish National Debt Office	2	1	7	0	14	21	17	47	17	13
Deposits from the public abroad	108	116	115	134	134	162	145	132	139	72
Deposits from Swedish financial institutions	158	133	135	154	168	216	300	309	259	263
The Riksbank	60	23	21	14	13	6	7	438	309	1
Deposits from foreign banks	152	157	473	735	825	925	983	1 113	963	562
Securities issued	130	110	133	240	377	470	762	996	1 171	1 357
Other	767	864	552	636	732	868	982	1 333	917	1 388
Equity	166	154	165	208	221	227	283	310	384	385
Total	2 458	2 514	2 590	3 163	3 642	4 185	4 952	6 277	5 863	5 858

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	132	111
2009	610	942	52	139	117
2010	625	1 030	39	72	137

Source: The Riksbank

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

	LENDING RATES	DEPOSIT RATES	TREASURY BILL YIELDS 6 MONTHS
2001	5.47	1.99	3.74
2002	5.59	2.19	3.58
2003	4.71	1.41	2.65
2004	3.91	0.93	2.03
2005	3.30	0.73	1.95
2006	4.37	1.82	3.13
2007	5.17	2.78	4.19
2008	4.28	1.73	1.15
2009	2.35	0.27	0.22
2010	3.39	0.95	1.54

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

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Single-family dwellings	555	603	673	749	869	966	915	979	1 069	1 135
Multi-family dwellings	419	415	400	400	395	391	369	389	432	434
Commercial and office buildings	40	34	33	28	28	28	31	35	52	62
Tenant-owner apartments	75	96	119	152	196	240	241	279	329	372
Other	37	40	42	40	40	37	39	83	88	103
Total	1 126	1 187	1 267	1 369	1 528	1 662	1 595	1 763	1 970	2 106

Source: The Riksbank



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

NEW LOANS PER MONTH	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Variable rate	51.1	53.5	40.4	54.8	50.3	55.8	47.9	66.5	83.5	67.2
Fixed-rate term ≤ 5 years	32.5	31.7	42.0	32.3	31.0	26.5	29.4	25.1	13.5	25.4
Fixed-rate term > 5 years	16.4	14.7	17.6	13.0	18.7	17.8	22.6	8.5	3.0	7.4

Source: The Riksbank

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

AT MONTH END	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Variable rate	386	426	402	496	604	705	645	799	1130	1153
Fixed-rate term ≤ 5 years	306	356	487	615	598	603	579	616	523	790
Fixed-rate term > 5 years	438	415	395	283	327	356	370	348	319	140
Total	1 130	1 196	1 283	1 393	1 528	1 663	1 595	1 763	1 972	2 083

Source: The Riksbank

**Table S. Mortgage institutions' funding**  
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Certificates	136	171	182	171	175	146	167	81	116	10
Bonds and subordinated loans	606	653	746	738	853	1 043	1 137	1 286	1 393	1 432
Intra-group funding	-	-	-	-	-	-	-	-	-	1 431
Other funding	0	0	0	0	0	0	0	0	0	0
Total	742	824	928	910	1 028	1 189	1 304	1 367	1 509	1 442

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
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
2010	225	105	54	44	6

Source: The Riksbank

**Table U. Insurance companies' investment assets**  
SEK billion

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Non-life insurance companies	1 436	1 281	1 443	1 567	1 833	1 990	2 141	1 931	2 238	2 452
Life insurance companies	346	331	329	363	420	439	468	448	485	498
<b>Total</b>	<b>1 782</b>	<b>1 612</b>	<b>1 771</b>	<b>1 930</b>	<b>2 253</b>	<b>2 429</b>	<b>2 609</b>	<b>2 379</b>	<b>2 724</b>	<b>2 950</b>

Source: Statistics Sweden

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

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Equities	861	589	697	807	1 051	1 215	1 290	947	1 337	1 539
Bonds	695	725	783	844	894	953	1 026	1 179	1 114	1 087
Short-term investments	86	175	176	160	188	140	148	133	98	103
Loans	71	55	57	59	51	49	69	54	112	154
Properties	68	68	59	61	70	72	76	66	63	66
<b>Total</b>	<b>1 782</b>	<b>1 612</b>	<b>1 771</b>	<b>1 930</b>	<b>2 253</b>	<b>2 429</b>	<b>2 609</b>	<b>2 379</b>	<b>2 724</b>	<b>2 950</b>

