The Swedish Financial Market

2015

SVERIGES RIKSBANK

The Swedish Financial Market

2015

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Production: Sveriges Riksbank
Print: Printfabriken
ISSN 1401-7348

Stockholm 2015

Contents

- **Foreword 5**
- **The roles of the financial system 6**
  - Converting savings into funding 6
  - Managing risks 8
  - The interaction between intermediaries, markets and authorities 9
- **The financial markets 17**
  - The fixed-income market 17
    - The money market – for short maturities 19
    - Contract types for the money market's shortest segment 21
    - The bond market 28
    - Issues and the trading structure on the fixed-income market 34
    - The market for interest derivatives 39
  - The foreign exchange market 42
    - Frequently-used instruments on the Swedish foreign exchange market 43
    - Trading structure and turnover 45
  - The equity market 50
    - Issuers 51
    - Investors 52
    - Equity-related exchange-traded instruments 53
    - Marketplaces 55
    - Trading in shares on Nasdaq OMX Stockholm 56
    - Equity trading on other Swedish marketplaces 59
    - Trading in equity-related exchange-traded instruments on Swedish marketplaces 60
- **Financial intermediaries 62**
  - Credit institutions 64
    - Banks 65
    - Mortgage institutions 78
    - Other credit market companies 85
  - Private equity investment companies 87
  - Insurance companies, fund management companies and pension funds 88
    - Insurance companies 88
    - Fund management companies 92
    - State-owned pension funds 93
  - Securities institutions 94
    - Securities companies 95
    - Swedish credit institutions that engage in securities trading 95

The financial infrastructure 106

Different types of payment 106
- Simple payments 106
- Payment using an intermediary 106
- Payment using several intermediaries 107

Transactions when trading in financial instruments 109

Transactions in foreign-exchange trading 112

Retail payments 113
- Cash 113
- Card payments 114
- Credit transfers 116
- Direct debit 118
- Electronic money and prepaid cards 118
- Bank draft 119

Systems in the financial infrastructure 122
- RIX – the system for large-value payments 122
- Bankgirot – the system for retail payments 123
- Euroclear Sweden – central securities depository 124
- Nasdaq Clearing – central counterparty in derivatives clearing 125
- EUROCCP – central counterparty for equities clearing 126
- CLS – the system for foreign exchange settlement 127

Payment flows in the Swedish financial infrastructure 127
- The fixed income market 128
- The equity market 128
- The foreign exchange market 128
- The derivatives market 129
- Retail payments 130
- Cross-border payments 130
- Domestic payments 130

Boxes

Supervision and regulation of the financial sector in Sweden 11
The Riksbank's monetary policy instruments 25
Creating money 67
Why and how are the banks regulated? 74
How do the banks finance a mortgage? 81
Central regulations in the financial sector 97
Virtual currencies 120

Appendix

Appendix 1. Tables 131

Appendix 2. Market conventions in the Swedish fixed income and foreign exchange markets in SEK 141

Appendix 3. Boxes published in the five latest issues of The Swedish Financial Market 143

Index 145

Foreword

The Swedish Financial Market is a description of various roles and functions in the Swedish financial system. The publication is divided into three chapters: 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 as 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 equity market. This provides an account of how trading takes place. In addition, the various marketplaces and the different types of securities traded in these marketplaces are presented, for example shares and bonds. The second chapter is devoted to important financial intermediaries. These include banks, insurance companies, fund management companies, securities companies and private equity and venture capital companies. The final chapter describes the financial infrastructure used for payments and securities transactions in Sweden.

As the title indicates, the descriptions are confined to the Swedish financial system. This distinction may be difficult to make at times, as the activities of the financial companies are becoming increasingly internationalised. In order to give this publication a natural set of Swedish parameters, it is therefore based on national statistics compiled by Swedish legal entities.

Stockholm, August 2015

Lisa Marklund
Editor

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 to invest 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.

The conversion of savings into funding 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 was forced to seek out a large number of potential investors for his or her projects. The financial sector therefore 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, this market helps investors to find interesting investment opportunities.

The capital market consists of the equity market and the credit market. Governments primarily fund their activities on the credit market, for example by issuing bonds[1], while certain companies can also find capital by turning to the equity market. In terms of value, the significance of the equity market in Sweden and many other countries is relatively limited in comparison to that of the credit market. Companies and households usually gain access to the capital market by turning 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 even out

1 A bond is a debt instrument indicating an agreement to lend money that will subsequently be repaid with interest.

their consumption over their lifetimes can deposit money in a bank account and withdraw it (plus interest) at a later date. They can also invest their money in equity, debt securities or funds on the Swedish market or on foreign markets.

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 among 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*, 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 does not have to convince the lender of their own of 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 mediate funding most efficiently. It is sometimes more efficient for companies to turn directly to the capital market and borrow money by issuing bonds and money market instruments[2]. By using these standardised securities[3], which can easily be bought and sold on a market, funding can become even more efficient. In simple terms, the *issuers* of bonds and other debt instruments thus correspond to the banks' borrowers.

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 existing in the market, the overall level of information and transaction costs can be reduced. It becomes 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.

Equities are another common example of standardised securities. Unlike bonds and other debt instruments, equities do not generate interest. Instead, they represent shares in a company and the return

2 Money market instrument is a collective term for debt securities that are usually issued with maturities of up to one year.

3 Securities is an overall term for equities, bonds and other financial instruments that represent an economic value and that can be traded.

is determined by the future distributed profits of the company. Given that these profits may vary considerably from year to year, those who invest in equities normally accept a higher risk than investors in, for example, government bonds. Thus, unlike the credit market, the equity 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 who manage money on behalf of others. For example, unlike companies and households, credit institutions (such as banks) are specialists at assessing credit risks[4].

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 of non-life 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 insurance 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 obtain funding 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 thus does not simply play a role in the mediation of capital, but also contributes to more effective risk management.

4 Credit risk refers to the risk of a borrower failing to meet his commitments.

EFFICIENT AND SAFE PAYMENTS

In addition to mediating capital flows and managing risks, the financial companies create the conditions for the efficient processing of payments in the economy. The smooth, rapid and secure conduct of financial transactions is a precondition if the economy as a whole is to function efficiently. Financial transactions refer to payments between banks and other financial institutions (usually of large amounts) as well as to payments between private individuals and/or companies (usually of comparatively smaller amounts).

By using the existing financial infrastructure, the banks and other financial institutions can make payments to each other and 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 INTERACTION BETWEEN INTERMEDIARIES, MARKETS AND AUTHORITIES

It is in the interests of society that the financial system as a whole functions safely and efficiently for private individuals, companies and other market participants. Good interaction between intermediaries, markets and the financial infrastructure is a precondition for this. Problems can arise in the financial system if this interaction does not work.

Banks play a central role in the financial system in their function as intermediaries. As Swedish banks normally obtain funding at short maturities and lend at longer maturities, liquidity risks arise in their operations. This means that their liabilities fall due more often and must be renewed more frequently than their assets. The banks are therefore dependent on having ongoing access to funding. As a large part of the funding is secured via the financial markets, the banks are thus dependent on liquid markets.

However, liquidity shortages can arise on the securities markets. This happens when the securities become illiquid, that is when the value of the assets traded on the market has become so uncertain that the market participants hesitate to set prices, and in some cases refrain from doing so. In other words, it becomes problematic to convert the securities into liquid funds. This in turn may lead to problems for banks

and companies that are dependent on obtaining market funding. They 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 another bank's loan portfolio may therefore make it difficult for a 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, 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 the 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 the public and the market. If confidence weakens, it may be difficult for the banks to conduct 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 therefore have an important role to play in the financial system in avoiding or, when necessary, managing a crisis. One of the primary tasks of the Riksbank 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. In both of these situations, the interaction between different authorities is important. 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 Supervision and regulation of the financial sector in Sweden). As financial companies now increasingly work across national borders, cooperation between authorities in different countries and with other international bodies is also of central importance.

Supervision and regulation of the financial sector in Sweden

Companies in the financial sector provide services that are important to the functioning and the growth of the economy, and thus support the basic functions of the financial system. If the financial companies encounter problems, for example during a financial crisis, this may affect the entire economy. It may, for example, become more difficult to get credit, which could reduce the companies' ability to invest. This in turn could lead to higher unemployment. The stability of a country's financial system is thus important and justifies the system being subject to special regulations. 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 the regulations is to ensure that the financial companies have sufficient resilience to avoid bankruptcy and can manage the risks that arise in their operations. Another reason 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 rules, laws and regulations and thus have ultimate responsibility for the financial system. However, responsibility for safeguarding 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 allocation of responsibility means that the Riksbank is responsible for providing liquidity in the system. Finansinspektionen is responsible for macroprudential policy[5] and the supervision of the financial companies, while the Swedish National Debt Office, together with the Government Offices, bears responsibility for more long-term forms of support (read more about the Support to Credit Institutions Act in the box Central regulations in the financial sector). Even if the authorities have different

5 Macroprudential policy deals with reducing the risks in the financial system as a whole.

areas of responsibility, they must cooperate to be able to efficiently promote financial stability.

Cooperation between authorities

The Riksbank, Finansinspektionen, the Government Offices (mainly the Ministry of Finance) and the Swedish National Debt Office play an important role in managing financial crises. Since 2013, the authorities have been represented on the Financial Stability Council, which acts as a forum for discussions on financial stability and crisis management. This forum discusses issues of financial stability and the need to adopt measures to counteract the accumulation of financial imbalances. In the event of a financial crisis, the need to take measures to manage such a situation is also discussed. The Council normally meets twice a year and the minutes of the Council's meetings are public.[6]

The increasing globalisation of the financial markets and of the participants on these markets also creates the need to strengthen coordination with authorities in other countries with regard to the oversight and supervision of financial operations. Among other organisations, Swedish authorities participate in the European Systemic Risk Board (ESRB) and the European Banking Authority (EBA).[7] The ESRB's task is to identify risks that may threaten the stability of the EU's financial system and to issue warnings and recommendations on serious risks. EBA's task is to promote a uniform application of the regulations in the member states and coordination of the national financial supervisory authorities. As a consequence of new EU regulations, Finansinspektionen and the Riksbank, together with other authorities, are also members of supervisory colleges for central counterparties.

The Riksbank

The Riksdag has delegated the responsibility for monetary policy to the Riksbank and stipulated in legislation that the objective of the Riksbank's activities is to maintain price stability. According to the Sveriges Riksbank Act,

6 More information about the Financial Stability Council can be found on the government's website.
7 Swedish authorities also participate in the European Insurance and Occupational Pensions Authority (EIOPA) and the European Securities and Markets Authority (ESMA).

the Riksbank shall also promote a safe and efficient payment system. The Act does not describe in detail what is meant by this. However, it is clear that the Riksbank has a responsibility for the supply of cash and for supplying a central payment system.

Making the payment system safe and efficient requires the financial system to be stable so that payments and the supply of capital can work well. The Riksbank, like other central banks, must therefore be able to manage financial crises and other serious disruptions in the financial system so that the payment system can continue to function even in such situations.[8] The Riksbank plays a special role in this as Sweden's central bank, because it can quickly supply money to the financial system if the need arises.[9]

A stable financial system is also a prerequisite for the Riksbank to be able to conduct an effective monetary policy. This is because the financial markets and how they function affect the impact that monetary policy has on 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 broad meaning and is a matter of taking responsibility for promoting the stability of the financial system. In addition to issuing banknotes and coins and providing a central payment system, the Riksbank supports the financial system in several other ways.

Under normal conditions, the Riksbank works to prevent financial crises. The Riksbank does this by identifying, analysing and counteracting risks in the financial system as a whole, a process known as macroprudential policy. For example, the Riksbank draws the attention of banks and other participants on the financial markets to risks and efficiency losses that the Riksbank has identified. However, the Riksbank has no binding statutory tools that it can use to influence the participants on the financial

8 The Riksbank's role and tasks in the work of promoting financial stability are described in the document *The Riksbank and financial stability*, which can be found on the Riksbank's website.
9 This is what is meant by the term "lender of last resort".

markets but uses communication, publicly and in dialogue with the participants concerned. For example, the Riksbank publishes a Financial Stability Report twice a year and a Financial Infrastructure Report once a year. In the Financial Stability Report, the Riksbank makes recommendations to the participants in the financial system on the measures they should adopt to manage the risks the Riksbank has identified. In the Financial Infrastructure Report, the Riksbank publishes its assessments of the risks in and efficiency of the financial infrastructure, with the intent of thereby encouraging continual improvement. The Riksbank also presents its views on proposed legislation and regulations from the EU, the Swedish Government and Finansinspektionen.

Finansinspektionen

The overall tasks and objectives of Finansinspektionen (FI) are to promote stability and efficiency in the financial system. In addition to good resilience of the financial system, FI has been given a responsibility to counteract imbalances in the credit market. The aim of FI's work is to prevent problems in the financial system from causing society costs. FI can do this with the help of various instruments, such as the introduction of mortgage ceilings or higher capital requirements on banks. FI will also contribute to consumer protection in the financial area. It does this, for example, by issuing licences or permits, conducting supervision and issuing regulations.

Finansinspektionen is responsible for issuing licenses to companies wishing to offer financial services to the public, but it also intervenes in mismanaged companies, ultimately by withdrawing their licenses. Supervision means that Finansinspektionen exercises supervision to ensure that the companies that conduct financial operations or provide elements of the financial infrastructure comply with the special regulations that they are subject to. This task includes, for example, revealing any shortcomings in internal governance or control. If there are problems in a financial company, Finansinspektionen assesses the causes of the problems and may take measures

against the company concerned.

Finansinspektionen's supervision provides the authority with information on the development of individual companies and thus on the financial sector as a whole.

To achieve its overriding objectives, Finansinspektionen may decide on new statutes and general guidelines. The aim of the regulations encompassing financial companies is to ensure that they have sufficient resilience to financial risks. Finansinspektionen thus requires them to have sufficient capital and to be able to manage the risks in their own operations.

Ministry of Finance

The Ministry of Finance, which is part of the Government Offices, is responsible for legislation in the financial sector. Its objectives are stability, efficiency and a high level of consumer protection. The Ministry of Finance monitors the development of the financial system at an overall level. In a crisis, the Ministry of Finance can initiate measures if it turns out that the tools used by Finansinspektionen and the Riksbank are not adequate. However, 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.

The Swedish National Debt Office

The Swedish National Debt Office is responsible for the government's payments and manages Sweden's national debt. It does this by issuing and selling government bonds and treasury bills, among other measures. The National Debt Office can also issue government guarantees and loans. By being responsible for the deposit insurance scheme and the bank support system, the Office also helps to safeguard the stability of the financial system.

The deposit insurance scheme is an important element of consumer protection and means that the government reimburses deposits in accounts if a bank defaults. However, the deposit insurance scheme 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. Without a deposit

insurance, there is a risk that, in times of financial unease or when a bank is rumoured to have economic problems, bank customers will withdraw their savings to avoid losing these in the event that the bank should default. If many bank customers simultaneously withdraw their savings, this can lead to the bank encountering a liquidity shortage, thereby accelerating and exacerbating the crisis.

Apart from being responsible for the deposit insurance scheme, 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.[10]

10 In 2014, the EU adopted a new directive (2014/59 EU) to regulate how crises in financial institutions are to be managed. The directive specifies the rules and tools to be used by the member states' authorities in the event that a financial institution fails. When the directive is implemented in Sweden, the Swedish National Debt Office's powers will be changed and partly replaced by others. With this, the Swedish National Debt Office's role will also be changed. The Government has announced its intention to appoint the Swedish National Debt Office as resolution authority with responsibility for both crisis preparedness and management of financial institutions in distress.

The financial markets

The financial markets are categorised here as the fixed-income market, the foreign exchange market and the equity market. Nowadays, Swedish banks and companies operate to a great extent on global financial markets, but this chapter mainly concentrates on the Swedish financial markets. We describe how trading on the different markets works and the securities and instruments that are traded on the respective markets.

The three markets have different functions. On the fixed-income market and the equity market, companies, organisations and governments can obtain funding for investments and operations, for example. At the same time, these markets help investors to find interesting investment opportunities. On the fixed-income market, this is done by the borrowers (mainly governments, banks and companies), issuing securities at various maturities, such as bonds and money market instruments. This gives the investors yield in the form of interest. On the equity market, companies acquire capital by issuing shares. Investors can then buy and sell these financial instruments from and to each other.

The foreign exchange market is used by a large number of participants who need to buy or sell foreign currency. This may include companies that conduct international trade and need to exchange money, or investors who want to invest abroad. The foreign exchange market is characterised by trading in large amounts, a large number of participants and rapid dissemination of price information.

Households, companies and banks need to protect themselves against different kinds of economic risk. The financial markets contribute to this with efficient risk management. For example, financial companies can trade in special contracts with the aim of shielding themselves against unfavourable movements in rates and prices.

The fixed-income market

The fixed-income market is a market for trading what are known as debt instruments, which yield a specific predetermined return in the form of an interest rate.

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

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 on the two markets 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 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 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 also described in more detail.

Debt instruments are traded as *spots*, which is to say that 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*[11] 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 fixed-rate term for 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.

The fixed-income market can be divided into a *primary market* and a *secondary market*. The difference is that new securities are issued on the primary market, while securities are bought and sold on the secondary market. A sale in the primary market provides capital directly to the issuer of the security. It entails the issuer becoming a borrower on the market. These securities may then change owner through trading on the secondary market.

A description of the fixed-income market in Sweden is presented below, divided into a money market and a bond market on the basis of the original maturities that characterise these securities. A description

11 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.

is given by the issuers and investors on the markets as well as the turnover of various securities. Contract types for the money market's shortest segment are also described, as it becomes less practical to use normal securities when maturities approach one week or less. The section concludes with a description of issues, trading structures and interest derivatives used on the fixed-income market.

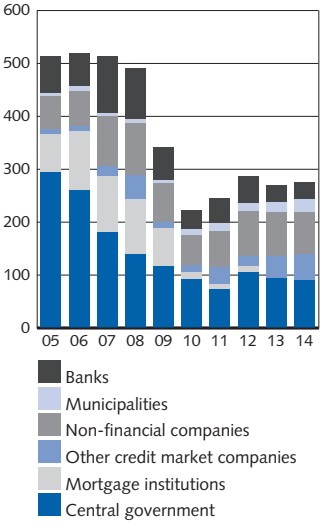
THE MONEY MARKET – FOR SHORT MATURITIES

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

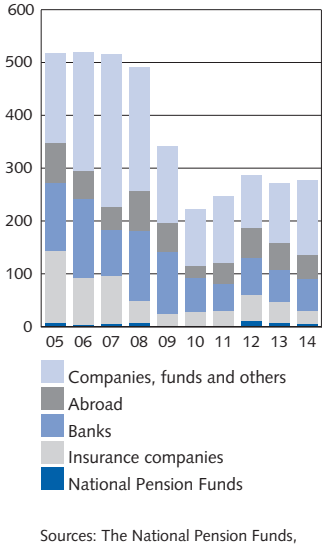
The central government, the mortgage institutions and the banks are the largest borrowers on the money market. Central government borrowing takes place through *treasury bills*. Other institutions borrow by issuing *certificates* such as bank and mortgage certificates.

Chart 1. Issuers in the money market
SEK billion



Sources: Statistics Sweden and the Riksbank

Chart 2. Investors in the money market
SEK billion



Sources: The National Pension Funds, Statistics Sweden and the Riksbank

In 2014, the value of the total stock of money-market instruments rose by just over SEK 6 billion, amounting to SEK 276 billion at the end of the year (see Chart 1). The total stock of money market instruments issued has fallen by almost half since 2006.

A treasury bill[12] 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. The government's issue of treasury bills has declined in tandem with the fall in the government's borrowing requirement over the last 10 years. The outstanding volume of treasury bills fell by approximately 6 per cent to SEK 88 billion at the end of 2014, which is equivalent to approximately 32 per cent of the outstanding stock of short-term securities. In recent years, borrowing at longer maturities through bonds has been given priority ahead of the issue of treasury bills.[13]

A certificate is the same kind of debt instrument as a treasury bill but is issued by mortgage institutions and companies, for example. The mortgage institutions' short-term borrowing in certificates issued in Swedish kronor has substantially decreased in recent years. The outstanding volume amounted to just over SEK 2 billion in 2014. The level for the banks' certificates issued in Swedish kronor stayed relatively unchanged between 2013 and 2014 and amounted to about SEK 32 billion at year-end.

Banks and mortgage institutions match their long-term lending with long-term borrowing to a greater degree than previously, at the cost of short-term borrowing. The financial risk is reduced when liabilities and assets have similar maturities. Maturity matching of this type is something that several national and international regulatory frameworks have called for and that the participants have adjusted to.[14]

Non-financial companies' short-term borrowing amounted to SEK 81 billion at year-end 2014, a level more or less unchanged since the preceding year. The borrowing volume for "Other credit market companies" increased by SEK 7 billion to SEK 49 billion by year-end. In recent years, municipalities have steadily increased their borrowing volume. At year-end 2014, this was SEK 24 billion.

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

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

14 For example, the Basel III Accord includes requirements for a higher proportion of borrowing with long maturities.

Investors on the money market in Sweden

Swedish banks, insurance companies and foreign investors are important categories of investors in the money market (see Chart 2). The banks' holdings of short-term fixed-income securities constituted one-fifth of the total money market at the end of 2014, while the insurance companies' holdings corresponded to about 10 per cent of the market. The banks' and insurance companies' holdings amounted to SEK 59 billion an SEK 26 billion respectively at year-end 2014. Foreign investors accounted for slightly less than 20 per cent of the market's total volume at year-end 2014.

The category "Companies, funds and others" accounted for about half of the outstanding stock at the same point in time, corresponding to SEK 141 billion. The National Pension Funds (AP funds) have invested very little in short-term fixed-income securities over the last 10 years.[15] At the end of 2014, their holdings amounted to about SEK 4 billion, or 1 per cent of the total volume of short-term fixed income securities.

Low turnover on the money market

Between 2013 and 2014, turnover on the money market was unchanged and continued to be low from a historical perspective. Securities in the money market, such as treasury bills and other certificates, are largely retained in the investors' portfolios for their entire term. According to statistics from the Riksbank's primary monetary policy counterparties[16], the turnover in mortgage certificates averaged approximately SEK 93 million per day in 2014, after having fallen by SEK 26 million per day compared with the preceding year. At the same time, turnover in treasury bills increased by SEK 26 million per day to almost SEK 4 billion per day in 2014 (see Chart 3). In recent years, the combined turnover of treasury bills and mortgage certificates has decreased, averaging 12 per cent of total spot turnover in government and covered bonds at the end of 2014.

CONTRACT TYPES FOR THE MONEY MARKET'S SHORTEST SEGMENT

It becomes less practical to trade ordinary securities when maturities on the money market are reduced to a week or even less. Other contract solutions are used instead, such as *deposit contracts*

15 More information about the National Pension Funds is available in the section on state-owned pension funds in the chapter "Financial intermediaries".

16 More information about the Riksbank's counterparties is available on the Riksbank's website.

(deposits) and *repurchase agreements* (repos). These standardised contracts offer the participants greater flexibility in borrowing or investing at the shortest periods of maturity.

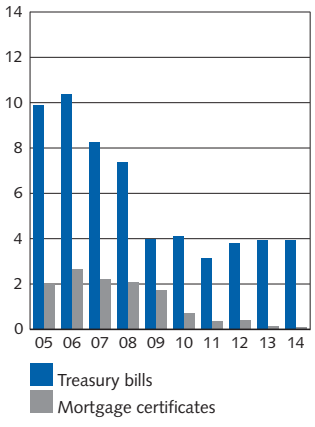
Deposit contracts

Deposit contracts are standardised deposit and lending contracts without underlying collateral in the form of pledged securities. Normally, market participants use deposit contracts for deposits and loans with maturities less than one week.

They are primarily used to balance liquidity requirements between banks overnight on the so-called overnight market, that is the shortest period of maturity on the money market with deposits and lending overnight.[17] The banks have, quite simply, agreed to assist each other with liquidity and for this they pay the overnight rate, which is normally close to the Riksbank's repo rate. The Riksbank's deposit and lending facilities set the framework for the overnight rate. More information on the Riksbank's interest-bearing instruments can be found in the box The Riksbank's monetary policy instruments.

The Riksbank's repo rate also influences Stibor[18], which is a reference rate for trade in Swedish kronor. Stibor is defined as an average of the interest rates that the banks in the so-called Stibor panel offer each other for loans without collateral in Swedish kronor.

Chart 3. Average turnover per day on the money market
SEK billion



Source: The Riksbank

17 The banks make forecasts to assess how much liquidity they need for their payments. Nevertheless, imbalances arise, for example when the banks' incoming and outgoing payments do not match one another in time and when unforeseen payments must be made during the day. Imbalances can also arise as a result of customers' business transactions and transfers in foreign exchange and securities portfolios by portfolio managers or other financial-market participants.