Source: Statistics Sweden

**Table X. Use of different payment instruments**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of transactions, millions										
Cards	403	621	759	845	970	1 114	1 351	1 574	1 697	1 846
Debit cards	327	541	670	674	777	873	1 017	1 226	1 337	1 448
Credit cards	76	80	89	172	193	240	334	348	360	398
Credit transfers	764	436	530	588	654	743	820	890	908	993
Electronic	636	304	447	491	560	653	724	797	821	911
Forms	128	132	83	98	94	91	96	93	87	82
Direct debit	98	119	130	143	160	197	208	229	241	272
Cheques, including money orders	2	2	1	1	1	1	1	1	1	0
<b>Total</b>	<b>1 267</b>	<b>1 178</b>	<b>1 420</b>	<b>1 578</b>	<b>1 785</b>	<b>2 054</b>	<b>2 380</b>	<b>2 694</b>	<b>2 847</b>	<b>3 111</b>
Transaction value, SEK billion										
Cards	261	365	408	479	537	562	634	715	735	792
Debit cards	186	297	331	369	413	432	477	538	550	563
Credit cards	75	68	77	110	124	130	157	177	185	229
Credit transfers	8 531	6 202	6 633	7 209	8 090	8 998	10 377	11 100	11 152	11 920
Electronic	7 341	5 348	6 032	6 689	7 635	8 600	10 031	10 793	10 862	11 707
Forms	1 190	854	601	520	456	397	346	307	290	213
Direct debit	261	250	268	302	344	384	424	452	469	507
Cheques, including money orders	16	21	46	59	55	54	60	69	42	27
<b>Total</b>	<b>9 069</b>	<b>6 838</b>	<b>7 355</b>	<b>8 049</b>	<b>9 027</b>	<b>9 998</b>	<b>11 496</b>	<b>12 335</b>	<b>12 398</b>	<b>13 246</b>

Source: Statistics Sweden

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

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>ATMs</b>										
No. of ATMs	2 631	2 669	2 699	2 716	2 814	2 816	3 085	3 236	3 319	3 351
No. of transactions	336	341	328	324	321	313	320	295	267	225
Transaction value	282	284	276	293	289	270	240	239	229	204
<b>Payment terminals</b>										
No. of POS-terminals	126 396	142 021	153 055	161 098	176 637	184 590	187 330	194 776	217 760	203 117
No. of transactions	373	454	542	652	801	1 000	1 188	1 398	1 531	1 663
Transaction value	185	211	241	270	312	384	436	477	501	565

Source: The Riksbank

**Table Z. Average value of a card payment**  
**SEK**

2001	648
2002	587
2003	537
2004	567
2005	554
2006	505
2007	469
2008	454
2009	433
2010	423

Source: The Riksbank

**Table AA. Percentage of electronically initiated credit transfers**  
**Per cent**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Percentage of transaction value	86.1	86.2	90.9	92.8	94.4	95.6	96.7	97.2	97.4	98.2
Percentage of transaction volume	83.2	69.7	84.4	83.4	85.6	87.8	88.3	89.5	90.4	91.7

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).

# Index

## A

arbitrage 54  
authorised 50, 115

## B

bank 77nn, 108n  
base currency 59n  
basis-spread 47n  
BGC 136n  
bilateral gross basis 131  
BIS 58  
bond market 16, 33n  
bonds 19, 33, 36nn, 51  
Broker 51  
Burgundy 67, 71n, 140

## C

CCP 118  
central counterparty 116n, 139  
central laws 108n  
centralised funding 82  
Certified Adviser 71  
certificate 18, 35, 50, 94nn  
clearing 115  
clearing organisation 115, 136  
CLS 59, 119, 135n, 140n  
Contract for Difference (CFD contract) 73  
covered bond 36  
coupon bond 33  
covered interest rate parity 54  
corporate bond 37, 40  
credit default swap (CDS) 49  
credit derivative 44, 49  
credit institution 84

credit market company 84,  
96nn, 108  
cross currency basis swap 57  
cross trading 59n