18 Stibor stands for Stockholm Interbank Offered Rate.

Stibor forms the basis of many financial contracts that are of central importance to the ability of banks and non-financial companies to manage risk. It is also of considerable significance for the interest rates charged to households and companies.[19]

In 2014, the Swedish institutions designated by Statistics Sweden as monetary financial institutions had an average outstanding deposit volume of overnight loans in the form of deposit contracts of SEK 132 billion at the end of each month. Most of this sum, an average of SEK 116 billion, came from deposits from Swedish monetary financial institutions and the remainder from foreign institutions.[20] Monetary financial institutions (MFIs) comprise banks, mortgage institutions, finance companies and other MFIs (for example, municipal and corporate-financed institutions, monetary securities companies and brokers).

Repos

A repo is a transaction whereby one party agrees to sell a security to another party in return for liquid funds. At the same time, the parties also agree that the same security will be repurchased at a predetermined price at a certain 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 functions essentially as a collateralised loan during the maturity of the repo. The party that lends 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 deposit contracts are used. If the borrower cannot honour his or her debts at the end of the period, the pledged securities are not returned to the borrower but are retained by the lender. Consequently, repos entail minimal counterparty risk[21] for the lender. In principle, all securities that can be traded on the fixed income market can be used as collateral for repos.

19 For further information see the article on a new framework for the Swedish reference rate Stibor in The Swedish Financial Market, 2013, The Riksbank's review of Stibor and Stibor reexamined – a follow-up, 2014, Sveriges Riksbank.

20 Swedish Monetary Financial Institutions report their outstanding volumes in different currencies on a monthly basis to Statistics Sweden (SCB), which compiles financial market statistics. The definition of the Swedish banking day is not unambiguous: the definition usually refers to maturity overnight (O/N), but tomorrow next (T/N) may also appear (see Appendix 2 on market conventions).

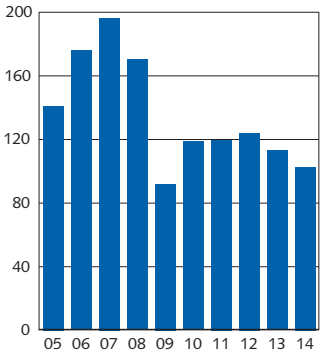
21 Counterparty risk refers to the risk that a business transaction cannot be completed.

In 2014, the turnover in repos among the Riksbank's primary monetary policy counterparties and the National Debt Office's dealers was somewhat lower than in previous years. Turnover has fallen by almost half since peaking in 2007 (see Chart 4). In 2014, turnover was about SEK 102 billion per day. Almost this entire turnover is in repos with maturities of up to one week. The turnover in repos was more than three times as high as the spot turnover in the underlying government and mortgage securities.[22]

The average volume of repo borrowing by the monetary financial institutions at the end of each month averaged around SEK 148 billion in 2014. Slightly more than SEK 103 billion of this amount came from repo borrowing by Swedish monetary financial institutions.[23]

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, for example, fund their securities portfolios via the repo market. They can also acquire securities quickly in order to meet their obligations.

Chart 4. Average turnover per day in repos
SEK billion



Source: The Riksbank

22 Inflation-linked government bonds are not included in these figures.
23 The special conventions used in trading in the money market's short-term contracts are described in Appendix 2 on market conventions.

The Riksbank's monetary policy instruments

The Riksbank's operational framework for the implementation of monetary policy is decisive for the Riksbank to attain its price stability objective. It is therefore designed to enable the Riksbank to control interest rates and thus affect growth and inflation. In the operational framework, the Riksbank offers market participants opportunities to deposit or borrow money at short maturities and can thus govern short-term interest rates on the market. RIX-participants are players who can participate in the Riksbank's central payment system RIX or have some form of monetary policy counterparty agreement with the Riksbank.[24]

The Riksbank controls the overnight rate

The objective of the Riksbank's operational framework for the implementation of monetary policy is to control the overnight rate so that it remains stable around the repo rate. The overnight rate also forms an anchor for the formation of interest rates at longer maturities. The overnight rate is governed by ensuring that the banks always have the possibility of meeting their liquidity requirements via the Riksbank's standing facilities or fine-tuning transactions overnight. However, the banks' alternative cost for turning to the Riksbank for deposits and lending is higher than that for balancing liquidity on the overnight market. The market participants thus have an incentive to determine a price that lies between the Riksbank's deposit and lending rates. In this way the Riksbank in practice sets the conditions governing the overnight market.

Intraday facilities (intraday credits)

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. Such a loan is called an intraday credit and is provided more or less immediately. The

24 For more information on RIX participants and monetary policy counterparties, see the Riksbank's website.

value of the collateral after any haircuts sets the ceiling for the loan. Subsequently, at the end of the day, the banks can either even out their surplus or deficit between themselves on the overnight market via what are known as *overnight loans*, or they can invest in or borrow kronor from the Riksbank overnight.

Riksbank Certificates

The Riksbank uses the repo rate to signal the level of the overnight rate a week ahead. If the banking system has a structural liquidity deficit in relation to the Riksbank, a repo transaction with a maturity of one week is carried out in which the Riksbank purchases securities and thus supplies liquidity to the banking system at the repo rate. If, on the other hand, that banking system has a structural surplus in relation to the Riksbank, which has been the case since 2010, the Riksbank offers Riksbank certificates at a maturity of one week. Banks that purchase these certificates thus deposit liquidity with the Riksbank for a week at the repo rate.

Fine-tuning transactions

The part of this surplus that is not invested in Riksbank certificates is evened out in the Riksbank's fine-tuning transactions. These transactions entail the banks depositing their surpluses with the Riksbank overnight. However, the Riksbank sets a limit for fine-tuning transactions corresponding to the surplus existing in the banking system at the end of the day. The counterparties that deposit their surpluses with the Riksbank receive the repo rate minus 10 basis points. It thus follows that if all or parts of the liquidity surplus had been invested in Riksbank certificates, the overnight deposits would have been smaller. If, at the end of the day, the banking system was instead to have a deficit in relation to the Riksbank, the counterparty responsible for this deficit would be allowed to borrow from the Riksbank overnight. The counterparty would then pay the repo rate plus ten basis points.

Standing facilities

Nevertheless, it may happen that the transaction accounts of individual banks at the Riksbank are not balanced when RIX

closes. A credit institution that then has a negative balance on its RIX account at RIX's closing time is considered to have asked for credit under the standing facilities. A credit institution that, in contrast, has a positive balance is considered to have asked to make a deposit under the standing facilities. 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 provides a return equal to the Riksbank's repo rate minus 75 basis points.

Further monetary policy measures

In addition to cutting the repo rate and the repo rate path, the Riksbank can use complementary monetary policy measures to make monetary policy more expansionary. One such a measure is to push down market rates with longer maturities by buying government bonds.[25] Like a repo rate cut, government bond purchases lowers the general interest rates.[26] This, in turn, makes it more attractive for investors to look for other, higher-risk assets, such as equities and corporate bonds. The lower interest rate environment also means that banks can cut their interest rates for lending and borrowing. This increases companies' willingness to invest at the same time as households are given increased incentive to consume. Lower interest rates also makes the exchange rate weaker than what would otherwise have been the case. All in all, this contributes towards increased activity in the economy, which, in turn, leads to higher inflation.

Another way for a central bank to improve the impact of monetary policy is to use targeted loans. For example, these can be granted to the corporate sector via the banking sector with the aim of stimulating investments.

In addition, a central bank can attempt to influence the exchange rate for monetary policy purposes by intervening on the foreign exchange market and thereby preventing a substantial strengthening or attaining a weakening of the exchange rate.

25 The Riksbank started purchases of government bonds in the first quarter of 2015.
26 For further information see the box *The Riksbank's complementary monetary policy measures*, Monetary policy report February 2015, the Riksbank.

THE BOND MARKET

The bond market brings together managers of long-term savings with those that need to borrow capital for longer maturities. A *bond* is a debt instrument confirming an agreement to lend money that will subsequently be repaid with interest. A bond with part payments[27] (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, more frequently, zero-coupon bonds. The central government also issues inflation-linked bonds, where the interest payment and the final payment are linked to developments in the inflation rate. Normally, the coupon rate for the bond is set in relation to the prevailing interest rate environment in the economy. When there is good demand for an issuer's bonds, the issuer will be able to borrow capital at a more favourable rate.

As mentioned above, bonds are used to match long-term savings with long-term funding needs. Bonds can also be used in so-called repo transactions, in which the holder can acquire liquidity by lending the bonds (see the section Repos).

Volumes on the bond market in Sweden have successively increased in recent years. At the end of 2014, the outstanding volume of bonds issued in Swedish kronor was slightly more than eleven times greater than the volume on the money market and amounted to SEK 3 155 billion. A Swedish participant can also turn to the international markets to get access to capital. Issues are then conducted in other currencies.[28] At year-end 2014, half of the total borrowing volume in bonds at Swedish issuers was denominated in Swedish kronor and half was in foreign currencies.

Issuers on the bond market in Sweden

The term Swedish bond market refers to the market for bonds issued by Swedish issuers in Swedish kronor. The issuers on the bond market are the same as on the money market, which is to say the government and the mortgage institutions above all, although companies and municipalities may also issue bonds. Bonds tend to be issued by those with long-term funding requirements. The government and the mortgage institutions are the largest issuers. They represent approximately 25 and 40 per cent respectively of the total volume of bonds in Swedish kronor.

27 The part payments relate to payments of interest.

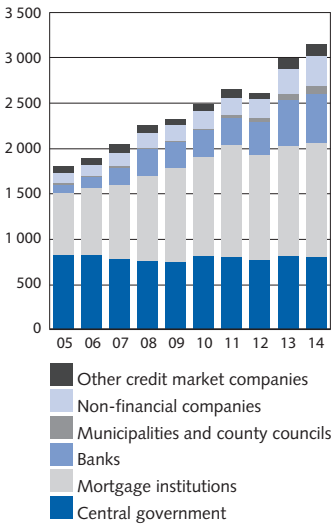
28 It is primarily the banking sector that secures funding in foreign currencies. As a rule, issues conducted in other currencies are converted into kronor via derivatives, primarily currency swaps.

Central government borrowing is used to fund the central government loan requirement.[29] At the end of 2014, the outstanding stock of government bonds amounted to SEK 794 billion – marginally less than in the preceding year (see Chart 5). In recent years, central government borrowing on the bond market has been relatively stable and central government debt corresponded to 36 per cent of GDP at the end of 2014, according to the Swedish National Debt Office.

The Swedish National Debt Office can use what are known as interest-rate swaps (see the section Interest-rate swaps) to meet its target of having a certain average time to maturity for the central government debt. The same principle applies to borrowing in foreign currencies. To meet the target of a certain currency exposure, despite extensive borrowing in Swedish kronor, currency swaps (FX swaps) can be used instead (read more about derivative instruments in the section on the foreign-exchange market.)

The mortgage institutions primarily issue bonds to fund lending to Swedish households in connection with the purchase of housing. The entire stock of mortgage bonds in Swedish kronor now consists of so-called covered bonds.[30] Covered bonds provide the holder with the right to a specific Cover Pool if the issuer should be declared

Chart 5. Issuers in the bond market
SEK billion



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

29 The Swedish National Debt Office manages central government borrowing on the bond market.
30 On 1 July 2013, Finansinspektionen introduced new regulations for covered bonds, see Finansinspektionen's website.

bankrupt.[31] Eight Swedish banks or their mortgage institutions have permits from Finansinspektionen to issue covered bonds.[32] The outstanding volume of covered bonds in Swedish kronor was SEK 1 471 billion and about SEK 500 million in foreign currency at year-end 2014. The mortgage institutions accounted for 80 per cent of the outstanding volume of covered bonds and the banks accounted for the rest. Seen over the longer term, the mortgage institutions' borrowing in the form of bonds has increased, which is due to the banks lending more and more to the households for housing purchases. The mortgage institutions continually issue bonds on the Swedish market for covered bonds at the same maturity and coupon rate. This emission procedure is called on-tap. The market for covered bonds is important and constitutes more than half of the Swedish issuers' long-term market funding.

The banks' borrowing on the bond market increased by about 6 per cent in 2014, compared with 2013. The outstanding volume amounted to SEK 538 billion at the end of the year (see Chart 5).

Municipalities and county councils may also use bonds to fund their operations and their investments. Some large municipalities and county councils can even issue listed bond loans in their own name. In 2014, a total of 280 municipalities and county councils had outstanding bond loans in cooperation with the credit market company[33] Kommuninvest. This is an increase of 20 members since 2010. Over the same period, Kommuninvest increased its lending from SEK 134 billion to SEK 233 billion in 2014. At the end of 2014, Kommuninvest's outstanding Swedish bond programme amounted to SEK 93.7 billion. Kommuninvest's borrowing thus constitutes a significant proportion of the lending in the category "Other credit market companies" in Chart 5. The outstanding amount of issued bonds for this category totalled SEK 136 billion at year-end 2014.

Non-financial companies can also fund their operations by issuing bonds. At year-end 2014, Swedish companies had outstanding bonds in Swedish kronor amounting to just over SEK 330 billion. This was an increase of almost SEK 50 billion compared with the previous year (see Chart 6). Non-financial companies' borrowing on the fixed-income market has increased in recent years and constitutes approximately

31 This Cover Pool consists of various types of mortgages and of loans to central governments and municipalities. More information on the build-up of the collateral stock can be found in the article on covered bonds in The Swedish Financial Market 2012, Sveriges Riksbank.

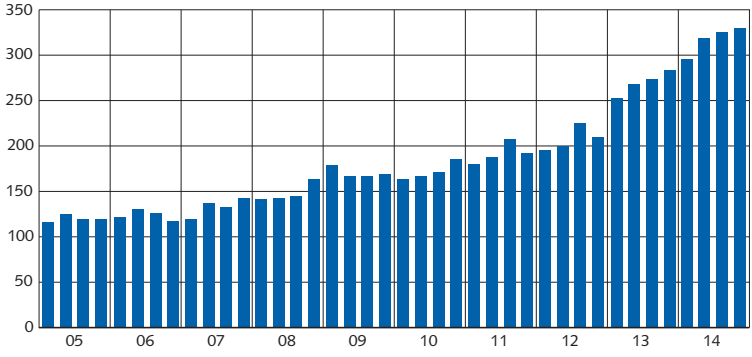
32 The eight institutions are Landshypotek, Länsförsäkringar hypotek, Nordea hypotek, SBAB, SEB, Skandiabanken, Stadshypotek and Swedbank.

33 Credit market companies are finance companies that fund their activities with money from the public. These companies are under the supervision of Finansinspektionen and are covered by the deposit guarantee scheme.

one-fifth of the non-financial companies' loan-based funding. Most of their funding, approximately 70 per cent, is still made up of borrowing from credit institutions, while the remainder comes from intra-group loans.

Large, investment-grade Swedish companies account for most of the issue volumes on the bond market. However, in recent years, the number of companies choosing to issue bonds has increased significantly. Smaller high-yield companies have also begun to turn to the bond market. Consequently, there has been a substantial increase in the proportion of issues by companies that do not have a credit rating. The low interest rates following the financial crisis may be a contributing factor as they have reduced interest costs in absolute figures and increased investor demand for higher-risk assets.[34]

Chart 6. Outstanding volume of corporate bonds in SEK issued by Swedish non-financial companies
SEK billion



Source: Statistics Sweden

34 For further information, see the Economic Commentary Search for yield in a low interest-rate environment, available from the Riksbank's website.

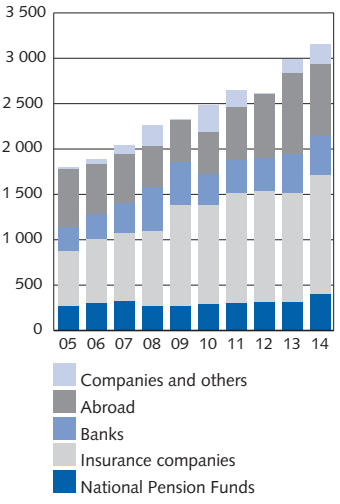
Investors on the bond market

Insurance companies were the category of investors that had the largest holdings on the bond market in kronor at year-end 2014. They accounted for SEK 1 310 billion, which is equivalent to 40 per cent of the total holdings among investors (see Chart 7). The banks' bond holdings amounted to SEK 420 billion at the same date. In 2014, foreign investors[35] reduced their holdings on the bond market by SEK 96 billion, to SEK 800 billion by year-end.

Companies and others[36] increased their bond holdings by SEK 66 billion in 2014. This category had invested about SEK 220 billion in bonds at year-end 2014.

The Swedish bond holdings of the AP funds increased to SEK 406 billion in 2014.

Chart 7. Investors on the bond market
SEK billion



Sources: The National Pension Funds, Statistics Sweden and the Riksbank

35 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.

36 The category "Companies and others" is a heading for residual items in the figures provided by Statistics Sweden on investors in the bond market. It is the difference between the outstanding stock of securities on the bond market and the bond holdings of major investors.

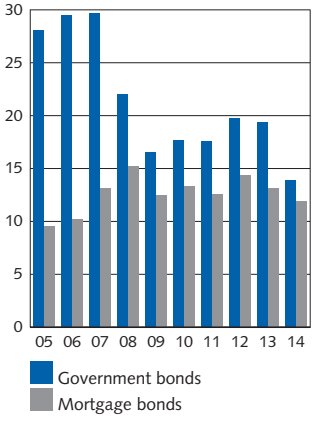
Turnover on the bond market

The total average turnover per day in government and covered bonds was approximately SEK 26 billion in 2014, which is the lowest level noted during the last couple of years (see Chart 8). From a level of almost SEK 30 billion per day in 2005-2007, turnover in government bonds has been below SEK 20 billion a day since 2009. Turnover in covered bonds has been more stable. As a comparison, the average daily turnover in corporate bonds was only SEK 840 million in 2014.

Government bonds are primarily bought and sold on the secondary market. In 2014, almost 98 per cent of all the transactions in government bonds were conducted on the secondary market, while just over two per cent took place on the primary market, that is in the form of issues. Government bonds are the type of debt security that has the highest turnover. This is because these bonds are issued in large volumes and are exposed to low credit risk.[37] Covered bonds also have a relatively good turnover on the secondary market. The turnover in corporate bonds is, on the hand, much lower as investors to a greater extent retain these bonds in their investment portfolios until they mature.

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

Chart 8. Average turnover per day on the bond market
SEK billion



Source: The Riksbank

37 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 is considered to be very sligh.

on Nasdaq OMX Stockholm or NDX (Nordic Derivatives Exchange). Unlike institutional trading, this trading is conducted electronically. The most common private bonds are structured products such as index-linked bonds and subordinated debentures. Even though private bonds are a popular saving strategy among private investors in particular, both the total outstanding volume and turnover of these bonds are minor compared with those of other debt securities.

ISSUES AND THE TRADING STRUCTURE ON THE FIXED-INCOME MARKET

The issuance and trading of securities functions in approximately the same manner in 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.

Issues

Government bonds and treasury bills are 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 seven or eight such dealers, depending on the kind of security being auctioned.[38] 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 current daily prices for the securities issued by the state.

The Debt Office also sells treasury bills continually, 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.

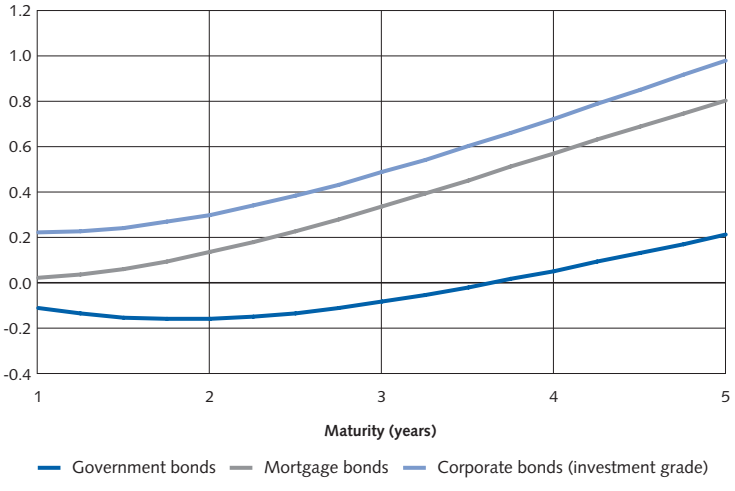
38 For a list of the Swedish National Debt Office's dealers, see the Office's website.

When non-financial companies issue bonds and certificates they often have agreements with one or several banks on loan programmes where they issue securities on predetermined terms and conditions. The proportion of issues made by individual companies has also increased recently. Companies and banks also issue securities abroad that they then convert into Swedish kronor using derivatives.

Alongside the corporate issues aimed at large groups of investors, there is also a market for private placements. These often involve bond loans that are issued in their entirety to one or a small number of investors. The terms are subject to negotiation and the issues are largely designed to meet the wishes of the investors.

When comparing the yields for different bonds, government bonds usually act as the starting point as they have the lowest credit risk and the highest turnover on the market. The yield for covered bonds is usually higher than for government bonds as they have a higher credit risk and are slightly less liquid. To invest in covered bonds the investors therefore require risk compensation over and above the yield received for government bonds at the same maturity. Investors in covered bonds have a prior right to collateral linked to the bond concerned (the so-called cover pool).[39] Corporate bonds, on the other hand, do not have any equivalent underlying assets as protection

Chart 9. Yield curves for Swedish bonds, March 2015
Per cent



Sources: Thomson Reuters and the Riksbank

39 For more information on covered bonds, see The market for Swedish covered bonds and links to financial stability in Sveriges Riksbank Economic Review, 2012 on the Riksbank's website.

Table 1. How different financial instruments are traded on the fixed-income, foreign-exchange and equity markets in Sweden

	FINANCIAL INSTRUMENT	ISSUANCE PROCESS: AUCTION FORM	ISSUANCE PROCESS: CONTINUOUS ISSUE	TYPE OF INTERMEDIARIES	CLEARING OF THE SECURITY	MARKETPLACE FOR TRADING	MATURITY
FIXED-INCOME MARKET	Deposit contracts	–	–	–	B	B	Normally up to one week
	Repos	–	–	–	CCP/B	B	Normally up to two weeks
	Treasury bills	Yes	Yes	MM	B	TP/B	Maximum up to one year
	Commercial paper	No	Yes	LB/MM	B	TP/B	Maximum up to one year
	Mortgage certificates	No	Yes	LB/MM	B	TP/B	Maximum up to one year
	Government bonds	Yes	No	MM	B	TP/B	Maximum up to 30 years
	Covered bond	No	Yes	LB/MM	B	TP/B	Normally up to 7 years
	Corporate bonds	No	Yes	LB/MM	B	TP/B	Normally up to 7 years
	Interest-rate derivatives	–	–	MM[1]	CCP/B	Exchange/ TP/B	Maximum up to 30 years
FOREIGN-EXCHANGE MARKET	FX spot	–	–	MM	B	TP/B	–
	FX derivatives	–	–	MM[1]	B	TP/B	Normally up to 5 years
EQUITY MARKET	Listed equities	Yes	Yes	LG/LF[2]	CCP/B	Exchange/ TP/B	Open maturity
	Non-listed equities	Yes	Yes	–	B	B	Open maturity
	Equity derivatives	–	–	MM	CCP/B	Exchange/ TP/B	Normally up to 3 years
	Exchange-traded funds	No	Yes	MM	CCP/B	Exchange/ TP/B	Open maturity
	Exchange-traded investment products	No	Yes	LG	B	Exchange/ TP/B	Open maturity/ Normally up to 2 years[4]

Note. The table should be read as an indicative comparison of how these instruments are traded on the financial markets, divided into several selected categories.
1. Market makers exist for some of the instruments in the category.
2. Liquidity market makers primarily appear on trading platforms, liquidity facilitators may in certain situations make things easier for customers on exchanges.
3. Some securities become listed equities when the issue phase is completed.
4. Depending on the type of financial instrument.

MM Market maker
B Bilateral
LB Lead bank
TP Trade platform
LM Liquidity maker
LF Liquidity facilitator
CCP Central counterparty

against the credit risk.[40] The yields for corporate bonds are thus generally higher than for covered bonds at similar maturities.

Credit risk and liquidity risk are two important factors that determine the relation between yields for different bond categories. The higher these risks, the higher the yield the bonds usually have. The difference in yield levels is usually referred to as the risk premium. In Chart 9, this is shown as the difference between the different bond categories.