## D

debit 114, 116, 125  
decentralised funding 82n  
Delivery versus Payment (DvP)  
117, 121,  
deposit contract 21, 31  
deposit deficit 81  
derivative 8, 72, 95, 116  
derivative instrument 17, 44,  
49n, 56  
discount bond 33

## E

EBS 59  
Elasticia 71  
electronic trading 58  
e-money 123, 128n  
equity 5nn, 63nn, 109nn, 114,  
140  
equity capital 63, 69  
equity derivative 72  
equity fund 103n  
equity option 72n, 143  
exchange traded fund (ETFs) 73  
EURIBOR 47  
Euroclear 68, 116, 135n, 140

## F

financial infrastructure 113n  
financial intermediary 7, 78, 96n

Finansinspektionen 13n, 108n  
fine-tuning operations 25  
First North, Nordic MTF 67, 70  
First North Premier 71  
fixed income fund 103n  
foreign exchange forward 56  
foreign exchange option 56n, 61  
foreign exchange swap (FX  
swap) 53, 56n, 60  
fund management company 8,  
79, 103nn

## G

government bond 34, 41nn, 45,  
50  
guarantee program 88

## H

hedge fund 58, 104  
high frequency trading 74n

## I

issuance 50  
issuer 64  
insurance company 99nn  
IMM-FRA 44  
interbank participant 51  
interbank trading 51, 58n  
interbank rate 47  
intra-day facility 23  
investor 19n, 42fn, 65  
interest-rate option 49  
interest rate swap (IRS)) 34, 44n  
interest rate forward 44n  
independent saving bank 84n,  
106, 135  
insurance association 102

## K

Kommuninvest 39, 96

## L

laws 108nn, 131  
LIBOR 47  
life assurance company 99nn

## M

market maker 50, 57n, 77, 106  
marketplace 66n  
Ministry of Finance 14  
mixed fund 103n  
monetary policy counterparty  
23, 27, 42, 46  
monetary policy repo 21, 23nn  
money market 17nn  
mortgage institutions 19, 34  
multi-bank platform 59  
Multilateral Trading Facility  
(MTF) 66n, 70n  
multilateral net basis 136

## N

NASDAQ OMX Derivative  
Market 72, 139  
NASDAQ OMX Stockholm 40n,  
49, 67n  
netting 52, 115, 140  
non-life insurance company 100  
Nordic Derivatives Exchange  
(NDX) 43, 70, 72  
Nordic Growth Market (NGM)  
67, 70  
Nordic Large Cap 69  
Nordic Mid Cap 70  
Nordic Small Cap 70

## O

overnight indexed swap (OIS)  
48  
overnight market 21n  
option 49, 57, 72

over the counter (OTC) 49, 57,  
67, 72

## **P**

payment using an intermediary  
114

pension foundation 102

pension fund 16, 20, 104n

primary market 33

private equity investment  
company 98

## **R**

reference rate 47

regulated market 66n, 70, 111

repos (repurchase agreement)  
31nn, 42

reuters Dealing 3000 59

Riksbank futures (RIBA) 45n

Riksbank certificate 23nn, 29

RIX 21, 116, 135n, 141nn

## **S**

SAXESS 51

second-hand market 33, 43, 51

securities company 67, 74, 106

securities trading 105nn

settlement 116n, 135nn

simple payment 113

single-bank platform 59

spot 56n

standing facility 21, 23, 26

STIBOR 47

STINA 46n, 48

STINA contract 46

STINA swap 46

structured product 44, 49

stock market 16, 63n, 69, 104

Swedish National Debt Office  
15, 34, 50, 88

## **T**

TED spread 47

trading facility 70nn

trading structure 51, 57, 68

treasury bill 17, 19, 50

## **V**

Warrants 72

## **Z**

zero coupon bond 33





Sveriges Riksbank  
SE-103 37 Stockholm  
(Brunkebergstorg 11)

Phone +46 8 787 00 00  
Fax +46 8 21 05 31  
[registratorn@riksbank.se](mailto:registratorn@riksbank.se)  
[www.riksbank.com](http://www.riksbank.com)