Yields also rise in relation to maturity (the yield curve), which means that the longer maturity a bond has the higher the yield is. Although this is not always the case, it is usually regarded as the norm for debt instruments. This is usually referred to as bonds having a maturity premium. The slope of the yield curve is partly determined by the interest rate development expected in the future. It also reflects the compensation investors require for investing capital over longer maturities. Investments with shorter maturities entail a lower interest-rate risk. Lastly, bonds with different maturities cannot fully replace each other as different categories of investors and issuers are primarily active in specific segments of the yield curve. For example, money market funds primarily invest in bonds with short maturities, while pension funds prefer to make investments with long maturities. This can also affect the slope of the yield curve.

At the end of 2014, short-term Swedish government bonds were traded at negative rates. A similar trend with negative government rates was also seen in various parts of Europe. Trading a bond at a negative rate means that the investor that purchases the bond and retains it until maturity is prepared to pay for the right to own the security. Due to the low global interest rate environment, several governments were able to get paid for borrowing money through government bonds at the end of 2014.

A participant purchasing a bond at a negative rate need not necessarily lose money through this holding. If the rate at which the bond is traded falls further during the bond's maturity, the price of the bond will rise and the investor will then be able to make a profit by selling the holding. In a situation in which inflation is falling faster that the bond rate, a holding of bonds with negative rates could be attractive. There are also other reasons for investors to demand bonds with negative rates, such as rising risk premiums for other, higher-

40 Another difference is that the market for covered bonds consists of a small number of issuers and can be considered to be relatively homogeneous. The number of issuers of corporate bonds exceeds one hundred and the market is more heterogeneous in terms of conditions or agreements for bonds, debt/equity ratio and the like.

risk assets. If there is unease on the financial markets, investors may choose to invest in safer assets at negative yields, such as government bonds, instead of investing in higher-risk assets. In addition, different regulations governing banks and insurance companies, for example, may affect their demand for assets with high credit ratings, regardless of whether these holdings have negative yields.

Trading structure

Trading in government bonds takes place by telephone or using electronic trading platforms. Dealers are banks (or securities companies) that have undertaken in agreements to act as market-makers. This means that they facilitate trading in bonds on the market by quoting bid and ask prices on the secondary market and by, as dealers, bidding for issues on the primary market. Trading by the dealers with their clients, for example industrial enterprises or insurance companies, is referred to as customer trading. The trading that takes place between dealers is usually called interbank trading. Table 1 shows how different financial instruments are traded in Sweden.

A majority of the dealers in government securities are also dealers in mortgage securities, which means that bid and ask prices are quoted daily. Trading in corporate securities is more limited in Sweden but has developed significantly recently. Indicative bid and ask prices for most corporate bonds are presented in electronic trading systems. Trading in these securities still mainly takes place directly between a buyer and a seller (OTC trading). The increased interest in corporate bonds has recently led to the opening of two new marketplaces for these securities, First North Bond Market by Nasdaq OM and Räntetorget.

Sometimes, anonymity is needed in trading. 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.

THE MARKET FOR INTEREST DERIVATIVES

The fixed-income market comprises various types of derivative instruments: 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 or sell an asset at a predetermined price at a certain time in the future. There is a distinction between *futures* and *forwards*. 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 a forward contract is a standardised agreement between two parties which, however, contains certain components that can be customised for the specific transaction.

The most common way to use forwards on the Swedish fixed income market is through IMM-FRA (International Money Market Forward Rate Agreements).[41] These are standardised interest rate forwards that have deposit contracts as the underlying asset and specific maturity dates known as IMM days.[42] The turnover in IMM-FRAs among the Riksbank's primary monetary counterparties averaged SEK 126 billion per day during 2014. The corresponding figure the year before was SEK 148 billion.

Since 2009 there have also been contracts based on the outcome for the Riksbank's policy rate, the repo rate. These are called RIBA futures or Riksbank futures. 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 certain time in the future. 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). Like the FRA contracts, the RIBA contracts are settled on the IMM days.[43] Both of these types are also notional contracts, which mean that the underlying loan sums are not transferred. The turnover

41 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 rate agreed when the contract was signed and the market rate applying when the contract matures.

42 IMM (International Money Market) days always fall on the third non-holiday Wednesday in March, June, September and December.

43 An important difference between the RIBA and FRA contracts is that the RIBA contract known as 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.

in RIBA contracts is not particularly large compared to that in IMM-FRA contracts. In 2014, turnover in RIBA contracts averaged about SEK 11 billion per day, which is half of the turnover in 2013.

Other forwards in the Swedish fixed income market are forward contracts on bonds and on treasury bills. These are binding agreements to buy or sell government bonds, covered bonds or treasury bills at a specified date in the future. Compared with the turnover of IMM-FRAs, the market in bond and treasury-bill forwards is modest. The average turnover in bond forwards with government bonds as the underlying asset decreased between 2013 and 2014 from SEK 19 billion to SEK 15 billion per day. The turnover in forwards with mortgage bonds as the underlying asset decreased to about SEK 5 billion per day over the same period (see Chart 10).

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 certain period of time. For example, one party can choose to pay a fixed rate of interest (swap rate) and, in exchange, receive a variable rate from the other party.[44] As swaps are closely related to forwards, investors may combine them to obtain the yield and risk desired.

Interest-rate swaps with long maturities are referred to by the abbreviation IRS. This entails swapping interest payments for several years, up to a maximum of 10 years. Another type of interest rate swap – with shorter maturities – used in Sweden is called 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 rate.[45] This enables a participant to protect themselves against changes in the variable rate, which in this case is the tomorrow next (T/N) rate.

The daily turnover in Stina swaps among the Riksbank's primary monetary policy counterparties fell from slightly less than SEK 9 billion to SEK 3 billion between 2013 and 2014. The corresponding figures for IRS were just over SEK 34 billion in 2013 and SEK 28 billion in 2014 (see Chart 10).

44 The convention is to always specify the variable rate as the current Stibor rate plus a spread, while the fixed rate is specified as the rate that will provide a net present value of zero at the inception of the swap agreement.

45 Reconciliation takes place in relation to the T/N rate, which is the underlying interest rate in the contract.

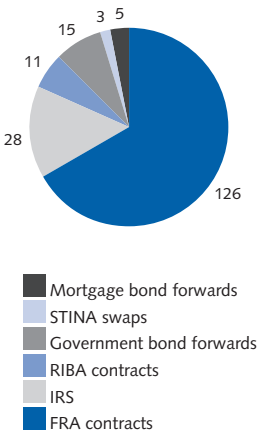
Interest-rate options

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. The Swedish market for interest-rate options has decreased over time.

In Sweden, trade is conducted, for example, in government bond options, where the underlying asset is a government bond. The turnover in government bond options has fallen sharply in recent years and trading in these instruments is small compared to the trade in other fixed-income derivatives. The estimated average turnover per day amounts to only a few million Swedish kronor. Turnover volumes are larger for options with IMM-FRA forwards or interest-rate swaps as the underlying assets.

Every third year, the Bank for International Settlements (BIS) publishes the study Interest rate derivatives market turnover which is based on surveys from individual central banks.[46] The Riksbank's responses to the survey cover turnover volumes for various interest-rate derivatives at the four major banks. The surveys showed that the average daily turnover in interest-rate options in April 2013 was close to SEK 15 billion. Since 2010, turnover had fallen by 37 per cent, measured in Swedish kronor.

Chart 10. Average daily turnover on the interest rate derivative market, 2014
SEK billion



Source: The Riksbank

46 This survey is known as The Triennial Central Bank Survey. More information is available at www.bis.org.

One type of derivative instrument that has instead become more common in recent years is structured products. A structured product is a security that can consist of several different types of financial instrument, for example options, equities and forwards.

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 regulated marketplaces such as equity exchanges. The active trading in the derivative instruments is carried out on a market where a number of dealers set prices by telephone or electronically. Derivatives traded over the counter may either be standardised or tailored to suit the buyer's or seller's requirements outside a regulated marketplace. On exchanges, trading in derivatives is standardised, with known maturity dates and contract sizes. 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. Nasdaq OMX Derivatives Market (NOMX DM) offers the clearing of standardised derivatives, but also of certain semi-standardised instruments and customised derivatives that are traded on the OTC markets. Once the transaction has been recorded in the clearing system, NOMX DM acts as the central counterparty. In connection with this registration, NOMX DM replaces the original contracts with two new contracts and thereby acts as the legal counterparty to buyers and sellers.[47] See Table 1 which shows, for example, how interest-rate derivatives are traded.

The foreign exchange market

What we normally call the foreign exchange market is a worldwide market. It is characterised by trading in large amounts, a large number of participants, low transaction costs and the rapid dissemination of price information. It is an important market with a daily global turnover of tens of thousands of billions of Swedish kronor. The turnover amounts are larger on the foreign exchange market than on the fixed-income market and the equity market.

The Swedish foreign exchange market can be described as 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

47 See also the description in the chapter "The financial infrastructure".

as the trade in all currency pairs that is performed by institutions in Sweden. Consequently, this trade is also described in 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. Foreign exchange derivatives link the fixed-income and foreign exchange markets together. This connection is usually called *covered interest rate parity* (CIP).[48]

FREQUENTLY-USED INSTRUMENTS ON THE SWEDISH FOREIGN EXCHANGE MARKET

The most common instruments in the trade in which Swedish kronor constitute one part can be divided into the categories *spot* and *derivatives*. A description of these is presented below.

Spot

The definition of spot is "a system of trading in which commodities are delivered and paid for immediately after a sale". In the foreign exchange market, a spot transaction means that payment and delivery in a foreign exchange transaction will take place immediately, in practice two banking days after the completion of the trade.

Derivative instruments

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* (FX swaps), *interest rate and cross-currency 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 or sell the currency in the future on a set date at a set price.

48 See, for example, the article on covered interest rate parity in The Swedish Financial Market 2012, Sveriges Riksbank.

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 settlement 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. 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 repos). FX swaps can be classified according to maturity: short swaps with maturities of less than two days (spot) and longer swaps with maturities from spot up to normally one year. Short swaps are normally used to manage liquidity. Longer swaps are pivotal instruments for the banks as they can be used to obtain funding in foreign currency, to adjust the maturity of existing currency positions or to hedge against currency fluctuations. Through their construction, currency swaps reflect the interest rate spreads of different currency pairs.[49]

A cross currency basis swap (or more simply a currency swap) is another type of instrument that is also a combination of transactions. This instrument is an agreement in which one party borrows a currency from another party at the same time as it pays the counterparty an equivalent amount in another currency. In contrast to FX swaps, interest payments for the respective currencies are also swapped during the period of the contract. Interest payments in the different currencies may be specified at fixed or variable rates.[50] When the contract falls due, the same spot rate that the parties paid when the contract was entered into is repaid. Cross currency basis swaps are common, for example, when funding foreign currency investments. They are used by financial institutions as well as their customers. In Sweden, these instruments are usually traded at maturities from one to seven years.

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. 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

49 Foreign exchange rates are stated in pairs, such as USD/SEK, EUR/USD, GBP/SEK and EUR/SEK.
50 For example, interest payments are linked to Stibor for SEK and Euribor for EUR.

exercise the option on the date that the payment falls due. The seller, on the other hand, has an obligation to fulfil the contract if the buyer chooses to exercise the option.

TRADING STRUCTURE AND TURNOVER

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.

When two parties enter into a position over the telephone, the transaction is registered in internal business systems and thereafter the position is checked and payment is made between the institutions. Trading in electronic systems is to a higher degree order-driven[51] and standard transactions do not exist. Foreign exchange derivatives in Swedish kronor only occur in OTC trading (see Table 1, which shows how instruments on the foreign exchange market are traded). Turnover in the Swedish foreign exchange market is described from two separate perspectives at the end of this section.

Interbank trading and customer trading

According to a study[52] by BIS (Bank for International Settlements) 39 per cent of the turnover on the foreign exchange market in April 2013 consisted of *interbank trading*, that is trading between interbank participants. Turnover was in principle unchanged since the latest study in 2010. On the other hand, trade between, above all, dealers and other financial institutions, such as hedge funds, pension companies and insurance companies, has increased in recent years. In 2013, this trade accounted for approximately 53 per cent of the global turnover, according to the BIS survey. Three years earlier, these participants accounted for almost 48 per cent of the turnover.

Interbank trading is often the result of *customer trading*, that is transactions between dealers and customers. Customers are, generally speaking, all participants except 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 a EUR rate. If the bank wants to

51 Order-driven means that submitted orders are automatically matched without the brokers having to contact one another.

52 Report on global foreign exchange market activity.

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 trading using different electronic platforms and systems. Almost all of the spot trade in SEK between the Riksbank's counterparties is performed via electronic systems. This pattern also generally applies to interbank trading in foreign exchange derivatives. 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).

The largest banks often have electronic platforms that they have developed themselves. The platforms for foreign exchange trading are divided into three different categories: single-bank platforms, multi-bank platforms and inter-dealer electronic broking platforms. Single-bank platforms are the banks' internally-developed platforms, which mediate each individual bank's own prices in currency pairs to its customers. Multi-bank platforms instead mediate several market makers' prices. These platforms are also used to a large extent outside the interbank market, which is to say by market participants that are not banks, to provide prices to customers. Inter-dealer electronic broking platforms are seen as the dominant source of interbank liquidity as they mediate information on various market makers' indicative prices.

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 (Continous Linked Settlement) is one example of such a service that offers the settlement of currency transactions (see also the chapter The financial infrastructure).

Some electronic trading takes place in the form of *algorithmic trading*. This is securities trading in which an order is generated by a computer system on the basis of predetermined instructions and parameters. Computers are programmed so that they can carry out an order according to certain codes known as trading algorithms.[53]

53 For a description of algorithmic trading on the foreign exchange market, see Algorithmic trading in the foreign exchange market in the journal Sveriges Riksbank Economic Review (2013:1) on Sveriges Riksbank's website.

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 *hub currency*. By starting from the price for NOK against EUR and for SEK against EUR, a price for SEK against NOK is obtained. This is usually called *cross trading*.

Cross trading is a practical arrangement, as the banks would otherwise need to price SEK against every imaginable currency. On efficient markets, the currency that is used for pricing is unimportant, as long as the transaction costs are low. The reverse, that is inefficient markets, would create opportunities for risk-free profits, known as *arbitrage*. Then the participants would be able to sell SEK at a high price against a currency and buy it back at a low price against another currency.

Unlike in spot trading, derivative trading in SEK against other currencies does not take place using EUR as a hub currency, but USD. Until the end of the 1960s, the hub currency for derivatives trading was the pound sterling (GBP). A number of market conventions applying to foreign exchange trading in SEK are also described in Appendix 2.

Turnover in SEK

There are no comprehensive statistics on turnover in SEK on the foreign exchange market. However, the Riksbank collects turnover statistics from its counterparties concerning foreign exchange transactions in which one side of the foreign exchange transaction is comprised of SEK. At year-end 2014, the counterparties consisted of the four major Swedish banks and a further five larger international players.[54] As an estimate, the Riksbank's counterparties account for about half of the global turnover in SEK.[55]

According to the statistics collected by the Riksbank, average turnover amounted to about SEK 320 billion per day during 2014, which was slightly more than in the previous year (see Chart 11).[56] Of this, the daily turnover in spot transactions averaged around SEK 106 billion per day in 2014.

The turnover in foreign exchange swaps was about SEK 190 billion per day in 2014. The turnover in foreign exchange swaps with maturities from two days to 18 months increased by almost SEK 10

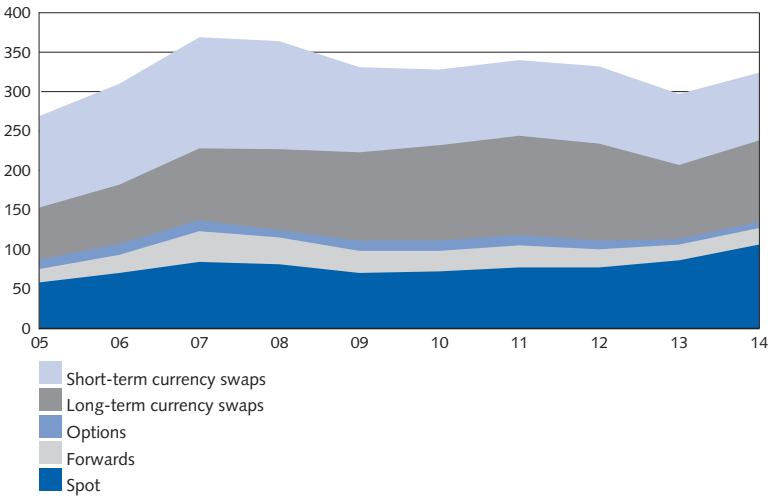
54 More information about the Riksbank's counterparties is available on the Riksbank's website.
55 According to the BIS study The Triennial Central Bank Survey and the Riksbank's turnover statistics for the foreign exchange market (the SELMA database).
56 Only one part of the swap transactions is included in these figures.

billion to SEK 103 billion per day between 2013 and 2014. The turnover in foreign exchange swaps with maturities of up to two days decreased by SEK 4 billion to SEK 86 billion per day over the same period.

The turnover in foreign exchange options among the Riksbank's counterparties increased by SEK 1 billion to SEK 8 billion per day between 2013 and 2014. The turnover in foreign exchange forwards in SEK at the Riksbank's counterparties totalled approximately SEK 21 billion per day in 2014. This represents relatively stable turnover compared with 2013.

The Bank for International Settlements (BIS) is a cooperation body that conducts an investigation into the global foreign exchange and derivatives market every third year. The most recent investigation took place in April 2013, when over 85 per cent of the trade in SEK took place outside Sweden. Banks based in the United Kingdom accounted for 41 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, the Swedish krona and securities issued in SEK are important elements in well-diversified foreign portfolios focused on Europe. Other countries where there is extensive trading in SEK are the United States (17 per cent) and Denmark (9 per cent).

Chart 11. Average turnover per day on the Swedish foreign exchange market
SEK billion



Note. The division into short swaps with a maturity of up to two days and long swaps with a maturity from two days up to 18 months reflects the definition used by the Riksbank when collecting turnover statistics.
Source: The Riksbank

The Swedish krona's share of turnover volume on the global currency markets was about 1.8 per cent in April 2013. Since 2010, the krona's share of turnover has fallen by 0.4 percentage points. The krona has thereby fallen from ninth to eleventh place among currencies with the highest turnover in the world and now lies between the New Zealand dollar and the Russian rouble in turnover. The currencies with the highest turnover were, in order, the US dollar (87 per cent), the euro (33 per cent), the Japanese yen (23 per cent) and the pound sterling (12 per cent).[57]

Foreign exchange trading in Sweden

So far, we have described the Swedish foreign exchange market, defined as all the foreign exchange trading where SEK forms one part 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 was the foreign exchange undertaken in April 2013 by the four major Swedish banks based in Stockholm. According to the survey, Sweden is the world's 18th largest trading venue in foreign exchange. The turnover increased from an average of USD 16 billion per day in 1998 to an average of USD 44 billion per day in 2013.

The currency pair with the highest turnover in Stockholm is EUR/USD. This currency pair makes up 25 per cent of total turnover. The second highest turnover was in USD/SEK, whose share of total turnover was 22 per cent in 2013 (see Table 2). The third largest currency pair was EUR/SEK, whose share of turnover was 14 per cent in April 2013.

Table 2. The six currency pairs with the highest turnover in Stockholm
Per cent

		2004		2007		2010		2013
1	USD/SEK	31	USD/SEK	39	USD/SEK	27	EUR/USD	25
2	EUR/USD	16	EUR/USD	26	EUR/USD	25	USD/SEK	22
3	EUR/SEK	11	EUR/SEK	23	EUR/SEK	18	EUR/SEK	14
4	GPB/USD	5	GPB/USD	2	GPB/USD	3	GPB/USD	9
5	USD/JPY	2	USD/JPY	4	USD/CHF	2	USD/JPY	3
6	USD/CHF	2	USD/CHF	2	USD/JPY	2	USD/CHF	2
	Others	33	Others	4	Others	23	Others	25
	Total	100	Total	100	Total	100	Total	100

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

57 As two currencies are included in each transaction, the total of the individual currencies in the summary amounts to 200 per cent.

The largest single currency traded in Stockholm in April 2013 was not SEK but USD, which formed one part of approximately 74 per cent of all the currency pairs traded. This was followed by EUR (around 47 per cent) and SEK (around 39 per cent).

The equity market

The equity market is also an important part of the financial system. Stock, shares or equity are all terms for ownership in a company (limited company).

As well as issuing bond loans on the fixed-income market or borrowing money from a credit institution (for example), companies in need of capital can issue additional equity. The risks associated with lending to companies mean that companies' funding needs can rarely be fully met by loans alone, at least not at a reasonable cost. Some of these companies therefore meet their capital needs by issuing additional equity that are sold to investors. This takes place on the primary market. Following this, the investors can trade the equities with each other on the secondary market. The equity market, which includes both primary and secondary markets, thereby plays an important part in the conversion of savings into funding. It also provides market-based equity valuations, making it easier for companies to estimate the financing cost of new investment projects as well as giving owners, company management and the general public an idea of how well the company is being managed.

An equity investment essentially gives the shareholder a claim on a company's assets and profits after the company's creditors, for example the company's lenders or bond holders, have received their portion. As the value of this claim is determined by the profitability of the company, equity capital can be regarded as risk capital. However, the shareholders' risk is limited in the sense that they cannot lose more than the amount they have invested in the company. Part of a company's profit is usually distributed directly to the shareholders as dividends, which in Sweden are usually paid out once a year. The remaining profits are added to the company's equity capital. Unlike most loans, an equity does not fall due and the company has no formal commitments to repay the invested equity capital. However, unlike creditors, shareholders have co-determination rights

in the company, as each share conveys a certain voting right at the company's general meetings.[58]

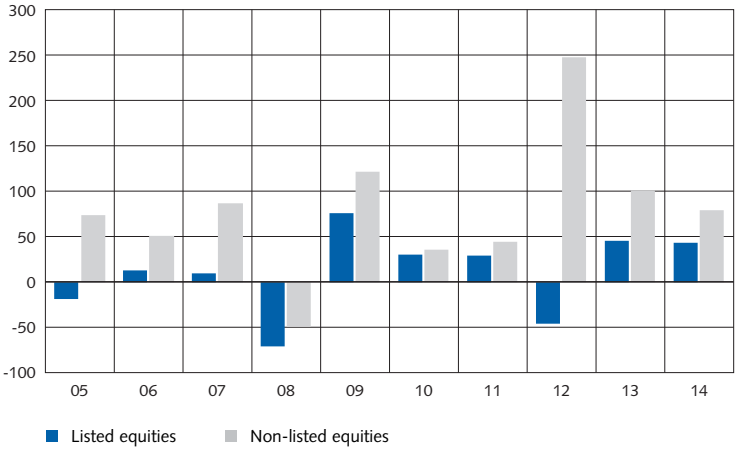
Below follows a description of the Swedish equity market, which we define as the trading in equity and equity-related instruments listed on Swedish marketplaces. Companies based either in or outside Sweden can list equities and equity-related instruments on Swedish marketplaces. Similarly, Swedish companies can list equities and equity-related instruments on foreign marketplaces. However, this section only deals with the trading on Swedish marketplaces.

Initially, we describe the issuers and investors on the Swedish equity market. After this, we describe the equity-related instruments traded on Swedish marketplaces, as well as the role of the marketplaces. The section concludes with a description of trading on Nasdaq OMX Stockholm (which is by far the largest Swedish marketplace) and on other Swedish marketplaces.

ISSUERS

To be a limited liability company, which just less than one-third of all Swedish companies are at present, a company must have equity in an amount of at least SEK 50 000. There are two different types of limited liability company: private and public limited liability companies. These differ in several ways. Becoming a public limited

Chart 12. Net issues of Swedish shares
SEK billion, market value



Note. Net issues refers to new issues of shares minus share buy-backs
Source: Statistics Sweden

58 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.

liability company needs at least SEK 500 000 in equity capital, among other requirements. In addition, only shares in public limited liability companies may be sold to the public and listed for trading on a marketplace. Private limited liability companies may only market their shares to a very restricted circle of investors.

Listed equities are thus shares of ownership in public limited liability companies traded on a marketplace. When a share is listed on a marketplace, it becomes easier to purchase and sell it, at the same time as higher demands are placed on the company as regards reporting and other matters. It is significantly more difficult for investors to sell non-listed equities. However, there are market participants who have specialised in mediating the sale and purchase of non-listed equities. Investments in non-listed equitiesare often channelled through a special form of intermediary known as venture capital companies (see the section on venture capital companies in the chapter on financial intermediaries).

As regards the equity issuance, adjusted for repurchases[59], it can be noted that the new shares issued are primarily unquoted (see Chart 12). This reflects the fact that a company's dependence on equity financing generally decreases when it becomes more established and profitable. It also shows that entrepreneurship in Sweden is dominated by unlisted companies. Only quoted shares will be described in the rest of this section.

INVESTORS

The ownership of Swedish shares is widespread and comprehensive. At year-end 2014, the total market value of the shares listed on Swedish marketplaces amounted to just above SEK 5 000 billion. Foreign investors owned about 40 per cent of this (see Table 3). Since 1996, foreign investors have formed the greatest category of shareholders, and their share has steadily grown. Swedish households' direct shareholdings amounted to about 11 per cent at the end of 2014. However, households also own shares indirectly through investment funds, insurance and pension schemes, meaning that the proportion of shareholdings held by financial companies amounted to slightly less than 28 per cent at the end of 2014.

59 Just as they sell shares to investors, companies can also purchase shares back from investors.

EQUITY-RELATED EXCHANGE-TRADED INSTRUMENTS

In addition to shares, a range of different equity-related instruments are traded on Swedish marketplaces. A description of these follows, divided into the categories equity and equity index derivatives, exchange-traded funds and exchange-traded investment products.

Equity and equity index derivatives

In Sweden, futures and options are traded with individual equities and equity indices as underlying assets. Like interest rate and foreign exchange forwards, an equity future is a contract whereby both buyer and seller have undertaken to buy or sell an underlying asset on a specified future date at a price determined in advance. An equity option is a contract whereby the holder has the right, but not the obligation, to buy or sell an underlying asset at a specified price at or by a specified date. In turn, the issuer of the option has the obligation to execute the transaction if the holder wishes.

Table 3. Holdings of shares listed on Swedish marketplaces, per sector
Per cent

SECTOR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Non-financial companies	8.4	9.0	9.4	9.5	9.1	9.2	12.0	11.5	11.9	12.4
Financial companies										
Banks. finance institutions, etc.	2.8	2.5	2.2	1.6	2.1	2.2	1.8	2.3	1.9	2.2
Investment companies	5.3	5.2	5.6	5.4	5.3	5.4	5.3	5.5	5.4	5.6
Mutual funds	11.8	11.2	10.9	11.4	12.6	12.3	11.9	11.5	11.7	11.8
Insurance companies, pension institutions	8.7	8.1	8.3	9.0	9.1	8.9	8.7	8.3	8.0	8.1
Financial companies, total	28.6	27.0	27.0	27.4	29.1	28.8	27.7	27.6	27.0	27.7
Public sector										
Central government	4.4	4.5	4.5	4.6	4.7	3.8	3.1	2.9	2.0	1.8
Local government	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Social insurance funds	3.5	3.2	3.2	3.5	3.4	3.1	3.3	2.8	2.8	2.6
Public sector, total	8.0	7.8	7.8	8.2	8.1	6.9	6.4	5.7	4.8	4.4
Households	14.8	14.3	13.4	14.5	13.9	13.3	11.2	10.9	10.9	11.1
Non-profit making organisations										
Companies	2.1	2.1	2.0	2.1	1.8	1.6	1.7	1.9	2.2	2.5
Households	2.7	2.7	2.4	2.5	2.5	2.4	2.2	2.2	2.2	1.9
Rest of the world	35.3	37.2	38.0	35.8	35.4	37.8	38.7	40.3	41.0	39.9
ALL SECTORS, TOTAL	100	100	100	100	100	100	100	100	100	100

Note. The major decline in households' equity wealth in 2011 is largely due to the many transfers taking place of shareholdings from the household sector to the non-financial corporate sector.
Source: Statistics Sweden

Exchange-traded funds

Exchange-traded funds are often designed to give the same return as an equity index. They can also be linked to other asset classes such as interest rates, currencies and commodities. The greatest difference between exchange-traded funds and traditional funds (see the section on fund management companies) in Sweden is that investors trade fund units via market makers on a marketplace instead of the issuer of the fund issuing or redeeming them in exchange for cash. In recent years, exchange-traded funds have become increasingly popular, among other reasons because they have relatively low management fees and can be bought and sold quickly compared with traditional funds. To obtain the same return as an equity index (for example), the issuer of an exchange-traded fund usually invests in the underlying shares.[60] Exchange-traded funds are funds in a legal sense, meaning that the investors' money will, in theory, be protected against losses in the event that the fund enters bankruptcy or, for other reasons, encounters difficulties in fulfilling its commitments.

Exchange-traded products

Exchange-traded products are a generic term for a range of different types of investment product traded on Swedish marketplaces. One common denominator is that the return of these products is determined from an underlying asset that could be a share or a equity index, but could also be another asset class such as interest rates, currencies or commodities. Unlike exchange-traded funds, exchange-traded products are not funds in a legal sense and the potential return is guaranteed by the issuer of the product, who also often acts as market maker. There are many different types of exchange-traded products and the names of the instruments vary to an extent from participant to participant.[61]

The types of exchange-traded products traded most frequently are various types of warrants, mini futures and bull/bear contracts, which are all instruments with leverage. Leverage means that the increase or decrease in value of the instrument is greater than the increase or decrease in value of the underlying asset. In their simplest form, warrants resemble normal options and, like options, give the holder the right, but not the obligation, to purchase or sell an underlying

60 They also occasionally instead invest in an optimised basket of shares or in derivative contracts.
61 The industry organisation Setipa (Swedish Exchange Traded Investment Products Association) applies the marketplace NDX's categorisation model whereby about twenty instrument types are divided into four categories: leverage products, participation products, yield enhancement products and capital protection products.

asset at a certain date in the future for a predetermined price. What distinguishes warrants from options is that, as a rule, they are issued by banks and securities companies and by a party other than the issuer of the underlying asset. In addition, market liquidity is guaranteed by market makers, which does not have to be the case for options. Mini futures resemble warrants to a certain extent but have no fixed final date. Furthermore, they can be de-listed from trading if the price of the underlying asset reaches a certain reference level.[62] This is also the case for bull/bear contracts that otherwise differ from the other instruments in that their return is calculated on the basis of the underlying asset's daily percentage return instead of its market value.

MARKETPLACES

Marketplaces have two main tasks: providing assistance to companies wishing to offer shares for sale and administering the technical systems and the regulatory framework that make share trading possible. There are currently two categories of marketplace: regulated markets (including traditional stock exchanges) and trading platforms, which are usually called MTFs (Multilateral Trading Facilities). At year-end 2014, there were two regulated marketplaces in Sweden: Nasdaq OMX Stockholm and Nordic Growth Market (NGM Equity). There were also three MTFs: First North Stockholm, Nordic MTF and Aktietorget. 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. There were an estimated 570 listed public limited companies in Sweden at the end of 2014 (see Table 4). Of these, 279 were listed on a regulated market and 291 were listed on an MTF.

On a regulated market, usually referred to as a stock exchange, companies must comply with the requirements of both Swedish legislation and the specific marketplace. These requirements apply to factors such as the company's size, provision of information and corporate governance.

MTFs are marketplaces run by a stock exchange or securities company which have simpler regulations than a regulated market. MTFs are thus appropriate for use by newer and smaller companies, as the lower requirements make trading less expensive for companies. However, the MTF itself can choose to apply the stricter requirements of the regulated markets.

62 This is generally done to prevent investors from losing more than the amount they have invested.

Regulated markets and MTFs must also adopt regulations that govern information related to trading. Companies intending to trade on these marketplaces must undertake to provide the market with information concerning decisions and events that may influence share prices. The reason for this is that all traders should have the possibility of having access to the same information at the same time. This is intended to create confidence in the market and protect investors. The overwhelming majority of share trading in Sweden is conducted in an electronic trading system at a regulated marketplace or at an MTF. But it is also possible to trade shares outside these. 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. Examples of such trading include trading taking place via telephone, email or chats, for example over the information system Bloomberg. The remainder of the trade conducted outside the system takes place directly between the buyer and the seller (a practice also known as over-the-counter trading, OTC) 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 market value of the shares listed on the marketplace made up 99 per cent of the market value of all listed Swedish shares at the end of 2014 (see Table 4). The following section describes the members of Nasdaq OMX Stockholm, its trading structure and turnover.

Table 4. Swedish marketplaces 2014 (2013 in parentheses)

	NUMBER OF COMPANIES		MARKET VALUE, SEK BILLION	
Nasdaq OMX Stockholm	269	(256)	5 323	(4 826)
NGM Equity	10	(10)	1,5	(1,8)
Aktietorget	129	(119)	14	(13)
First North Stockholm	147	(112)	42	(30)
Nordic MTF	15	(14)	3,0	(2,6)
Total	570	511	5 384	4 890

Sources: Respective marketplace, Statistics Sweden and the Riksbank's own calculations

Members of Nasdaq OMX Stockholm

All trading on Nasdaq OMX Stockholm is conducted through its members. Both large and small investors have to go through one of these members in order to buy or sell shares. The members consist of Swedish securities institutions, i.e. securities companies and credit institutions which are licensed by Finansinspektionen 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 77 share-trading members, 43 of which are remote 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.[63] The trading day begins and ends with an auction which is intended to find the price that provides the largest number of finalised orders for each share. During the trading day, buyers and 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. See Table 1, which, among other things, shows how instruments are traded on the equity market.

Many exchange members provide Internet-based services for placing orders. This can often entail lower transaction costs (for

Table 5. Key figures for share trading on various marketplaces 2014

	NASDAQ OMX STOCK-HOLM	NGM EQUITY	AKTIE-TORGET	FIRST NORTH STOCK-HOLM	NORDIC MTF
Market value, SEK billion	5 323	1.5	13.6	42	3.0
Turnover, SEK billion	3 266	0.4	6.9	34	0.7
Average daily turnover, SEK million	13 115	2	28	135	3
Total number of deals closed during the year, thousand	46 689	41	694	1 514	64
Average amount per deal	69 943	10 231	9 967	22 123	11 052
Average number of deals per day	187 506	164	2 788		258
Rate of stock turnover, per cent	66	31	68	102	34

Note. The rate of stock turnover is the average market value divided by turnover.
Sources: Respective marketplace, Statistics Sweden and the Riksbank's own calculations

63 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.

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.[64] Settlement entails the shares being deregistered from the seller's account and registered on the purchaser's account.[65] 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, which usually takes place three days after the deal is closed. More information about securities settlement is available in the chapter The financial infrastructure.

The electronic trading facilities have provided the possibility of conducting what is known as algorithmic trading on the equity market. Algorithmic trading means automated trading where orders and settlement are managed by computer. Algorithmic trading also covers high frequency trading (HFT), which is algorithmic trading at a high frequency. In only microseconds, the computer (for example) searches a large number of marketplaces and then places its order where the market conditions for a transaction are considered to be best. This type of trading is common on the equity market, but also occurs on other markets, such as the foreign exchange market. Nasdaq OMX Stockholm has estimated that algorithmic trading accounted for approximately 45 per cent of all trading on the exchange in 2011 and that high frequency trading amounted to about 13 per cent of all trading.[66]

Listed companies

At the end of 2014, 269 companies were listed on Nasdaq OMX Stockholm (see Table 4). Companies listed there are presented on a Nordic list, Nasdaq OMX Nordic, which also includes the companies listed on the stock exchanges in Helsinki, Copenhagen and Reykjavik. This has resulted in a harmonisation of the listing requirements in these countries. To be listed, the expected market value of the shares must be no less than EUR 1 million. Among other requirements are that there should be a sufficient number of shareholders and that the company has complete accounting documentation going back at least three years. The company must also show stable profitability or have financial resources to cover operations for at least 12 months.

64 Shares traded on Nasdaq OMX Stockholm and belonging to the Large Cap list are cleared at the central counterparty European Multilateral Clearing Facility (EMCF). More information about central counterparties is available in the chapter The financial infrastructure.

65 If the customer has a custody account at a broker, the transaction is instead registered in the custodian's management account at Euroclear Sweden.

66 More information about high-frequency and algorithmic trading on the Swedish stock market can be found in Finansinspektionen's investigation from 2011, Investigation into high frequency and algorithmic trading.

The Nordic list is divided into three segments according to the market value of the companies: Large Cap, Mid Cap and Small Cap. The Nordic Large Cap segment comprises companies with a market capitalisation of more than EUR 1 billion. Companies with a market value of between EUR 150 million and one billion are placed in the Nordic Mid Cap segment. The segment Nordic Small Cap includes companies with a market value of less than EUR 150 million.

Turnover and market value

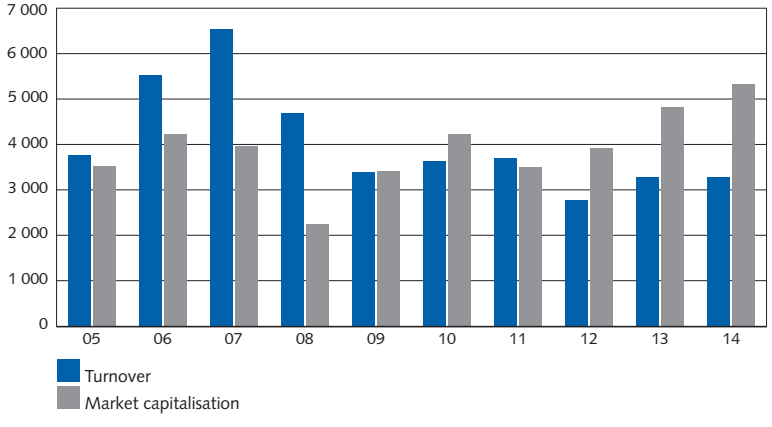
At the end of 2014, the market value of the equity market at Nasdaq OMX Stockholm was SEK 5 323 billion, an increase of 10 per cent compared with the previous year. Turnover amounted to slightly less than SEK 3 300 billion in 2014. This is 50 per cent less than the peak level reached in 2007 (see Chart 13). However, the number of transactions increased over the same period, from almost 25 million to a bit over 46 million (see Table 5). Compared with the bond market, for example, turnover is notably less on the equity market, counted in kronor, but considerably larger when counted in number of transactions.

EQUITY TRADING ON OTHER SWEDISH MARKETPLACES

Regulated markets

In addition to Nasdaq OMX Stockholm, there is one other regulated market for share trading – Nordic Growth Market (NGM). NGM has specialised in small and medium-sized growth companies and offers listing and share trading on the NGM Equity list. At year-end 2014, a total of 10 companies were listed on NGM Equity (see Table 4).

Chart 13. Equity turnover and market capitalisation on Nasdaq OMX Stockholm, SEK billion



Source: Nasdaq OMX Stockholm

MTFs

At year-end 2014, there were three MTFs in Sweden: First North Stockholm, Nordic MTF and Aktietorget. Like NGM Equity, all of these are focused on the trade in shares in small and medium-sized growth companies.

First North is run by Nasdaq OMX. Trading takes place through INET Nordic, the same trading system used by Nasdaq OMX Stockholm. Requirements for trading on First North Stockholm are less stringent than those for Nasdaq OMX Stockholm. However, there is a segment of First north known as First North Premium, in which companies must comply with the same high demands for reporting and information. At the end of 2014, 147 companies were listed on First North Stockholm.

NGM runs Nordic MTF. The electronic trading system provided by NGM is known as Elasticia. NGM is responsible for monitoring the listed companies and the trading in the companies' shares. At year-end 2014, a total of 15 companies were listed on Nordic MTF.

The third Swedish MTF is Aktietorget. Just as with Nasdaq OMX Stockholm and First North Stockholm, trading takes place through the trading system INET Nordic. Aktietorget complies with the general regulations for an MTF, but has in addition its own regulatory framework to protect investors. At year-end 2014, a total of 129 companies were traded on Aktietorget.

TRADING IN EQUITY-RELATED EXCHANGE-TRADED INSTRUMENTS ON SWEDISH MARKETPLACES

The largest part of the trading in equity derivatives on Swedish marketplaces takes place under the auspices of Nasdaq OMX Stockholm. Here, futures and options are traded with shares and equity-indices as underlying assets. Equity index futures are traded the most. Nasdaq OMX also provides clearing for derivatives traded on its marketplaces and for certain derivative contracts that are traded OTC (see the chapter The financial infrastructure).

Trading is also conducted in exchange-traded funds and products under the auspices of Nasdaq OMX Stockholm. However, trade in exchange-traded products takes place to a greater extent under the auspices of Nordic Growth Market (NGM) in the Swedish part of Nordic Derivatives Exchange (NDX Sverige) (see Table 6).

Table 6. Turnover in exchange-traded funds and products in 2014, SEK billion

	NDX SVERIGE	NASDAQ OMX STOCKHOLM	TOTAL
Warrants	6.7	1.0	7.7
Mini futures	7.8	0.1	7.9
Bull/bear contracts	38.0	8.3	46.3
Other instruments	0.4	3.1	3.5
Exchange-traded products, total	52.9	12.6	65.5
Exchange-traded funds	0.0	115.1	115.1

Sources: NGM, Nasdaq OMX Stockholm and the Riksbank's own calculations

Financial intermediaries

This chapter describes the different types of middleman, or intermediary, involved in the financial system. The intermediaries can be divided into various groups:

- Credit institutions, in the form of banks, mortgage institutions and credit market companies, which are important for the supply of credit
- Private equity investment companies that play an important role in the supply of venture capital
- Investors, in the form of insurance companies, fund management companies and pension funds, which take care of large shares of the general public's savings
- Securities companies, which act as brokers and market makers in the financial markets

In this chapter, the intermediaries have been classified by type of institution. The regulation of the financial intermediaries (see the box Central regulations in the financial sector) has also been designed using the type of institution as a basis. Several different kinds of intermediary are often included in one and the same financial group. Table 7 provides an overview of the way in which the business activities have been divided within the six largest financial groups in Sweden.

As the table shows, the groups often include several different types of intermediary such as banking companies, mortgage institutions, insurance companies and fund management companies. The reason behind this kind of organisation is that several major Swedish banks have long sought to provide products and services in the entire financial field.

The groups organise their operations in different ways. For example, two of the six largest financial groups in Sweden have their securities trading businesses in separate subsidiaries. The others have opted to offer these services through their banking arms. There are also financial groups that do not have banking activities as their main operations. For example, there are financial groups that have insurance activities as their main operation, but which also conduct banking operations.

The statistics presented below in this report cover the banks' Swedish operations. They 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 financial market, branches in Sweden and Swedish subsidiaries are included in the statistics.[67] To provide a complete picture of the four largest Swedish banking groups, we present a brief outline of their operations abroad at the end of the section on banks.[68]

However, the 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 size of the operations conducted in the most important categories of financial intermediary.

Table 7. Operations of the major banking groups in Sweden

PARENT COMPANY	BANK	MORTGAGE INSTITUTION	FUND MANAGEMENT COMPANY	SECURITIES BUSINESS	INSURANCE COMPANY	FINANCE COMPANY
Nordea AB	Nordea Bank AB	Nordea Hypotek AB	Nordea Fonder AB	Nordea Investment Management AB	Nordea Liv och Pension AB	Nordea Finans AB
Svenska Handelsbanken AB	Svenska Handelsbanken AB	Stadshypotek AB	Handelsbanken Fonder AB	Conducted by the bank	Handelsbanken Liv AB	Handelsbanken Finans AB
Skandinaviska Enskilda Banken AB	Skandinaviska Enskilda Banken AB	Conducted by the bank	SEB Fonder AB	Enskilda Securities AB	SEB Trygg Liv AB	Conducted by the bank
Swedbank AB	Swedbank AB	Swedbank Hypotek	Swedbank Robur Fonder AB	Conducted by the bank	Swedbank Försäkring AB	Conducted by the bank
Danske Bank A/S	Danske Bank Sverige[1]	Conducted by the bank[2]	Danske Capital[3]	Conducted by the bank	Danica Pension Försäkringsaktiebolag[3]	Conducted by the bank
Skandia AB	Skandiabanken	Conducted by the bank	Skandia Fonder AB	Conducted by the bank	Livförsäkringsaktiebolaget Skandia	–

Note. The above corporate groups do not group their companies according to the table, which is why certain companies may be responsible for more than one line of business. They also have a larger number of companies than shown above.
1 Branch.
2 Realkredit i Danmark is the Danske Bank group's mortgage institution.
3 Common specialised entities.
Sources: The banks' annual reports

67 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. It can therefore be considered as a division with its own administration.

68 See the *Financial Stability Report*, published by the Riksbank twice a year, for a more detailed review of the activities of the major banks.

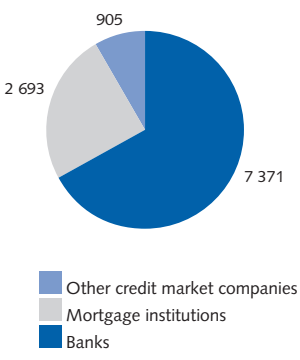
Credit institutions

Credit institutions include banks and non-bank credit institutions, which are to say companies offering loans with a particular focus, such as mortgage institutions (see Table 8). The credit institutions are specialists in assessing and monitoring credit risk thanks to the often long-term relationships they have with their customers, in addition to which they have business experience. They therefore have considerable significance for the supply of capital in the economy.

The banks have long played a key role among credit institutions.[69] One of their most important functions in society is their role in the payment system (see also the chapter The financial infrastructure). Among other services, the banks provide the accounts through which many payment transactions are made plus a number of payment services associated with the transactions.

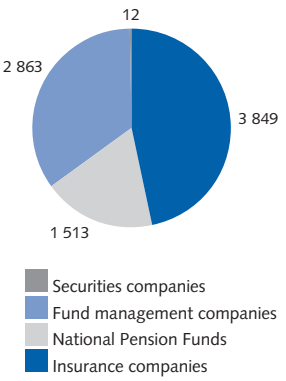
The banks have also traditionally had a monopoly on accepting deposits. These deposits, which can very quickly be converted into cash or used for payments, mean that the banks contribute to the supply of liquidity in the economy. However, the banks' monopoly on accepting deposits was abolished on 1 July 2004, since which credit

Chart 14. Balance sheet totals for Swedish banks, mortgage institutions and other credit market companies at year-end 2014
SEK billion



Source: The Riksbank

Chart 15. Balance sheet totals and investment assets at year-end 2014
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: Finansinspektionen, the AP funds' annual reports and the Riksbank

69 There are also institutes that provide credit and are outside of the traditional banking sector. This is usually referred to as shadow banking. Examples of shadow banking are certain types of money market funds and hedge funds. See also Shadow banking and the Swedish financial system, *Financial Stability Report 2014:1*, Sveriges Riksbank.

market companies have also been allowed to accept deposits from the general public. These deposits, like deposits with the banks, are covered by the Swedish deposit guarantee scheme.[70] Furthermore, subject to certain conditions, other companies may also accept deposits from the public. However, these deposits are not covered by the deposit guarantee scheme.

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 16 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, corresponding to SEK 2 962 billion (see Chart 16). In the Swedish market, the four largest *limited liability banks* together account for 74 per cent of the banks' total assets (see Table 9).

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

A co-operative bank is an economic association established to offer banking services on behalf of its members. The members of the bank are involved in the decisions that affect the bank's activities. Co-operative banks do not have shareholders either; the profits are re-invested in the business and can, to a certain extent, be distributed to the bank's members in the form of a bonus dividend.

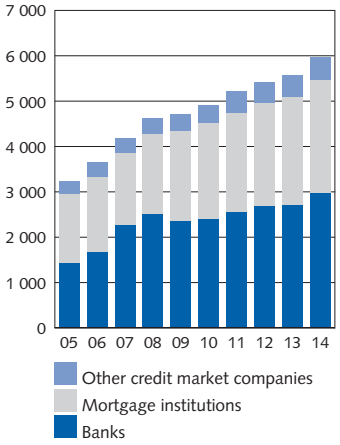
Table 8. Different types of credit institution

Credit institutes	
Banks	**Credit market companies**
Limited liability companies	Mortgage institutions
Savings banks	Other credit market companies (including finance companies)
Co-operative banks	

70 The deposit guarantee scheme aims to protect customers' deposits in accounts up to the amount in Swedish kronor that corresponds to EUR 100 000 per customer and institution.

At the end of 2014, there were a total of 117 banks established in Sweden. These comprised 38 limited liability banks, 48 savings banks, 29 foreign-owned branches and subsidiaries, and two co-operative banks.

Chart 16. Credit institutions' lending 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. This means that the mortgage institution lending statistics do not include all the mortgages taken 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, which was formerly 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' balance sheet totals at year-end 2014
SEK billion

SEB	1 601
Nordea Bank	1 590
Swedbank	1 214
Handelsbanken	1 026
Danske Bank[1]	861
SBAB Bank	157
Länsförsäkringar Bank	126
DNB[1]	95
Landshypotek	82
Skandiabanken	51
Total, 10 largest	6 803
Total, all	7 371

1) Swedish branch of foreign bank
Source: The Riksbank

Creating money

WHAT IS MONEY?

Money is an asset that is generally accepted as

- a means of payment, that is, something that can be used to buy goods or services
- a store of value, something that households and companies can save to use later
- a measure of value, that is, something that can be used to express a price.

The most fundamental role of money is as a means of payment. Previously, all sorts of things, from cattle to precious metals, were used for this purpose, but now we regard banknotes, coins and deposits in bank accounts as money.

For a long time, the issuer of money needed to have a special asset, often gold, which the general public could exchange the money for. This was necessary for the general public to trust in the value of the money. The fact that banknotes and coins had a value in a special asset was called a standard (gold standard, silver standard and so on).

In Sweden, the gold standard was introduced at the beginning of the 20th century when the Riksbank was given the monopoly on issuing banknotes and coins. This was an international exchange rate system based on the participants' currencies being redeemable against gold. The Swedish gold standard was abandoned in 1931 after speculative attacks against the Swedish krona. In 1951, the Swedish krona was pegged to gold again when Sweden adopted the Bretton Woods system, where the US dollar, which in its turn was pegged to gold, acted as anchor for the Swedish krona. During these years, banknotes and coins were thus in effect promissory notes that could be exchanged for other forms of asset or other currencies. The Bretton Woods system collapsed in 1973.

Since 1992, Sweden has had a floating exchange rate. The changeover to a floating exchange rate followed on from speculations that the Riksbank would not be able to redeem Swedish krona against foreign currencies at a fixed exchange rate.

Today, the gold reserve forms a minor part of the Riksbank's assets and the major part instead consists of foreign

currency (the foreign-exchange reserve). The value of Swedish money now relies on the general public's confidence. It is possible to use this money because we members of the Swedish society have agreed to allocate a value to them and we have confidence that they will retain this value. This in turn assumes that we trust that the inflation target will be attained, that is, that inflation will not undermine the value of money. This thus makes it possible to use banknotes, coins and deposits to pay for goods and services and to repay debts.

THERE ARE DIFFERENT MEASURES OF MONEY

There are several different ways of measuring money. Normally, one distinguishes between the money the general public holds and the central bank's supply of money. The general public's holdings can in turn be calculated in different ways, depending on how liquid the money is. What is traditionally referred to as money, that is, banknotes and coins, comprises only a small share of the general public's holdings of money. The larger share is in the form of deposits in the commercial banks. The general public's deposits with the commercial banks are usually known as commercial bank money and this is the measure usually used for the volume of money in Sweden.

Commercial bank money is a relatively broad measure of money. A narrower measure is the central banks' supply of money, known as central bank money.[71] The Riksbank's supply of money covers banknotes and coins in circulation as well as the commercial banks' deposits with the Riksbank.[72]

HOW IS MONEY CREATED?

The Riksbank creates central bank money...

The Riksbank creates money by lending Swedish krona to the commercial banks. Increased lending by the Riksbank means that the asset side of the Riksbank's balance sheet increases. This automatically leads to an increase on the

71 Central bank money can also be called the monetary base. The definition of the monetary base may differ from one country to another.

72 The commercial banks' deposits with the central bank are also known as reserves. The reserves are reported on the liability side of the Riksbank's balance sheet as fine-tuning transactions, outstanding Riksbank Certificates and funds in the deposit facility. Outstanding banknotes and coins are also reported on the Riksbank's liability side.

liability side too, either through an increase in the volume of banknotes, or through an increase in the banks' deposits with the Riksbank. The amount that the commercial banks hold in the central bank depends on how much money the general public demands. However, in the short run, the general public's demand for banknotes and coins does not change.

One way or another, the lending will come back to the Riksbank through the banks' deposits, which reflect the fact that the system is closed. What this means is that if the Riksbank lends to a bank that in its turn lends to a household, which in its turn uses the money to buy a home, these funds will eventually be deposited in a bank that in its turn deposits the funds in an account with the Riksbank.

The Riksbank's lending to the banks takes place against collateral or through the Riksbank buying Swedish securities from the banks. However, the Riksbank does not lend an amount fully corresponding to the nominal value of the collateral. This in order to reduce the risk of losses if a bank is unable to repay the loan for some reason. Instead, the Riksbank makes a haircut for each type of collateral it accepts. The collateral mainly consists of Swedish government securities, but so-called covered bonds can also be used.

... the public withdraws banknotes and coins

Members of the public access banknotes and coins when they withdraw cash from their accounts. Please note that this does not mean that the total volume of money changes; merely that the percentage of banknotes and coins increases at the same time as the percentage of deposits in banks declines. The Riksbank does not govern how much cash is in circulation in society. This is instead determined by demand from the general public.[73] Figure 1 shows a simple example of this. At the outset (A), Customer A has SEK 100 in a bank account at Bank A. Customer A then decides to withdraw his money (B). If Bank A does not have banknotes and coins in stock, it must buy banknotes and coins from the Riksbank. The Riksbank then has a claim on Bank A at the same

73 Read more about banknotes and coins on the Riksbank's website.

time as the Riksbank's liabilities side increases by the amount of the banknotes and coins now in the hands of the public (Customer A). The result can be seen under (C). The Riksbank's balance sheet has increased, Bank A has a debt to the Riksbank instead of deposits on the liabilities side and Customer A now has banknotes and coins instead of deposits in his account.

The commercial banks increase the money supply

In Sweden, the money supply is mainly increased by the lending of the commercial banks. This is illustrated in Figure 2. It is assumed that there is only one commercial bank in the system, Bank A. Customer A is granted a mortgage of SEK 100 for an apartment. The money is deposited in Customer A's

Figure 1. The public withdraws cash

A

The Riksbank	*Asset*	*Liability*
Banknotes and coins		0
Claim Bank A	0	

Bank A	*Asset*	*Liability*
Asset	100	
Deposit Customer A		100

Customer A	*Asset*	*Liability*
Money in account Bank A	100	
Liability		100

B

The Riksbank	*Asset*	*Liability*
Banknotes and coins		+100
Claim Bank A	+100	

Bank A	*Asset*	*Liability*
Deposit Customer A		-100
Liability to the Riksbank		+100

Customer A	*Asset*	*Liability*
Money in account Bank A	-100	
Banknotes and coins	+100	

C

The Riksbank	*Asset*	*Liability*
Banknotes and coins		100
Claim Bank A	100	

Bank A	*Asset*	*Liability*
Asset	100	
Liability to the Riksbank		100

Customer A	*Asset*	*Liability*
Banknotes and coins	100	
Liability		100

Figure 2. The commercial bank's lending

A

Customer A	*Asset*	*Liability*
Deposit account Bank A	+100	
Liability Bank A		+100

Bank A	*Asset*	*Liability*
Mortgage	*+100*	
Deposit Customer A		+100

B

Customer A	*Asset*	*Liability*
Deposit account Bank A	-100	
Apartment	+100	
Liability to Bank A		100

Bank A	*Asset*	*Liability*
Mortgage	100	
Customer A account		-100
Customer B account		+100

B

Customer B	*Asset*	*Liability*
Deposit account Bank A	+100	
Apartment	-100	

= New money
(which increase the money supply)

account at Bank A at the same time as the loan creates an asset in the form of a mortgage on the bank's balance sheet. Customer A now has an asset in the form of a deposit with Bank A and a liability to Bank A in the form of a loan. The money that is loaned to Customer A will now be counted as part of the total money supply as it is owned by the public: there is new money in the system (A). When the time comes for Customer A to pay for the apartment, the money is transferred to Customer B's account in Bank A as payment for the apartment. It will now be visible on Bank A's liabilities side. The deposit from Customer B in this way funds the loan to Customer A.

If the assumption is instead that there are more banks and that Customer B is customer at a different bank, Customer B will deposit the money in Bank B. This means that Bank A will lack funding for the mortgage and must therefore borrow money from Bank B at the end of the day as Bank B will have a surplus.

This, in turn, means that there must be an effective interbank market on which Bank A can borrow money from Bank B.[74]

However, this does not mean that the banks can endlessly increase the money supply – they cannot lend unlimited amounts of money. Lending is limited by several factors. The first is that there is not an unlimited number of creditworthy borrowers in the economy. If the banks lend money to non-creditworthy borrowers, they risk exposing themselves to losses, what is known as credit risk. They also risk being called into question by investors and thus experiencing problems with funding. The second is that that the banks wish to hold a certain amount of liquidity in reserve so that they do not suffer a liquidity crisis as soon as someone makes a withdrawal from an account. Lending is also dependent on the public demand for cash. The more of the money supply that is in cash, the less money the banks will have to lend to new borrowers. The banks are also subject to capital adequacy requirements, which mean that for every krona they lend they need to retain a certain amount of capital.

74 Read more about the overnight market and how it works on the Riksbank's website.

The banks' assets and liabilities

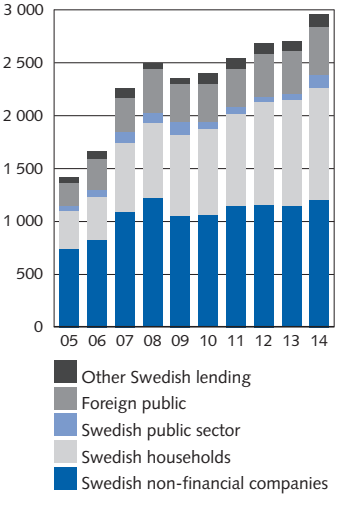
The banks' assets consist for the most part of loans to the public in Sweden and abroad. At the end of 2014, lending to the public in Sweden and abroad totalled SEK 2 962 billion, corresponding to around 39 per cent of the banks' total assets (see Charts 17 and 18).

41 per cent of this lending went to Swedish non-financial companies and 35 per cent to Swedish households. About 15 per cent of the lending was to the foreign public.[75] The remaining 9 per cent consisted of lending to the Swedish public sector and other Swedish lending.

In addition to lending to the public, the banks also have large claims on Swedish and foreign monetary financial institutions.[76] Together, these claims comprised around 28 per cent of the banks' assets (see Chart 18). In addition, around 12 per cent of the assets consisted of debt securities.

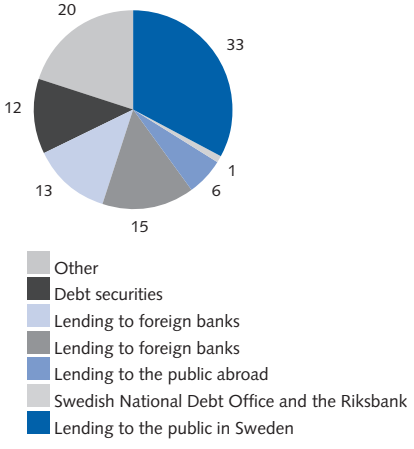
The largest item on the liabilities side of the banks' balance sheets is deposits from the public in Sweden and abroad. In 2014, these deposits constituted 36 per cent of the banks' total liabilities (see

Chart 17. The banks' lending to the public by borrower category
SEK billion



Source: The Riksbank

Chart 18. The banks' assets at year-end 2014
Per cent



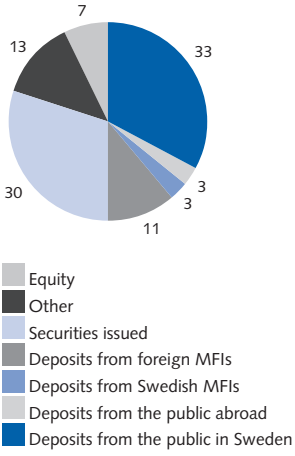
Note. Claims on the Riksbank amounts to 0.18 per cent of total assets. The corresponding figure for the Swedish national debt office is 0.95 per cent.
Source: The Riksbank

75 This represents only a small part of the Swedish banking groups' lending to the public abroad. The remainder is thus comprised of the bank's foreign subsidiaries (see the introduction to this chapter).
76 The monetary financial institutions include other banks, finance companies and securities companies.

Chart 19). Swedish households accounted for about 53 per cent of this and Swedish non-financial companies for about 28 per cent (see Chart 20). Around 8 per cent of the deposits came from the public abroad. The banks' liabilities otherwise consist of their wholesale funding. These liabilities include both deposits from Swedish and foreign monetary financial institutions and liabilities in the form of securities issued. The banks' equity only constitutes a minor part of total assets.

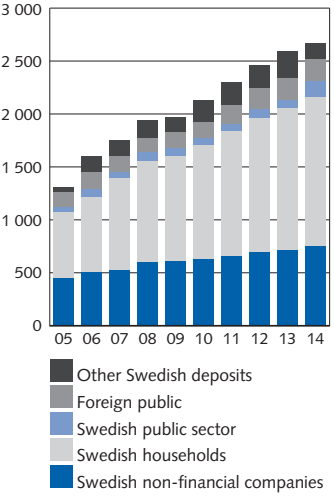
In addition to the liabilities in the balance sheet, banks may also have off-balance sheet commitments. Typical off-balance sheet items are certain derivatives, guarantees and commitments. The common factor for these items is that the bank, as yet, does not have a real and quantifiable liability. That is, there is uncertainty regarding whether the bank's commitments will actually result in a liability, when any such liability will occur, and the total amount involved.

Chart 19. The banks' liabilities and equity at year-end 2014
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, branches in Sweden and Swedish subsidiaries are included.
Source: The Riksbank

Chart 20. The banks' deposits from the public by depositor category
SEK billion



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, branches in Sweden and Swedish subsidiaries are included.
Source: The Riksbank

Why and how are the banks regulated?

The fundamental functions of the financial system are mediating payments, converting savings into investments, and managing risk. In Sweden, it is mainly the banks that provide these functions, which means that they play an important role in ensuring the economy functions smoothly.

Banks are vulnerable as they convert short-term funding into long-term lending, which creates an imbalance between illiquid and long-term assets and short-term liabilities. As long as the general public and the market have confidence in a bank, this imbalance is not a problem, but if a bank's ability to pay its debts were to be called into question for some reason, for instance as a result of major loan losses or if there was insufficient information available to assess the bank's financial strength, it might lose its funding. Traditionally, this is referred to as a bank run, that is, the depositors want to withdraw their money at the same time. But as banks now largely obtain funding on the financial markets, the greatest risk is that market agents will be unwilling to renew their loans or purchase their securities. In this case, a bank would risk having insufficient liquidity to manage its operations and might therefore need to default on payments. Moreover, if one bank suffers problems, there is a considerable risk that the problems will spread to other banks, as the banks are closely interlinked. This is because the banks borrow from one another or trade with one another to a great extent. The combination of inherent vulnerability and the interlinking with other banks gives rise to what is known as systemic risk, that is, the risk of a shock to the entire financial system.

To increase the banks' resilience to problems and thereby reduce the risk of a financial crisis, the banks are subjected to special regulations. These regulations require that the banks have sufficient capital and liquidity as a buffer against potential loan losses and liquidity problems. If a bank has sufficient capital to manage losses and sufficient liquidity to withstand liquidity problems, the risk that this bank will go bankrupt

decreases. This in turn means that confidence in the bank increases and thus facilitates access to financing.

The banking system is primarily regulated on the basis of the so-called Basel regulatory framework, a series of international agreements (accords) on banking regulations. This framework is not in itself legally binding, but the member countries have agreed to implement the regulations in their national legislation. The first agreement, Basel I, was signed in 1988, but since then the regulations have been revised on several occasions. The most recent agreement is the Basel III Accord, which entered into force in 2014.[77] Basel III has been designed as a result of the global financial crisis in 2007-2009 and aims to further tighten regulations to strengthen the banks' resilience to losses and liquidity stress and thereby reduce the probability of financial crises. Like the Basel II Accord, Basel III covers three pillars. Pillar 1 stipulates the lowest level of equity capital a bank must have. Pillar 2 manages supervision and risk assessment, for instance, special capital requirements are applied to individual banks for the risks not covered by the first pillar. Pillar 3 concerns disclosure requirements so that market participants can more easily understand what risks a specific bank takes. Unlike the previous regulations, Basel III introduced a stricter definition of capital under which a bank's capital base must consist to a greater extent of pure equity capital. In addition, further capital buffers may be required on top of the basic capital requirement. The new regulations also include measures to reduce the risk that the banks will suffer a liquidity shortage, for instance, due to lack of confidence. These measures are the LCR (Liquidity Coverage Ratio), which stipulates that the banks must have sufficiently large liquidity buffers to be able to manage their obligations for at least 30 days, and the NSFR (Net stable funding ratio), which ensures that the maturity differences between a banks' financing and its lending are not too large.

77 Basel III will be implemented in the EU via CRR/CRD IV (Capital Requirements Regulation and Capital Requirements Directive IV).

The major Swedish banks' foreign operations

The four major banking groups (Handelsbanken, Nordea, SEB and Swedbank) also conduct a significant part of their operations outside of Sweden. Around 47 per cent of the major banking groups' lending to the public is lending to the public abroad. This in turn means that a large share of the banks' risk is abroad.

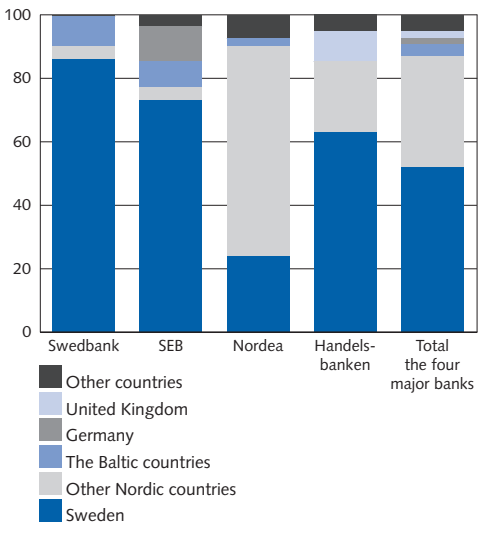
Nordea is the bank undertaking the largest proportion of lending to borrowers outside Sweden. About 76 per cent of Nordea's lending is to the general public abroad; only a minor portion refers to the Swedish public. The other three major banking groups have their largest markets in Sweden and an average of one quarter of their operations abroad (see Table 10). Chart 21 shows the geographical distribution of lending in each major banking group at year-end 2014.

Table 10. Operations of the four dominant banking groups on the Swedish financial market at year-end 2014
SEK billion

	HANDELS-BANKEN	NORDEA	SEB	SWEDBANK	TOTAL, FOUR MAJOR BANKS
Total assets	2 817	6 092	2 651	2 052	13 612
Loans to public, of which:	1 696	3 275	1 332	1 325	7 628
– loans to Swedish public	1 126	781	972	1 141	4 021
– loans to the public abroad	570	2 493	359	184	3 607

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

Chart 21. Geographical breakdown of the major banks' lending 2014
Per cent

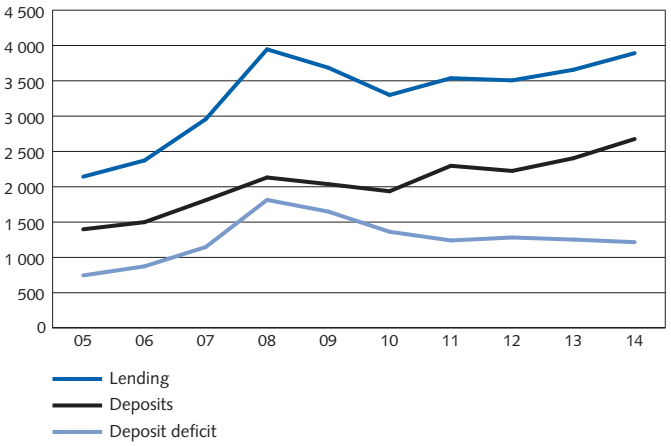


Sources: Bank reports and the Riksbank

Around 69 per cent of the lending abroad is financed through deposits from the public. Chart 22 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 is not funded by deposits in the same currency and accordingly has to be funded in some other way. In other words, the deposit deficit shows the banks' dependence on wholesale funding in foreign currencies. At the end of 2014, the deposit deficit in foreign currency amounted to around SEK 1 216 billion, which corresponds to 31 per cent of the lending in foreign currency.

Wholesale 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' funding may differ, depending on whether they have a centralised or decentralised funding strategy. To a large degree, Swedish banks have a centralised funding model, where liquidity management is carried out as a central function and the parent company holds a liquidity reserve. Foreign subsidiaries which are dependent on market funding usually obtain liquidity through the parent company, which in turn borrows on the global securities market.

Chart 22. The four major banks' deposits and lending in foreign currency
SEK billion



Note 1. Deposit deficit = lending minus deposits
Note 2. As the chart refers to the overseas operations, it only shows the deposit deficit in foreign currency. The total deposit deficit amounted to around SEK 3 300 billion at the end of 2014.
Source: Bank reports and the Riksbank

MORTGAGE INSTITUTIONS

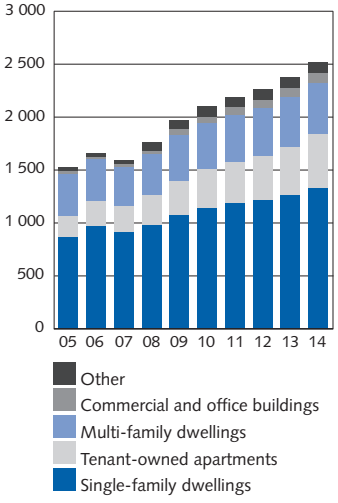
The *mortgage institutions* belong to the credit market companies' category and their main task is to fund the purchase of property, primarily homes. Loans are secured mainly by legal charge on real property or municipal sureties. State credit guarantees are also used. Lending by mortgage institutions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

Table 11. Mortgage institutions' total assets and lending at year-end 2014, SEK billion

	BALANCE SHEET TOTAL	LENDING
Swedbank Hypotek	917	879
Stadshypotek	908	816
Nordea Hypotek	491	475
AB Sveriges säkerställda obligationer	229	218
Länsförsäkringar Hypotek	148	126
Total	2 693	2 513

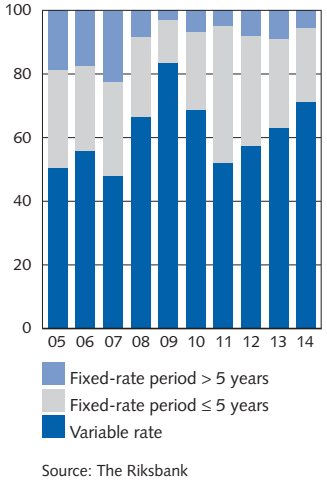
Note. Frispar Bolån is partly owned by SBAB, Sparbanken Öresund and Sparbanken Syd. AB Sveriges säkerställda obligationer is a fully-owned subsidiary of SBAB.
Source: The Riksbank

Chart 23. Mortgage institutions' lending to the public SEK billion



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

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



Source: The Riksbank

There are, in all, six mortgage institutions in the Swedish market. The three largest institutions are part of banking groups and together account for about 86 per cent of the mortgage institutions' total assets (see Table 11). At year-end 2014, lending by the mortgage institutions to the public amounted to SEK 2 513 billion. Lending with single-family dwellings and multi-family dwellings as collateral comprised the largest part – about 72 per cent (see Chart 23). The rest consisted of lending with owner-occupied apartments and commercial and office buildings as collateral.

Interest rates on loans from mortgage institutions can be fixed, for different terms, or variable. The choice of fixed-interest period is affected, for instance, by customers' expectations regarding the development of short-term and long-term interest rates. In 2014, the proportion of new loans granted at variable rates was 71 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 almost 6 per cent and 23 per cent respectively of total new loans (see Chart 24).

The distribution of the various fixed-interest periods in the mortgage institutions' total loan stock has varied over the most recent ten-year period. Over this entire period, the percentage of fixed-rate loans for over five years has declined, while loans at fixed rates for terms of five years or less and variable-rate loans have increased. During 2014, loans at variable rates have increased in particular.

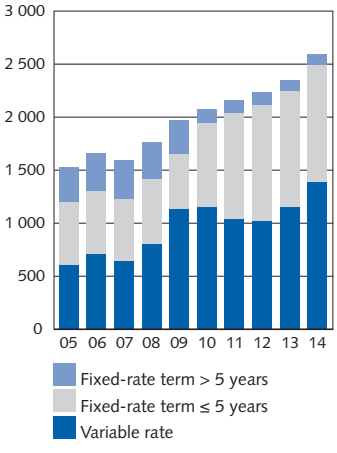
At the end of the year, 53 per cent of the total consisted of variable-rate loans, while 43 per cent of the total consisted of loans at fixed rates for terms of up to five years and 4 per cent of the total consisted of loans at fixed rates for terms exceeding five years (see Chart 25).

Their borrowing is obtained primarily from large asset managers, such as the insurance companies, the banks and the AP funds. 26 per cent of this funding is in foreign currencies. The rest of the funding by the bank-owned mortgage institutions primarily consists of loans from their parent bank.

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 the Fixed-income market and the box How do the banks finance a mortgage?).

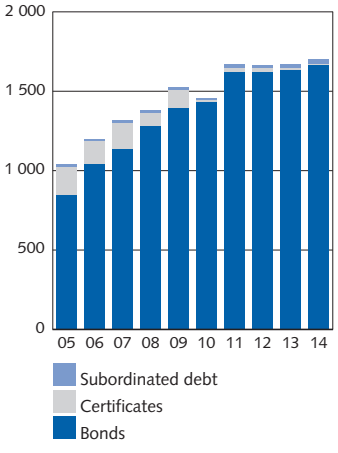
At the end of 2014, long-term borrowing amounted to SEK 1 687 billion, out of which 1 662 billion was covered bonds and 25 billion was subordinated debt. Short-term borrowing through certificates amounted to only SEK 10 billion (see Chart 26).

Chart 25. Mortgage institutions' loan stock per original fixed-term rates
SEK billion



Source: The Riksbank

Chart 26. Securities issued by mortgage institutions
SEK billion



Source: The Riksbank

How do the banks finance a mortgage?

When a bank issues a mortgage, it needs to fund this loan. The Swedish banks do this mainly by issuing so-called covered bonds.[78, 79, 80] Normally, a mortgage granted to a Swedish household has a maturity according to the loan agreement of between 30 and 50 years. A bank will usually fund a mortgage by issuing a covered bond with an average maturity of four years. The bank then pays a fixed interest rate to the investor, as investors usually prefer bonds that provide known payments.

The banks' financing of mortgages creates an interest rate risk

If the household has a fixed interest rate, the bank can match the interest rate payments from households to the interest payments it makes to the investor in the bond (see Figure 3). If, on the other hand, the household has chosen a variable interest rate (which is to say an interest rate that is adjusted every third month), the interest rate that the household pays to the bank will not match the fixed interest rate that the bank pays to the investor. If interest rates were to be changed in a way unfavourable to the bank, the bank would receive a lower amount from the household than it would pay to the investor. In other words, the bank runs what is known as an interest rate risk.

Swap contracts reduce interest rate risk

To insure themselves against this risk, the bank usually signs a so-called swap agreement (interest rate swap), where the variable interest rate from the household is converted into a fixed interest rate that it pays to the investor in the bond.

Figure 4 illustrates, in three steps, how a bank funds a variable-interest rate mortgage with the help of a covered bond in Swedish kronor with a maturity

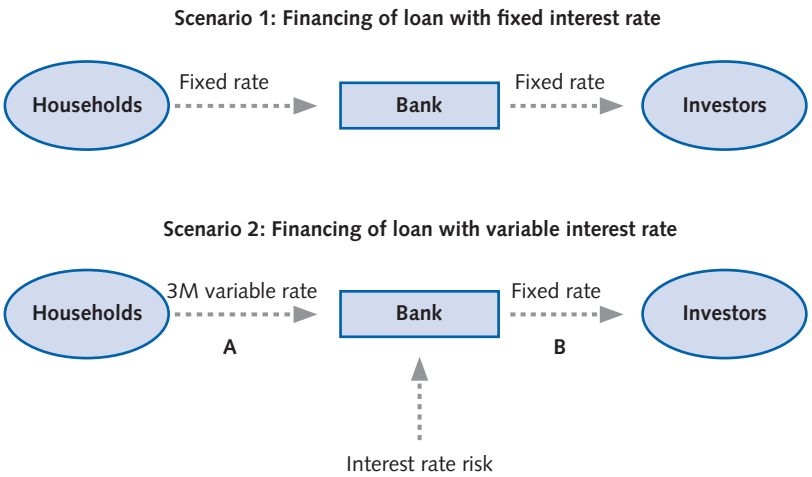
78 A secured bond is guaranteed by the bank that issues it. In addition, the bond is guaranteed by specific assets (usually mortgage loans) that pass to the holder of the bond in the event that the bank fails.
79 The banks also finance the mortgages to some extent with deposits from the public and with unsecured bonds.
80 For a description of covered bonds, see: *The market for Swedish covered bonds and links to financial stability* in the publication Sveriges Riksbank Economic Review (2013:2), Sveriges Riksbank.

of four years. The example is based on the way that the four major banks, on average, usually fund their mortgages.

A household with a mortgage with a maturity of 40 years pays a variable interest rate corresponding to the three-month interbank rate plus 2 percentage points (A).[81] The bank pays a fixed interest rate of 4 per cent to the investor who has purchased the covered bond (B). The variable interest received by the bank from the household thus needs to be converted to a fixed rate via a swap contract. The swap contract involves the bank entering into a contract with a third party (a counterpart) to exchange the variable interest rate for the fixed interest rate over the maturity of the bond. The bank thus pays the three-month interbank rate and receives a fixed rate of 3 per cent from the counterparty (C).

If the bank's various flows are totalled, its funding cost becomes the three-month interbank rate plus 1 percentage point. In a swap contract, the

Figure 3. Illustration of how a bank matches interest rate flows from customers to interest rate flows to investors



Source: The Riksbank

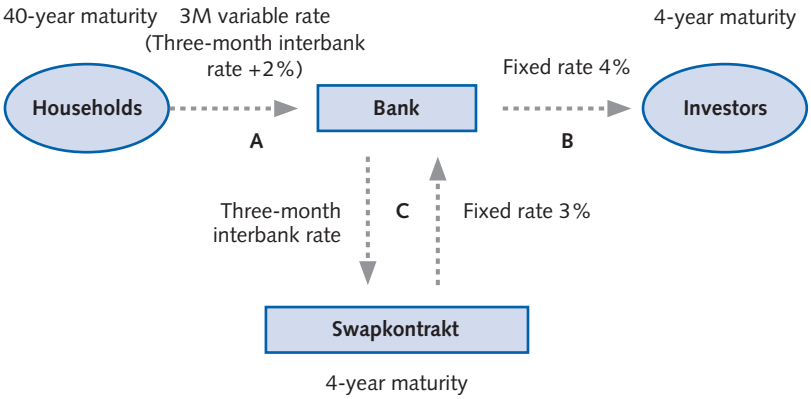
81 This means, in theory, that the loan shall be paid back after a longer time than at the end of this period. The maturity for the loan contract is not the same as the fixed-interest period. This refers to how long the interest rate is fixed for, if the household has chosen a fixed interest rate. In Sweden, the average length of time for fixed interest rates has been around 1.4 years since 2005.

bank pays the three-month interbank rate and receives a fixed rate of 3 per cent. After this, 4 per cent is paid to the investor, which leads to the net cost being the three-month interbank rate plus 4 percentage points minus 3 percentage points, which corresponds to the three-month interbank rate plus 1 percentage point. This is the bank's cost for funding a mortgage. The cost of one percentage point above the three-month interbank rate thus arises because the bank has secured its own funding for four years instead of only borrowing money for three months. As the bank receives a variable rate corresponding to the three-month interbank rate plus 2 percentage points from the household, at the same time as it is borrowing at the three-month interbank rate plus 1 percentage point, the bank's gross margin on the mortgage is 1 percentage point.[82]

Swap contracts reduce exchange rate risk

The Swedish banks also finance mortgages in Swedish krona with foreign currency. This means that the bank, apart from protecting itself against interest-rate risk, must also protect itself against the currency risk that arises when the funding is in one currency and the asset (the mortgage) is

Figure 4. Example of how the interest-rate flow from a mortgage with a three month interest rate is converted to a fixed rate via a swap contract



Source: The Riksbank

82 The gross margin constitutes the difference between the bank's lending rate and its funding cost.

in another. The bank normally does this by signing a contract (FX swap) in which the foreign currency is exchanged for Swedish krona over four years. In this way, the bank protects itself against any loss resulting from exchange rate risk.[83]

83 Read more about the foreign exchange market in Short-term funding in foreign currency by major Swedish banks and their use of the short-term currency swap market, Economic Review 2014:1, Sveriges Riksbank.

OTHER CREDIT MARKET COMPANIES

Other credit market companies include *finance companies* and *corporate- and municipality-financing institutions*. At year-end 2014, lending by these institutions comprised eight per cent of total lending by credit institutions. Just over 10 per cent of the total assets of SEK 904 billion is attributable to the finance companies linked to the four major banking groups (see Table 12). Outstanding loans to the public by other credit market companies amounted, at the end of 2014, to SEK 502 billion (see Chart 27). Of these loans, about 36 per cent were made to Swedish companies, while 13 per cent went to Swedish households, 31 per cent to the public abroad and 20 per cent to the Swedish public sector. There are 41 companies categorised as other credit market companies on the Swedish market, of which 30 are finance companies. The remaining companies are corporate- and municipality-financing institutions, monetary securities companies and monetary investment funds.

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 funding. They offer, for example, leasing[84] and factoring[85] services to corporate customers and promissory note loans and credit card

Table 12. The ten largest institutions in the category other credit market companies, balance sheet totals at year-end 2014
SEK billion

Kommuninvest i Sverige	337
Svensk Exportkredit AB	323
Handelsbanken Finans	46
Nordea Finans Sverige AB	45
Volkswagen Finans Sverige AB	26
Wasa Kredit AB	15
Hoist Kredit AB	14
Entercard Sverige AB	10
Toyota Material Handling Europe Rental AB	9
Klarna AB	7
Total, 10 largest	832
Total	904

Note. Excluding the Swedish institutions' overseas operations conducted through branches abroad, and their foreign subsidiaries.
Source: The Riksbank

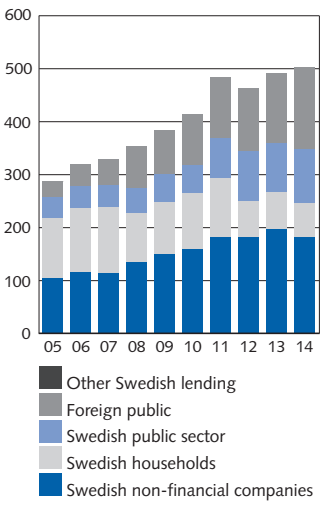
84 Leasing is a way for companies or private individuals to obtain funding for, for instance, a vehicle by hiring it over the longer term from a leasing company. In this way, it is not necessary to pay the entire purchase price in one go, but the vehicle can still be fully used.
85 Factoring can either 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.

accounts[86] to households. 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. One such institute is Svensk Exportkredit (SEK), a mainly state-owned company. SEK is charged with the task of fostering growth in the Swedish export industry. In addition, Kommuninvest i Sverige AB was established by a number of municipalities and county councils. Its purpose is to arrange 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.

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



Source: The Riksbank

86 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.

Private equity investment companies

The term private equity is often used to describe investments in unlisted companies with an active owner role. Such companies often entail higher risk, which means that banks do not normally invest in them. Instead, established companies that are not yet ready for listing on the stock exchange or other forms of public trading in their shares can 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 differ from other financiers in that they frequently play an active owner role in the companies in which they invest.

Private equity investment companies thus invest in unlisted companies in the form of equity. The investments are usually called *private equity*[87] and 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.

These 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.

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. At the beginning of 2014, there were 136 private equity investment companies in Sweden, according to the Swedish Private Equity and Venture Capital Association (SVCA), which together administered around SEK 500 billion. The majority of these focus on the buy-out segment.[88]

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

87 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.
88 Swedish Private Equity and Venture Capital Association: www.svca.se.

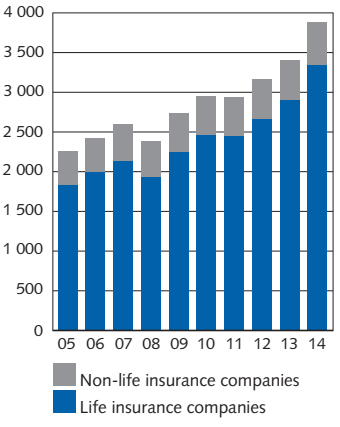
Insurance companies, fund management companies and pension funds

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' assets than their own.

INSURANCE COMPANIES

At year-end 2014, there were 274 Swedish *insurance companies* active in the domestic market. In addition, 53 foreign companies were operating through branches in Sweden. Most of the Swedish insurance companies are small, local companies, but the largest part of the market is concentrated to a few major companies. Taken together, the insurance companies had investment assets, that is to say assets invested to generate earnings, amounting to about SEK 3 879 billion at year-end 2014 (see Chart 28). Slightly more than 85 per cent of this amount was held by the ten largest insurance companies (see Table 13).[89]

Chart 28. Insurance companies' investment assets
SEK billion



Source: Statistics Sweden

89 The total investment assets indicated in Table 13 and in Chart 28 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 28. According to Insurance Sweden, the investment assets of the AFA group amounted to approximately SEK 191 billion at the end of 2013.

Insurance companies are divided into life assurance and non-life assurance companies. The life assurance companies' investment assets accounted for almost 86 per cent of the insurance companies' total investment assets (see Chart 28).

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

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

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

Table 13. The ten largest insurance companies' investment assets at year-end 2014, by group
SEK billion

Alecta	691
Skandiakoncernen	530
AMF Pension	471
Folksam	434
SEB Trygg Liv	374
Länsförsäkringar	299
SPP	178
Swedbank Försäkring	139
Handelsbanken	107
Nordea Liv	88
Total, 10 largest	3 310
All	3 879

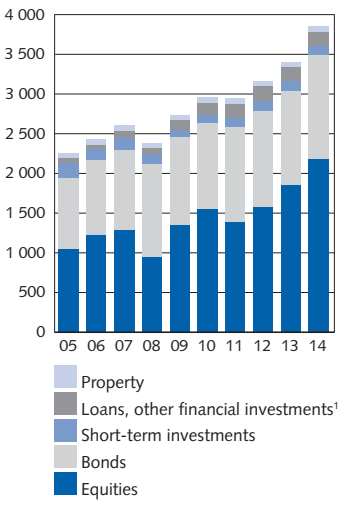
Source: Insurance Sweden

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. 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 insurance company consist of investment assets, i.e. premiums invested in various securities. The liabilities consist primarily of what are known as technical provisions. These provisions should be equivalent to the amount required by the company to ensure that it can meet all the commitments that may arise from its existing insurance policies.[90] Shareholders' 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. If the

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



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

90 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.

company does not fulfil its undertakings, the shareholders have the option to either contribute capital or let the company default. 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 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 exchange. At year-end 2014, equities accounted for 57 per cent of investment assets. Holdings of bonds and short-term investments made up about 34 per cent and 3 per cent respectively. Investments in properties only accounted for a minor part (see Chart 29). Investment assets accounted for 32 per cent of investments abroad.

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 2014, a total of 66 insurance associations were operating, with total assets amounting to approximately SEK 125 billion the year before.[91, 92, 93]

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

91 The majority of insurance associations conduct their own asset management, while some outsource asset management. This means that some overlapping exists in the reporting of data, as these associations' assets are also included in investment assets of fund management companies.
92 The figures for the insurance associations' total assets refer to year-end 2013.
93 The Mutual Benefit Societies Act (1972:262) was repealed in connection with the introduction of the new Insurance Business Act. The existing insurance associations may continue to conduct their operations in accordance with the 1972 act until the end of 2017. The associations must apply for a permit in accordance with the Insurance Business Act before the end of the transition period, or go into liquidation.

employees later on in the form of a pension. A pension foundation is a legal entity in itself. At year-end 2013, there were 2 056 active pension foundations in Sweden, which, together, had about SEK 179 billion in assets.

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 59 per cent of the fund market (see Table 14). In the case of these fund management companies, the banks' branches or Internet services act as distribution points.

Fund investment in Sweden totalled SEK 2 863 billion in managed capital at year-end 2014. Swedish households' holdings of mutual fund units amounted to a value of SEK 776 billion at year-end 2014. The assets managed in equity funds amounted to SEK 1 593 billion at year-end 2014. Besides equity funds, other kinds of fund include fixed income funds, which invest in interest-bearing securities, and 'mixed funds', which invest in both equities and interest-bearing securities. The assets managed in fixed income funds and mixed funds amounted to SEK 614 billion and SEK 612 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

Table 14. The ten largest fund managers, assets managed, December 2014
SEK billion

Robur	681
SEB	366
Nordea	343
Handelsbanken	305
Seventh AP Fund	253
SPP Fonder	111
AMF Fonder	102
Länsförsäkringar	100
Skandia Fonder AB	66
Danske Invest	50
Total, 10 largest	2 377
All	2 863

Source: MoneyMat

instruments that may be used, such as derivatives. The assets managed in hedge funds totalled SEK 44 billion at year-end 2014 (see Table 15).

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) (see the section on National Pension Funds). 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 insurance companies.

STATE-OWNED PENSION FUNDS

The Swedish public pension system is made up of two components: one collective and one individual. The collective element is often referred to as an income pension, and is a "pay-as-you-go" system whereby pensions are financed by current charges. The individual element consists of a premium reserve system in which pension disbursements are financed by money paid into funds during individuals' working lives and where individuals themselves choose their fund management company. Of the guaranteed pension, equivalent to 18.5 per cent of the individual's income, 16 percentage points is managed under the pay-as-you-go system and 2.5 percentage points 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

Table 15. Mutual fund wealth, per type of fund
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Equity funds	733	868	895	543	863	1 160	933	1 054	1 319	1 593
Fixed-income funds	310	340	354	373	378	403	466	476	514	614
Mixed funds	202	238	247	204	254	297	308	387	475	612
Hedge funds	71	82	76	66	88	84	95	96	40	44
Total	1 316	1 528	1 572	1 185	1 583	1 944	1 802	2 013	2 347	2 863

Sources: MoneyMate and the Swedish Investment Fund Association

management companies. It invests 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.[94] One restriction is that at least 30 per cent of the funds' assets shall 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 2014, the investment assets of the AP funds totalled about SEK 1 513 billion. This can be compared with life assurance companies and the fund management companies, whose investment assets amounted to SEK 3 349 billion and SEK 2 683 billion respectively in December 2014.

Securities institutions

Securities institutions is the term used to refer collectively to the securities companies and Swedish credit institutions that are licensed by Finansinspektionen to engage in securities trading. The term also covers foreign companies that engage in securities trading through a branch in Sweden. Finansinspektionen can license eight different kinds of investment activities (see the box Central regulations in the financial sector).

Securities institutions have two primary functions. These are to trade with securities in their own name on behalf of customers, i.e. commission trading, and to buy and sell securities on their own behalf in their capacity of market maker.[95] Being a market maker involves quoting two-way prices (i.e. bid and ask prices). All market makers must therefore be prepared at all times to buy and sell securities. To do 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 help create the conditions for a liquid and efficient market in securities

94 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.
95 The role of market-makers is described in more detail in the chapter The financial markets.

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 2014, 186 Swedish companies had one or more of the above-mentioned licences to engage in securities trading. Just over 60 per cent of these companies were securities companies, while the others were mainly credit institutions such as banking companies and savings banks.

SECURITIES COMPANIES

One type of securities institution is a securities company. 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. For example, this also includes a number of power and commodity dealers

As many securities companies concentrate on arranging contracts between potential buyers and sellers, their balance sheets are often relatively modest. At year-end 2014, the total assets of the securities companies amounted to about SEK 12 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 38 banking companies registered in Sweden at year-end 2014, 25 were licensed for securities trading. 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 in order to facilitate their securities trading business.

Besides the securities companies and banking companies referred to above, 47 savings banks had one or more securities trading licences at year-end 2014. Usually, these involved a license to act as an agent in securities transactions, i.e. to accept customers' orders locally and submit them to an affiliated bank holding more licenses.

Central regulations in the financial sector

The financial companies provide services that are of great importance to society and the companies' customers. Consequently, there are many rules they must follow. These rules may exist in laws passed by the Riksdag, regulations decided by the government or statutes issued by Finansinspektionen. However, the content of the regulations is largely determined by decisions taken at EU level.

Regulations and directives are among the legal acts the EU can decide on. An EU Regulation is binding and directly applicable in Sweden, and thus applies without having to be converted to a Swedish statute. However, unlike regulations, directives must be converted to Swedish statutes, such as laws. This is something that Sweden is obliged to do due to its membership of the EU. In addition, the European supervisory authorities have comprehensive regulatory powers.

Banks and credit market companies

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 describes the requirements that banks and credit market companies[96] must meet. This includes provisions regarding how they should be organised, how they should conduct their operations and what demands are made of their owners and management.

This act also states what banking and financing business entails, and that banks and credit market companies need a licence from Finansinspektionen before they can begin conducting such operations.

A banking business is an operation that combines the mediation of payments through general payment systems with receiving money (for instance, deposits in accounts) to be repaid within a maximum of 30 days

96 Banks and credit market companies are both what are known as credit institutions.

of the customer's request. A financing business also combines two operations: firstly, receiving funds from the general public and, secondly, offering credit, guaranteeing credit, buying claims (for instance, invoices) or arranging the financial leasing of personal property (such as cars).

In addition to conducting banking or financing business, banks and credit market companies may also 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 are subject to supervision of Finansinspektionen.

The Basel III framework has been implemented in the EU through the Capital Requirements Directive (CRD IV) and Regulation (CRR). CRR, which is directly applicable to all member states, is a shared rulebook for capital adequacy. CRD IV, on the other hand, has required national implementation. All in all, the two frameworks have led to changes in the Banking and Financing Business Act and to the passing of new laws such as the **Special Supervision of Credit Institutions and Investment Firms Act** and the **Capital Buffers Act**. This last act includes provisions requiring credit institutions and investment firms to maintain capital buffers beyond the capital requirements otherwise applicable to the operations.

These new laws also include limits on the number of seats a member of a board of directors may hold at the same time, as well as new rules on variable remuneration for executive management and other managers. In addition, credit institutions, securities companies and Finansinspektionen are to introduce appropriate systems for the management of reported suspected regulatory infringements at these institutions (so-called whistleblowing systems). The institution in question and Finansinspektionen are to afford people who choose to report suspected irregularities absolute secrecy protection with regard to information that may reveal their identity.

Another important act is the **Act on Measures against Money Laundering and Terrorist**

Financing. This act aims to prevent financial operations from being used to conceal the connection between property and criminal activities or the funding of terrorism.

Examples of other laws governing banks and credit market companies are the **Consumer Credit Act** and **the Deposit Insurance Act**. The Consumer Credit Act 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 Deposit Insurance Act 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 that are licensed to receive customers' funds in accounts, see below) are covered by the deposit insurance scheme.

The **Payment Services Act** and the **Act on Unauthorised Transactions with Payment Instruments** cover accounts, services and products used to make payments. Among its other purposes, the Payment Services Act aims to ensure that there are clear and 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 and other payment service providers are to provide to their customers.

The **Act on Unauthorised Transactions with Payment Instruments** clarifies account holders' responsibilities in the use of payment instruments by unauthorised parties. 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.

The **Government Support to Credit Institutions Act**, also known as the Support Act, was passed to manage the financial

crisis that culminated in 2008.[97] The Support Act gives the Swedish state the possibility to support banks and credit market companies if deemed necessary to prevent them from 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, grant capital injections or, as a last resort, take over ownership of a credit institution through the compulsory redemption of the companies' shares. On the basis of the Support Act, a programme for borrowing with a government guarantee has been introduced, as has a capital injection programme.

Companies with obligation to notify

The **Obligation to Notify Certain Financial Operations Act** stipulates that companies that conduct certain financial operations without being licensed under the Banking and Financing Business Act are obliged to notify Finansinspektionen.

Deposit companies

Under the **Deposits Business Act**, other limited companies and economic associations besides the credit and securities institutions 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 from other customers, such as companies. 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. However, the money received by deposit companies is not covered by the deposit insurance scheme or by the investment protection.[98]

97 In 2014, the EU adopted a new directive (2014/59 EU) to regulate how crises in financial institutions are to be managed. The directive specifies the regulations and tools to be used by the member states' authorities in the event that a financial institution fails. The directive will be implemented in Swedish legislation in 2016, at which point the Support Act will be replaced by new and more comprehensive legislation.

98 As regards investor compensation, see the summary of the Investor Protection Act at the end of this chapter.

Payday loan companies

The **Act on certain consumer credit operations**, which regulates operations conducted by payday loan companies, for example, entered into force on 1 July 2014. This requires companies to conduct their operations in a healthy manner and for major owners and management of the companies to be suitable. Conducting such operations requires a licence from Finansinspektionen which shall control the companies' compliance with the applicable regulations in its supervision.

Insurance business

Private insurance operations are regulated in two fundamental legislative blocks: the **Insurance Business Act** and the **Insurance Contracts Act**. The Insurance Business Act contains rules on the establishment of insurance companies in Sweden, their operations and supervision. The rules distinguish between non-life insurance and life insurance operations, activities that, in principle, must be conducted in separate companies.[99] In addition, a distinction is made between insurance companies offering direct insurance and reinsurance companies. Reinsurance companies may not conduct any other business activities than reinsurance operations. However, there is nothing to prevent non-life insurance and life insurance 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 insurance, life insurance, 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.

99 Life insurance and non-life insurance operations may only be combined to a very limited extent. For example, a life insurance company may only conduct certain non-life insurance operations (health and accident insurance). These operations shall otherwise be conducted in separate companies.

Financial markets

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

Securities business refers, for instance, to a business involved in the purchase or sale of financial instruments (such as shares) on behalf of customers, financial advice, discretionary portfolio management[100] and investment advice regarding financial instruments. The companies that are allowed to conduct securities business are called securities institutions.

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 Special Supervision of Credit Institutions and Investment Firms Act and by the Act on Measures against Money Laundering and Terrorist Financing.

For regulated markets (stock exchanges) and similar trading venues, the Securities Market Act includes, among its provisions, the demands made of the companies' operations. It also describes which requirements must be met before a financial instrument can be traded on a regulated market, as well as the rules regarding entry onto regulated markets. Moreover, there are provisions regarding the demands made on the equity market owners and management.

According to the Act, a *clearing organisation* that engages in clearing activities must comply with certain operational requirements. Requirements are placed both on the party providing the clearing and on any party participating in the clearing. In addition, there are provisions regarding the demands

100 Discretionary portfolio management is a financial service provided by banks and others, whereby the investor gives the manager a mandate to take ongoing investment decisions, often within certain agreed limits.

made on a clearing organisation's owners and management.

For parties providing clearing services as central counterparty, regulations on licensing and supervision can be found in the **EU regulation on OTC derivatives, central counterparties and trade repositories (EMIR)**.[101] This regulation includes rules on how a central counterparty is to organise and conduct its operations, what demands are made of its owners and management and the amount of buffer capital required. There are also provisions on the OTC-derivative contracts to be cleared via a central counterparty[102] and the reporting of derivative contracts to a trade repository. In addition, the regulation includes provisions on the risk management of OTC derivative contracts not cleared via a central counterparty but bilaterally between two counterparties.

The **Regulation on improving securities settlement in the European Union and on central securities depositories**[103] is aimed at promoting the safe, efficient and smooth settlement of securities. The EU regulation also includes provisions on how central securities depositories[104] are to be organised and how they are to conduct their operations.

One act that has particular importance for securities trading is the **Financial Instruments Accounts Act.** The accounts show, for instance, who owns the equity and other financial instruments. This Act includes provisions covering, for instance, the measures to be adopted after the clearing and settlement of a securities transaction, namely the recording, in the new owner's securities account, of the securities which have changed owner.

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

101 The Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.
102 The new EU regulation on markets in financial instruments (MiFIR), which will start to be applied as of 3 January 2017, will also entail requirements for certain OTC derivative contracts to be traded on organised marketplaces.
103 Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012.
104 A central securities depository is a company whose activities include operating a system for the settlement of securities.

Financial Instruments Trading Act describes the conditions under which there arises the obligation to prepare a prospectus in the sale of financial instruments and to declare holdings of equities.

The **Market Abuse (Financial Instruments Trading) Penal Act** includes penal provisions for the trading of financial instruments by parties having access to information that is not public and which influences the price of the instrument (insider trading), and for actions influencing the price of a financial instrument traded on the securities market (market manipulation).

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 losing 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 **Investment Funds Act** and the **Alternative Investment Funds Act** contain provisions on fund operations. A Swedish fund is a collection 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 licence for its operations, selects the securities in which the fund is to invest.

However, the assets of a fund, as well as incoming and 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.

Recommendations and general guidelines

There are also a large number of recommendations, general guidelines and other non-binding legal acts concerning

various issues significant to the financial market's players. Even if these recommendations are not binding, financial market parties are expected to comply with them. The purpose of these non-binding legal acts is often to complement laws and regulations with detailed regulation or to provide various players with information on how a certain supervisory authority interprets legislation.

Recommendations and general guidelines for the financial market's parties are issued by Finansinspektionen, the Riksbank, the EU and its supervisory authorities, and international organisations.

New regulations

In the wake of the financial crisis that culminated in 2008, comprehensive work has been initiated to reform the international framework for financial supervision and regulation. This means that major changes have been made to regulations and that changes will continue to be made in the coming years. In turn, these changes will have major effects on both financial companies and supervisory authorities.

The financial infrastructure

An effective financial infrastructure is an important precondition for financial stability. The financial infrastructure consists of different systems and of routines for how to use them. The Riksbank defines the financial infrastructure as the systems which handle financial positions and/or enable financial flows between various participants, their legal frameworks and procedures and the participants' use of these systems. This chapter begins with a general description of how a payment is made. Then described in more detail are transactions regarding trading in financial instruments and foreign-exchange trading. Also explained are what retail payments are and how payment instruments 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 several different kinds of payment. These include simple payments, for example those made in cash, and more complicated payments, for example card payments where one or more intermediaries are required to make the payments. Three different types of payment and the demands they impose on the financial infrastructure are described below.

SIMPLE PAYMENTS

In a *simple payment*, for example a cash payment, the claim is extinguished when the buyer pays the seller using banknotes or coins. No intermediary is required for such a payment and there is no time lag between the initiation and completion of the payment. Figure 5 provides an 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 latter requires an underlying, supporting structure. 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 is settled and thus completed.

Figure 6 illustrates the transaction between A and B when A and B have accounts with the same bank. The bank receives information on the transaction, debits A's account and credits B's account by 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 a more developed financial infrastructure to be able to transfer information on the transaction 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 usually a time lag between the initiation and

Figure 5. Example of a simple payment

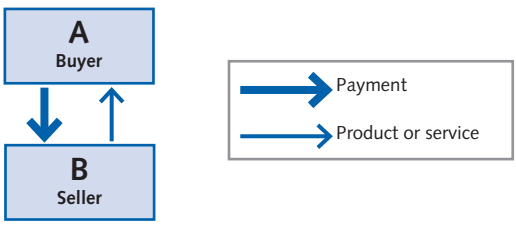
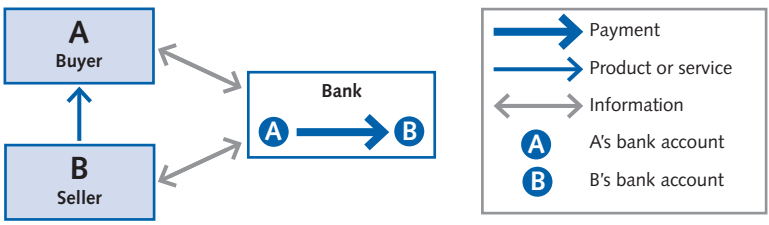


Figure 6. Example of a payment using an intermediary



the completion of the payment.[105] The financial infrastructure that is required for this type of payment is illustrated in Figure 7.

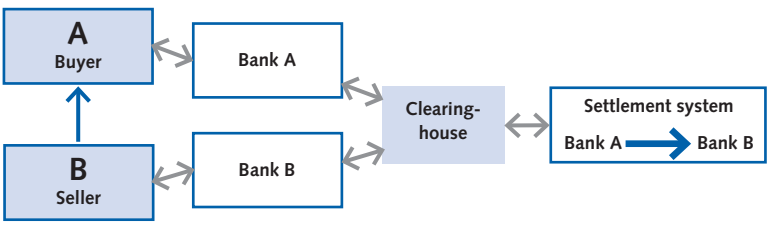
A and B may, for example, be private individuals, companies or authorities. A buys a product or service from B, and pays for it by making some type of payment to B.

The processes used for this type of payment can generally be summarised in three stages. 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. The balance in the account of the payer is also checked in this step. If the verification shows that there are sufficient funds the payment can be approved, i.e. authorised.

The second step entails clearing the transaction. This involves compiling instructions and information about the transfer. Clearing is performed by a clearing organisation. In the example shown in Figure 7, 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.

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. If the clearing order is calculated in gross amounts, that is in terms of the total sums, then 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. If the clearing positions

Figure 7. Example of a payment using several intermediaries



105 Recently, however, some institutions have begun to offer what are known as real-time payments where the time lag shrinks to a few seconds. One example of this is the banks' new payment service Swish.

are compiled, then A's bank will pay SEK 50 to B's bank. Multilateral netting involves all the participants' debts and claims being offset against one another. Each participant will then have a single amount due from or payable to the other participants.[106] In some cases, clearing can instead be conducted through a central counterparty.

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. Prior to settlement, it is checked that there are liquid funds in the accounts that the banks themselves hold for this purpose in a settlement system. 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 debits and the receiving bank credits the 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 thus takes place using central bank money in the accounts in a settlement system that can be likened to a bank for the banks. Read more about the Swedish settlement system in the section on RIX and on the settlement system Payments in real time in the section on Bankgirot.

When the three steps of verification/authorisation, clearing and settlement have been carried out, the payment is complete – it is usually said that the payment is final and irrevocable after settlement.

Transactions when trading in financial instruments

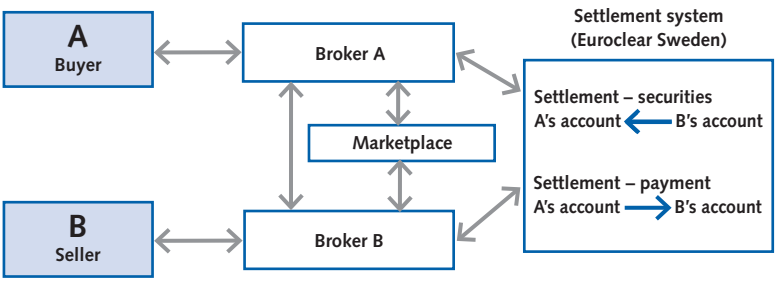
Financial instruments include securities such as shares, bonds and derivatives. In a transaction involving shares or bonds, the steps are largely the same as those in the example of a payment using more than one intermediary. This means that a similar infrastructure is also needed. The difference between a payment using several intermediaries and a transaction in financial instruments is that securities trading entails two flows. Apart from the transfer of the payment for the securities from the buyer to the seller (the payment process), there is also a transfer of the securities themselves from the seller to the buyer (the securities process). Securities trading is outlined in Figure 8.

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

A securities transaction consists of three steps. The first step is the actual moment of trade, when A and B place their buy and sell orders in the marketplace. A broker can contribute by finding a counterparty outside the marketplace, or itself act as a counterparty, and such transactions are then referred to as "Over the counter"[107]. In the second step, the transaction is sent to the settlement system[108]. This is where matching takes place, which is to say a check is made that the parties' records of the securities transaction correspond. The instructions for the transfers are then compiled. 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 eliminating the risks in a securities transaction. This eliminates the risk of a party paying for something that he or she does not receive or supplying securities without being paid, which could be the case if the two transactions were conducted at different times.

There are a number of important differences between transactions involving derivatives and transactions involving shares or bonds. In a derivatives transaction, the parties enter into a contract where the value of the contract is dependent on changes in the value of an underlying instrument[109]. Such a transaction does not thus necessarily involve, but may involve, a transfer of title to the underlying instrument, as is always the case in connection with a share or bond transaction. Moreover, in a derivatives transaction, the investor is

Figure 8. Example of a financial instrument transaction

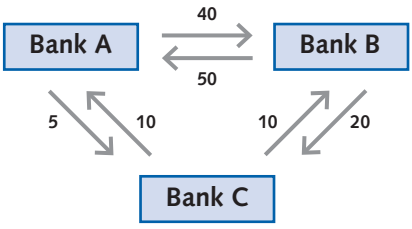


107 Over the Counter is a collective term for the transactions conducted outside a central marketplace (for example an exchange).
108 This is assuming that the transaction is conducted without using a central counterparty.
109 The underlying instrument may be a security, a certain currency or a commodity.

exposed to a counterparty risk[110] for a longer period of time than in a share or bond transaction. The contract may be valid for several months, or even for years, and throughout this period the value of the claim on the counterparty may change. This increases the risk that the counterparty will be unable to pay as planned. This risk remains until the derivatives contract matures. Only then is the transaction settled.

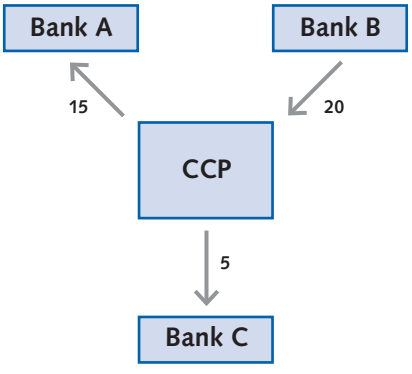
The clearing and settlement of financial instruments sometimes involves a *central counterparty* (CCP). A central counterparty is said to improve the security of settlement by acting as a buyer to all the sellers and as a seller to all the buyers in securities transactions. Both the buying and the selling parties thus have the central counterparty as their counterparty. Counterparty risk between several counterparties is thus replaced by counterparty risk against one, the central counterparty. Charts 9 and 10 illustrate the difference between not using and using a central counterparty, as regards both the size of the payment and the number of payments.

Figure 9. Exchange of funds in securities transactions without a central counterparty[111]



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

Figure 10. Exchange of funds in securities transactions with a central counterparty



	CCP
A	15
B	–20
C	5

110 Counterparty risk is the risk that a counterparty will default/go bankrupt before the transaction has been settled.

111 An exchange of securities is handled in the same way.

If the transactions are cleared and settled without using a central counterparty, as in Figure 9, each of the three participants will have to make and receive two payments. In total, this will involve six transactions and an exchange of funds amounting to SEK 135. If the transactions are instead cleared and settled through a central counterparty, as in Figure 10, the number of settlement transactions falls to three, which also reduces the exchange of funds between the participants. The participants' net positions with the central counterparty is the difference between what each participant would have paid in total and what they would have received from the other participants if clearing and settlement had been conducted without a central counterparty. This is shown in the table in Figure 10 and is the difference per participant between the final column and the final row in the table in Figure 9. The exchange of funds is thereby reduced to SEK 40. However, the comparison in the example requires that all transactions in Figure 9 can be managed by the central counterparty in Figure 10. If this is not the case, it is not certain that the exchange of funds and the net positions can be reduced.

Transactions in foreign-exchange trading

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 counterparty risk. However, there are systems in the infrastructure that manage this and that can eliminate counterparty risk by settling both currencies at the same time. CLS, Continuous Linked Settlement, is one such system and is presented in more detail later on in the chapter.

Foreign exchange payments that are not settled using a special infrastructure 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 account. The payment is thereby settled. If the recipient of the payment has an account with another Swedish bank, the payment must first pass through the Swedish financial infrastructure before it reaches the recipient.

Retail payments

Retail payments are payments of relatively small amounts that are made in a large number, most often between private individuals, companies and authorities.[112] Retail payments is thus a collective term for payments between non-banks. Examples of such payments include card payments, cash payments, credit transfers and direct debits. Cards and cash are primarily used for payments at a point of sale, while credit transfers and direct debits are primarily used for remote payments. As described earlier in this chapter, all payments not made with cash involve the participation of a third party that helps, in some way, to mediate the payment between the sender and the recipient. This third party is, in turn, dependent on the financial infrastructure for that ensuring payments can be made.

Retail payments are made in a variety of different situations, for many different reasons, and can vary greatly. A description of various types of payment methods on the Swedish retail market is given below.

CASH

Swedish banknotes and coins are a claim on the Riksbank resembling a promissory note. This means that an economic value is represented by the banknote or coin. For example, if a banknote is destroyed, the holder's claim on the Riksbank will also cease to exist. The fact that this value is inherent in the cash means that the debt between the buyer and the seller is directly settled when the banknotes and coins are handed over.

In an interview survey conducted by the Riksbank in 2014, 87 per cent of respondents stated that they had used cash in the last month. As there are no overall statistics on the number of cash payments made in the economy, an estimate has to be made. One way of

112 For more information on retail payments in Sweden, see the Riksbank study The Swedish retail payment market, 2013, at the Riksbank's website.

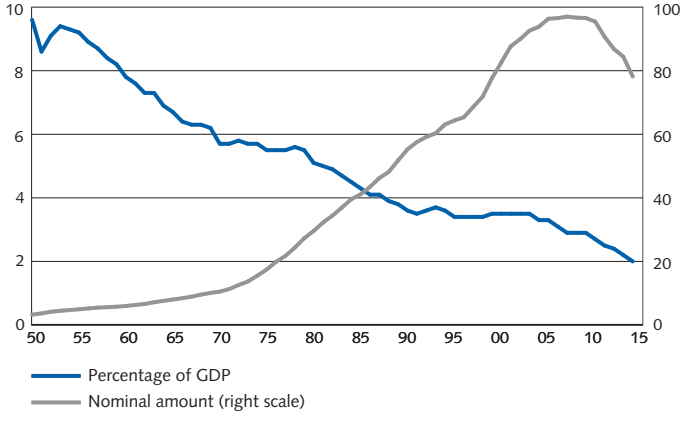
doing this is to relate the value of cash in circulation to gross domestic product (GDP). Measured as a percentage of GDP, cash steadily decreased from almost 10 per cent in 1950 to 2 per cent in 2014. However, the value of banknotes and coins in circulation increased every year from 1950 to 2007, when the trend seems to have changed. After this, the value decreased every year (see Chart 30).

Another way of indirectly measuring cash use is to examine cash withdrawals. Households mainly use ATMs to gain access to cash. The number of ATM withdrawals and the total value of withdrawals increased until the start of the current century but have decreased over the last ten years (see Chart 31). Between 2005 and 2014, the total withdrawal value fell by almost 26 per cent. Statistics for cash withdrawals in conjunction with card payments in shops (cash back) are lacking. However, the Riksbank's interview survey indicates that about SEK 20 billion was withdrawn via cash back in 2014, although not enough to compensate for the reduced withdrawals from ATMs. The overall view suggests that the use of cash has decreased.

CARD PAYMENTS

Cards are primarily used when buyer and seller meet directly, in what are known as point-of-sale (POS) payments. Payment is initiated electronically at the merchant's card terminal. Cards are also used increasingly frequently for remote payments and for the purchase of goods and services on the internet. In addition, cards are used for cash withdrawals from ATMs and from tills in shops.

Chart 30. Value of banknotes and coins in circulation, 1950-2014
(annual average, banks' holdings excluded)
Percentage as a proportion of GDP and SEK billion

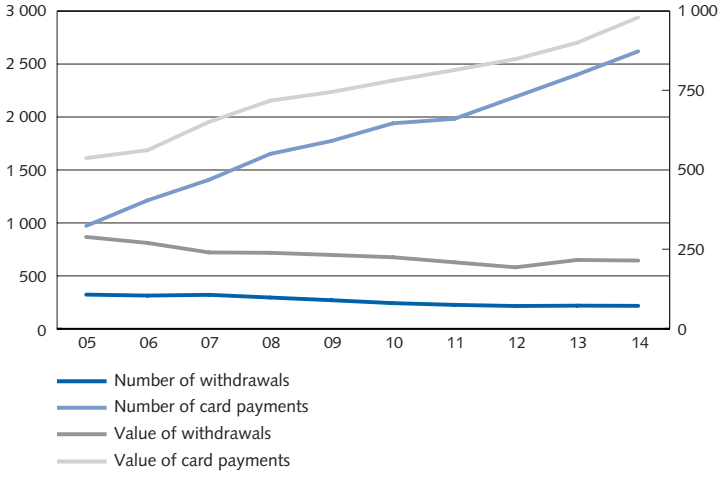


Source: The Riksbank

The cards issued by banks in Sweden are debit cards, charge cards and credit cards and are almost always tied to an international card system, usually Visa or Master Card. Some non-financial companies also issue various types of card. These are usually companies within the consumer goods trade or petrol companies. It also happens that the same card is supplied with both a debit card function and a charge card function or some other combination of the three basic functions.

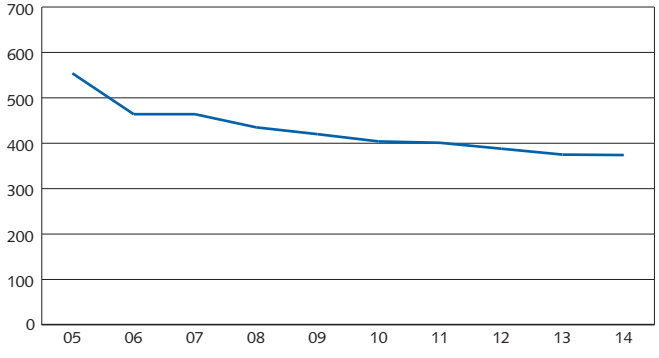
A *debit card* is issued by a bank and linked to an account. The amount of the transaction is debited directly from the cardholder's account and the card does not allow any credit.

Chart 31. Number of transactions and total value in ATMs and card terminals. Left scale: number of transactions, million. Right scale: SEK billion.



Source: The Riksbank

Chart 32. Average value of a card payment SEK



Source: The Riksbank

A charge card does not debit the cardholder's account directly. Instead, the card issuer gathers purchases for a specified period and then invoices the cardholder for the total amount for the period.

A credit card functions like a charge card but allows the cardholder the possibility of credit. This means that the cardholder can choose to pay all, part or none of the invoiced amount. In the latter two cases, the outstanding debt is rolled over into a new period and starts to accrue interest.

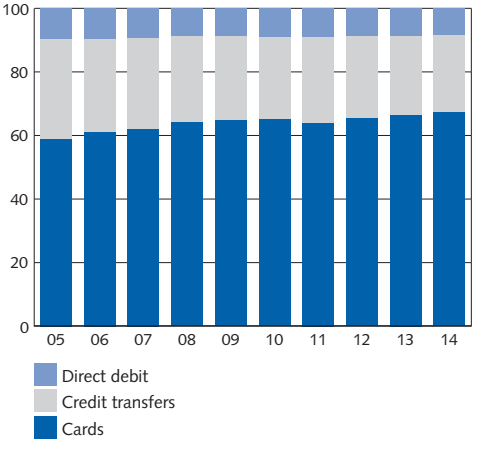
The use of cards has increased rapidly in Sweden in recent years (see Chart 31). In terms of the number of payments and total transaction value, cards are the most widely-used payment instrument for POS payments. Between 1998 and 2014, the number of card payments increased from 213 million transactions to 2 620 million per year. During the same period, the total value of these payments has increased from SEK 149 billion to SEK 980 billion. Debit cards are the dominating card type and stand for 83 per cent of the number of card transactions and 73 per cent of the total value.

The value of an average card payment fell markedly over the period 1998-2014, from SEK 700 to SEK 374 (see Chart 32). Swedes are thus using cards to a greater degree than previously to pay smaller amounts. Cards are thus 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

Chart 33. Use of instruments of payment
Per cent



Source: The Riksbank

transfer, the payer instructs his bank to transfer a certain sum from his bank account to the recipient's bank account.

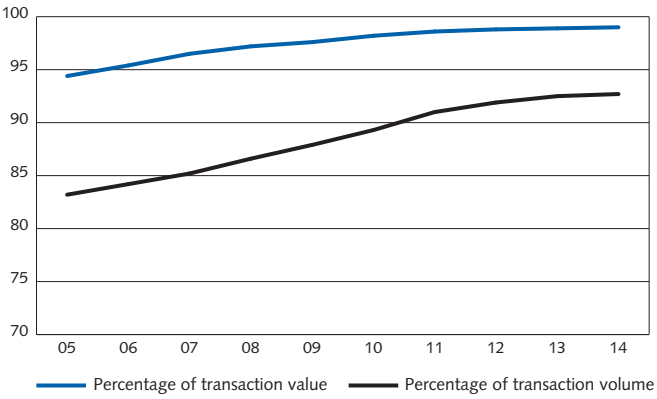
In an account-to-account transfer, the paying party's bank carries out the payment without this being requested by the recipient's bank. The recipient's account number is specified on the payment instruction together with the amount.

A credit transfer could also be carried out by using a special Bankgiro or Plusgiro number to identify the recipient, instead of an account number. Credit transfers are the dominant way of paying household bills and other invoices, as well as for payments between companies.

In terms of SEK, the transaction value for credit transfers and direct debits amounted to SEK 15 327 billion in the year 2014. The total number of credit transfers in the same year was 1 280 million. Credit transfers are thus relatively few in number compared, for example, with card payments (see Chart 33), but in terms of value credit transfers and direct debits account for 94 per cent of the total transaction value of account-based payments.[113]

Most credit transfers and account-to-account transfers are now initiated electronically (see Chart 34). 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 34. Percentage of electronically-initiated debits and transfers
Per cent



Source: The Riksbank

113 This statistic does not include transfers between accounts within the same bank or transfers between PlusGiro accounts in Nordea.

E-invoices form a service for electronic invoices in Sweden. If a customer has subscribed to this service, the customer's invoices will be presented directly to his or her online bank, allowing the customer to avoid having to manually register all information such as recipient, amount, date and OCR reference number, just like a direct debit. The customer only needs to check the payment details and then approve the payment. E-invoices also have advantages for the payment recipient, including reduced expenditure on paper invoices and increased possibilities for integration with the company's accounting system. Certain banks offer e-invoices with automatic payment, which gives the customer benefits similar to those with direct debiting (see below) at the same time as the customer has greater control over payments and can easily choose to stop them.

DIRECT DEBIT

Direct debit is a payment service in which the payment recipient and the payer agree on the automatic debiting of the payer's bank account. Direct debit is an automated payment initiated by the recipient via his or her bank. It is used for the same purposes as other credit transfers, but is particularly suited to recurring payments in smaller amounts.

In 2014, the number of direct debit payments was about one-quarter of the number of credit transfers, but, in terms of value, these payments only amounted to about 4 per cent of the value of giro payments. In 2014, just over 70 per cent of households stated that they used direct debit to pay bills.

ELECTRONIC MONEY AND PREPAID CARDS

Electronic money (e-money) is money in the form of digital value units that can only be used for electronically-transferred payments. In addition to e-money, terms such as e-wallet, digital money, electronic currency and so forth are used. In theory, e-money is a substitute for cash that exists in the memory of a computer or in the chip in a card. In practice, however, cash and e-money do not have the same characteristics, as e-money also has many similarities with account-based payments. Like a card payment, e-money also needs a financial infrastructure. The real difference is that the money is deposited with the issuer of the e-money, instead of in a bank account. The holder of e-money can redeem it for a traditional account balance or cash from the issuer.

E-money is a relatively broad concept. Among other payments, the definition's framework covers mobile payments, which involve money being stored on and transferred via a mobile telephone, and payments stored via the Internet, such as PayPal.

Prepaid cards are closely related to e-money, but are not subject to the Electronic Money Act as they can only be used within a limited network of points-of-sale or for a limited range of goods or services. Currently existing prepaid cards are linked to specific chains of shops or are used to make telephone calls.

As e-money is such a broad concept, there are no exact statistics. However, almost one-fifth of respondents to the Riksbank's 2012 interview survey stated that they have access to e-money for Internet purchases.

BANK DRAFT

A *bank draft* is a secure way of paying that is sometimes used for larger purchases where it would be impractical to pay cash and where the seller cannot accept a normal cheque or card payment. A bank draft is bought at one of the Swedish banks for the desired amount and is issued to the recipient or to the buyer of the money order. The value of the bank draft thus represents a claim on the bank. If the bank draft is issued to the buyer of the money order, the buyer can later use it as a means of payment by transferring it to the recipient. Today, the use of bank drafts is negligible, even if they are occasionally used for payment in certain specific situations.

Virtual currencies

Virtual currencies have recently arisen as an alternative to more traditional payment services. A virtual currency is a digital unit of currency that is primarily used for Internet-based payments. It is not issued by a central bank but is usually issued and controlled by the developer, which can be a company or other private organisation. The common factor for virtual currencies is that they are generally not subject to the same regulation as traditional payment services.

Some virtual currencies only occur in certain online games and cannot be used in other contexts or be exchanged for any other currency. Users receive the virtual currency as remuneration or reward for activities performed on the website where the currency can be used. World of Warcraft Gold is one example of this type of currency. There also exist virtual currencies that can be purchased with traditional currencies and are intended for use in a certain online environment. Amazon Coins are one such virtual currency. Some can also be used in other online environments, such as the Linden Dollar in the game Second Life.[114] A third type of virtual currency can be both bought with and sold for traditional currency.

Some virtual currencies can also be used for payments between private individuals and not just within the framework of a certain online environment. Bitcoin, Litecoin and Ripple are examples of these.

How much acceptance a virtual currency has is determined by the users of the currency. There is thus no guaranteed return on virtual currencies. They differ in this way from national currencies, which have the status of legal tender and which can always be used for tax payments and so on. Consequently, virtual currencies cannot be seen as an alternative to national currencies. The use of virtual currencies is also very small compared with traditional payment services. Table 16 shows the value of issued virtual currencies and their global turnover over five days in July 2015.

114 For example, the Linden Dollar can be exchanged for euros on several independent marketplaces online.

Table 16. Highest issued value and global turnover (24 hours) for decentralised virtual currency schemes

	USD MILLION	
NAME	ISSUED	TURNOVER
Bitcoin	4 014	22.25
Ripple	247	0.27
Litecoin	159	4.36
Dash	20	0.08
Dogecoin	18	0.17
Others	190	2.23
Total	4 648	29.36

Note. These figures apply to exchange rates and turnover per 21-25 July 2015.
Sources: http://coinmarketcap.com and the Riksbank

Systems in the financial infrastructure

Here we describe the systems that are used to manage payments and trading in financial instruments in Sweden today. These systems form the cornerstones of the Swedish financial infrastructure.

RIX – THE SYSTEM FOR LARGE-VALUE PAYMENTS

A large proportion of the banks' payments are made via their accounts in the Riksbank's system for large-value payments, RIX. All major Swedish banks and clearing organisations participate in the system (see Figure 11).[115] RIX thus constitutes an important hub in the infrastructure. The Riksbank owns and operates the system and is also a participant. The banks' accounts in RIX are used for both the direct payments between the banks and for the final settlement of payment orders from bank customers. This means that most payments involving a transfer from an account in one bank to an account in another bank are settled in RIX. Payments arising from transactions in financial instruments are also settled in RIX.

Settlement is based on the principle of Real Time Gross Settlement (RTGS). This means that payments are settled immediately, one by one. This is under the condition that the payer has sufficient liquid funds, which is to say money in its account. This settlement method reduces the risk associated with settlement, but on the other hand requires large amounts of liquidity.[116] 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 covered by approved collateral.

Some payments are processed at one of the following systems in the financial infrastructure: Bankgirot, Euroclear Sweden, Nasdaq OMX Clearing, EuroCCP or CLS (more information on these systems is presented below). These systems are dependent on the settlement that then takes place in RIX. However, the majority of the payments are sent directly from the participants for settlement in RIX. In 2014, the average number of transactions in RIX was approximately 16 000 per bank day and the average turnover per day was SEK 430 billion.

115 The banks participate either as direct or indirect participants. In addition to Bankgirot, Euro CCP, Euroclear Sweden, Nasdaq OMX Clearing, CLS, the Swedish National Debt Office and the Riksbank, sixteen Swedish credit institutions are participants in RIX.

116 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.

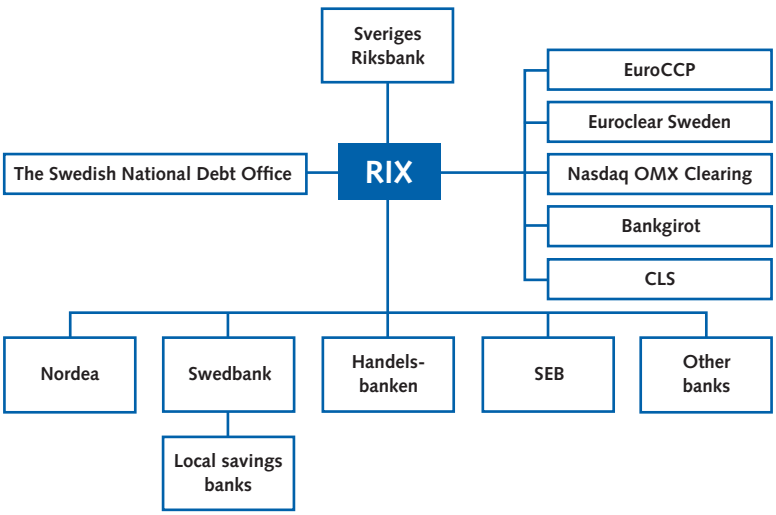
BANKGIROT – THE SYSTEM FOR RETAIL PAYMENTS

Bankgirot is a bank-owned clearing organisation and is the central participant in the mediation of retail payments in Sweden. An average of over four million transactions to a total value of SEK 49 billion are cleared through Bankgirot's system each bank day. Several different types of payment and transfer are made through Bankgirot. These include bank giro payments (such as direct debits and payments of suppliers and wages), account-to-account transfers, payments regulating cash management between the banks and the final settlement of card payments and ATM withdrawals. In addition to this, Bankgirot offers services unconnected with ordinary payments, such as electronic identification and electronic invoicing.

Bankgirot owns and operates the bankgiro system, which manages all of Bankgirot's payment products. As clearing organisation, Bankgirot also offers a clearing and settlement service. In 2012, Bankgirot launched the new payment system Payments in Real Time. This supplies the settlement of payments in real time, 24 hours a day, every day of the year, between participating banks. The first product to use the platform for Payments in Real Time is Swish.[117]

Bankgirot's payment system 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 payments are

Figure 11. The Swedish payment system



117 Swish is a mobile payment service offered by some banks that allows private individuals to issue and receive payments in real time via their bank accounts using their mobile telephones.

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 Bankgirot and subsequently forwards this documentation to the European Central Bank's settlement system TARGET2, either directly or via its custodial bank. Bankgirot is then responsible for providing a confirmation to the bank that settlement has been carried out.

EUROCLEAR SWEDEN – CENTRAL SECURITIES DEPOSITORY

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, it is Euroclear Sweden that registers and holds securities in accounts and settles transactions on the equity market and fixed income market.[118] Some transactions on the derivatives market are also settled in this system. Today, securities exist almost exclusively as electronic records. Euroclear Sweden, which keeps the central register for the various participants' holdings, is therefore very important to the financial infrastructure. Euroclear Sweden registers all transactions involving issues of securities in Swedish krona and the trading of securities and pledging.

A transaction involving shares or debt securities begins with an investor, via his or her internet bank, for example, placing an order with an intermediary, usually a bank, to buy or sell. The bank can itself take on the role of counterparty or seek a counterparty on a marketplace, for example a stock exchange. When the bank has found a counterparty to trade with and the transaction is completed, Euroclear Sweden is informed. This marks the start of a matching process in which the buy and sell orders are paired. Euroclear Sweden verifies the identity of the bank and that the counterparty (bank or central counterparty) are in agreement on the securities concerned, the number/nominal amount, payment, trading date and settlement date. On the settlement date, all the matched instructions that have been registered under this particular settlement date are verified.

Euroclear Sweden verifies that the seller can supply the security and that the buyer can pay. After that, the transaction is settled and the money and security exchange owners. Euroclear Sweden uses a number of processes that reduce the need for liquidity and securities in the system. These optimisation processes are run continuously throughout the day so that several orders can be settled at the same

118 For more information on Euroclear Sweden, see www.euroclear.com/sv.

time, and the settlement is made more efficient as buy and sell orders can offset out one another.

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.[119] To further reduce the risks, the settlement is carried out using accounts provided by the central bank, which means that the settlement is made in central bank money. For this purpose, the Riksbank permits Euroclear Sweden to administer accounts in RIX. In order to cover its liquidity needs in connection with securities settlement, a participant may transfer liquid funds between the Riksbank accounts administered by Euroclear Sweden and its regular RIX accounts at any time during the day. The Riksbank can also grant credit against collateral on these accounts during the day.

In 2014, the average gross sum for the settlement of share transactions amounted to SEK 39 billion per day. The corresponding figure for fixed-income market transactions was SEK 280 billion.[120] The value of fixed income market transactions is thus higher than that of transactions on the equity market. However, the number of transactions is much higher on the equity market, with an average of 53 000 transactions per day, compared to an average of 1 200 per day on the fixed income market.

NASDAQ CLEARING[121] – CENTRAL COUNTERPARTY IN DERIVATIVES CLEARING

Nasdaq Clearing handles repos and share, interest rate and commodity derivatives by acting as the central counterparty and thus manages the risks associated with open exposure to a transaction counterparty.[122] When Nasdaq Clearing acts as central counterparty in the deal between buyer and seller, each transaction is replaced by two new deals, where Nasdaq Clearing is the seller to all buyers and the buyer to all sellers. Consequently, the original parties have a claim on or a debt to Nasdaq Clearing instead of one other. This means that the counterparty risks that the parties would have been exposed to in relation to each other are transferred to Nasdaq Clearing.

119 This is called DvP (Delivery versus Payment).
120 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.
121 Its legal name is Nasdaq OMX Clearing AB but, in its role as central counterparty, Nasdaq OMX Clearing AB is known as Nasdaq Clearing.
122 For more information on Nasdaq OMX Clearing, see www.nasdaqomx.com/europeanclearing.

The signing of a derivatives contract usually creates payment flows. For example, in an option transaction, an option premium must be paid.[123] Payments also often arise during the term of a derivatives contract. These payments are cleared in Nasdaq Clearing and settled in RIX.

When a derivatives contract matures, the contract is settled, either through the exchange of liquidity or by delivering the agreed amount of the underlying security. In the case of cash settlement, the amount is cleared on Nasdaq Clearing and settled directly in RIX. In connection with the delivery of the underlying security, the securities phase of the deal is settled by transferring the securities concerned in Euroclear Sweden's system, while the payment phase is settled through the RIX accounts administered by Euroclear Sweden.

In 2014, a daily average of approximately 475 000 derivatives and repos were traded on Nasdaq Clearing each day.

EUROCCP – CENTRAL COUNTERPARTY FOR EQUITIES CLEARING

EuroCCP N.V. (EuroCCP)[124] is the central counterparty that clears most Swedish equities. Most of the equities trade on the equity market in Stockholm[125] must be cleared through EuroCCP. In addition, EuroCCP clears equities on several other marketplaces in Europe.

The clearing service offered by EuroCCP involves it acting as the central counterparty in equity transactions in place of its members. The counterparty risk (the risk that the buying or selling counterparty cannot deliver equities or money in accordance with the agreed deal) that the parties would have had in relation to each other is thus transferred to the central counterparty. Clearing is performed in line with the multilateral netting principle. The final settlement of the Swedish equity transactions is conducted by Euroclear Sweden. In 2014, Swedish share transactions amounting to a daily average value of SEK 16 billion were cleared in EuroCCP. When a transaction is cleared through a CCP, two transactions are made instead of one. This means that all figures are counted double. The figures in the text have been adjusted for this double counting so as to give a fairer view of the value cleared by EuroCCP.

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

124 EuroCCP is the Dutch central counterparty and has cleared equities on the European market for several years. However, the company changed name in January 2014. Previously, the company was known as the European Multilateral Clearing Facility (EMCF). Its name was changed after the Dutch central counterparty EMCF merged with the British central counterparty EuroCCP. For more information, see www.euroccp.com

125 The stock market in Stockholm is called Nasdaq OMX Nordic.

CLS – THE SYSTEM FOR FOREIGN EXCHANGE SETTLEMENT

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) started up in September 2002. In CLS, foreign exchange transactions are settled on a Payment versus Payment (PvP) basis. This entails the participating banks having accounts – one for each currency – with CLS through which the two currencies in a transaction are transferred simultaneously. In turn, CLS has accounts with the central banks for the respective participating currency areas. 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.

In 2014, average turnover per day in CLS as a whole amounted to SEK 35 000 billion. The daily turnover in the system is thus significantly higher than Sweden's annual GDP.[126] The Swedish krona accounts for only 1.2 per cent of the total turnover, which is SEK 420 billion per day. The figures for CLS are counted double. The reason is that both values in a foreign exchange transaction, the Swedish currency and the foreign currency, generate payment flows. All four major Swedish banks are direct participants[127] in CLS and several currencies are included in the system.[128]

Payment flows in the Swedish financial infrastructure

Figure 12 presents the different types of payment that are settled in the Swedish financial infrastructure. As described earlier, payments are either made directly in RIX or via one of the following systems in the financial infrastructure: Euroclear Sweden, Nasdaq OMX Clearing, EuroCCP or CLS. These systems are all dependent on the settlement that then takes place in RIX. The amounts presented in the figure are approximate and provide an estimate of the amounts for the different types of payment that were settled in RIX, on average, per day in 2014. The different systems may in some cases reduce the total flows by converting gross positions to net positions, which is described below.

126 In 2014, Sweden's GDP amounted to approximately SEK 3 904 billion.
127 In addition to direct participants, the CLS also has third party participants who use its system via a direct participant.
128 The currencies included in the system at present are the US dollar, the Australian dollar, the British pound, the Canadian dollar, the Danish krone, the euro, 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.

THE FIXED INCOME MARKET

As shown in Figure 12, trade in the fixed income market gives rise to the largest payment flows in the infrastructure. In 2014, Euroclear Sweden settled on average SEK 280 billion per day from the fixed income market.[129] The fixed income market refers to spot trading and derivatives trading that leads to transfer of the ownership of the underlying asset.

THE EQUITY MARKET

Euroclear Sweden also settled SEK 39 billion per day from transactions relating to the equity market. These values were settled using the accounts that Euroclear Sweden administers in RIX and relate to the delivery of underlying securities. This excludes internal transactions in which a clearing member is its own counterparty on the exchange. The figure includes trade both on and outside the exchange.

EuroCCP, which acts as a central counterparty on the equity market, cleared transactions amounting to SEK 16 billion in 2014. After clearing and netting, SEK 5 billion of this sum was then settled through Euroclear Sweden.

THE FOREIGN EXCHANGE MARKET

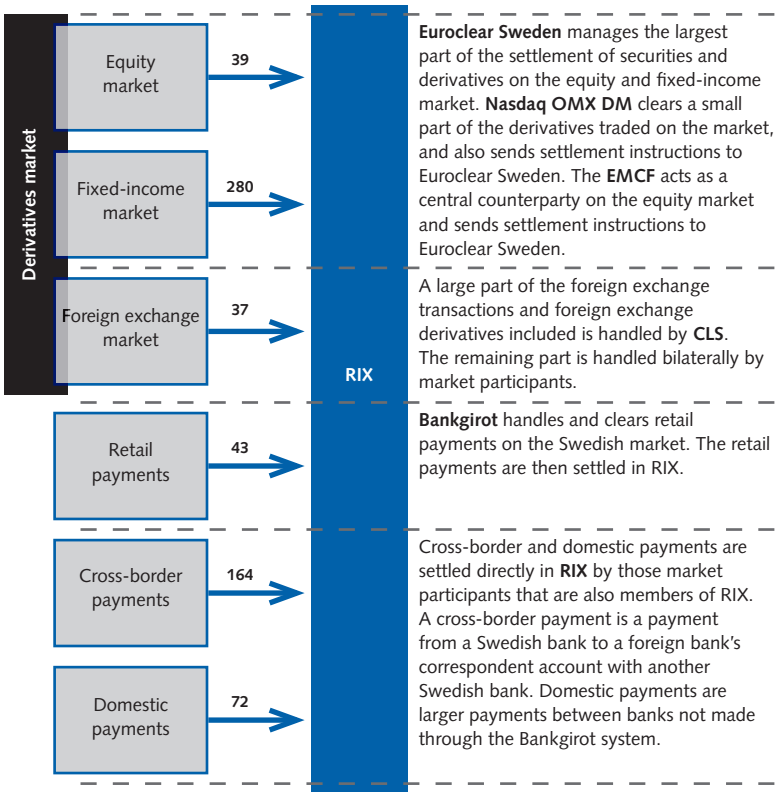
From a clearing and settlement point of view, trade on the foreign exchange market can be managed in two different ways, in CLS or through a correspondent bank. Payments in Swedish krona for foreign exchange transactions are usually based on foreign exchange contracts, either spot or forward contracts, or are handled as currency swaps or options. In 2014, payments in a value of SEK 420 billion were cleared by CLS every day. After netting, only SEK 19 billion per day remained to be finally settled in RIX. The foreign exchange transactions cleared through a correspondent bank and finally settled in RIX amounted to SEK 18 billion per day in 2014. 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. In total, the sums settled in RIX stemming from foreign exchange trading thus amounted to SEK 37 billion per day.

129 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.

THE DERIVATIVES MARKET

Derivatives trading on Nasdaq OMX Clearing generates relatively small payment flows. These consist of payments for derivative transactions, for example equity options, equity futures, index options and index futures. Only a small proportion of the turnover from derivative transactions generates an actual payment as derivative positions are largely netted between the participants concerned. The underlying values may be large in many cases, but the values that are actually settled, and thus paid, are limited. The amounts are netted in Nasdaq OMX Clearing's system and only a small portion is finally settled in RIX. For 2014, this figure was SEK 200 million per day, divided among the equity market, fixed income market and the commodities market. At present, Nasdaq OMX Clearing settles no foreign-exchange derivatives. The foreign-exchange derivatives settled in RIX primarily come from CLS.

Figure 12. Payment flows in the Swedish financial infrastructure
SEK billion, daily averages 2014



Sources: Bankgirot, CLS, EuroCCP, Euroclear Sweden, Nasdaq OMX Clearing and the Riksbank

RETAIL PAYMENTS

The account-based retail payments are managed through Bankgirot. This covers the majority of all payments to and from individuals and most companies, such as wage payments, giro payments, card purchases and supplier payments. An average of SEK 49 billion a day was cleared in Bankgirot's system in 2014. After netting in Bankgirot, SEK 43 billion per day remained to be paid between the major banks (that is, to be settled in RIX).

CROSS-BORDER PAYMENTS

One of the largest items in RIX is foreign payments, that is payments in Swedish kronor that go to or from a Swedish bank which, in turn, is a correspondent bank for a foreign bank. This is also known as foreign clearing, and accounted for payments totalling SEK 164 billion per day in 2014. If the payer and recipient of the payment have accounts in the same bank, no transaction in RIX occurs. The reported value of SEK 164 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

Domestic payments gave rise to an average of SEK 72 billion per day in 2014 and refer partly to payments stemming from the money market with short maturities and partly to pure interbank payments. These payments are in Swedish kronor and arise between Swedish banks in Sweden. An interbank payment can arise, for instance, when a company needs to make a payment to another company quickly and the sending and receiving companies have different banks. In this case, the payment will go through RIX. Smaller payments that are not urgent usually go through Bankgirot.

Appendix 1. Tables

Table A. Issuers and investors on the money market
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Issuers in the money market										
Central government	294	259	180	139	116	92	72	105	94	88
Mortgage institutions	72	113	106	105	72	14	10	12	0	2
Other credit market companies	10	9	19	45	12	12	34	18	42	49
Non-financial companies	62	66	96	97	73	58	68	86	82	81
Municipalities	6	11	5	9	6	10	14	15	19	24
Banks	69	62	108	96	62	37	48	51	34	32
Total	515	520	515	491	341	223	246	287	270	276

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Investors in the money market										
AP funds	7	3	4	6	0	1	0	10	7	4
Insurance companies	135	88	92	42	23	26	30	49	38	26
Banks	129	151	87	133	119	64	51	71	61	59
Rest of the world	75	52	43	75	54	23	39	56	53	47
Companies and others	168	226	289	235	145	109	126	101	112	141
Total	515	520	515	491	341	223	246	287	270	276

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

Table B. Average turnover per day on the money market
SEK billion

	TREASURY BILLS	MORTGAGE CERTIFICATES
2005	9.9	2.0
2006	10.4	2.7
2007	8.3	2.2
2008	7.4	2.1
2009	4.0	1.7
2010	4.1	0.7
2011	3.1	0.4
2012	3.8	0.4
2013	3.9	0.1
2014	4.0	0.1

Source: The Riksbank

Table C. Average turnover per day in repos
SEK billion

2005	141
2006	176
2007	196
2008	170
2009	92
2010	119
2011	120
2012	124
2013	113
2014	102

Source: The Riksbank

Table D. Issuers and investors on the bond market
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Issuers in the bond market										
Central government	817	812	768	753	741	802	796	761	801	794
Mortgage institutions	685	747	821	937	1 035	1 105	1 241	1 159	1 223	1 267
Banks	91	115	196	298	290	290	297	372	509	538
Kommuner och landsting	16	20	21	18	18	18	30	40	63	89
Municipalities and county councils	120	117	143	164	169	188	192	210	283	330
Other credit market companies	71	81	90	88	71	78	94	70	115	136
Total	1 799	1 891	2 037	2 257	2 324	2 482	2 650	2 612	2 994	3 155
Investors on the bond market										
AP funds	266	301	326	266	268	293	308	315	318	406
Insurance companies	613	701	744	834	1 114	1 087	1 205	1 219	1 194	1 310
Banks	262	281	337	475	473	346	364	370	431	420
Rest of the world	638	545	537	459	462	462	581	701	896	800
Companies and others	19	63	93	223	7	294	191	7	154	220
Total	1 799	1 891	2 037	2 257	2 324	2 482	2 650	2 612	2 994	3 155

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

Table E. Outstanding volume of corporate bonds in SEK issued by Swedish non-financial companies
SEK billion

2005	120
2006	117
2007	143
2008	164
2009	169
2010	186
2011	192
2012	210
2013	283
2014	330

Source: Statistics Sweden

Table F. Average turnover per day on the bond market
SEK billion

	GOVERNMENT BONDS	MORTGAGE BONDS
2005	28.1	9.5
2006	29.5	10.2
2007	29.7	13.2
2008	22.0	15.2
2009	16.6	12.4
2010	17.7	13.3
2011	17.5	12.5
2012	19.7	14.4
2013	19.3	13.1
2014	13.9	11.9

Source: The Riksbank

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

	SPOT	FORWARDS	OPTIONS	LONG-TERM FOREIGN-EXCHANGE SWAPS	SHORT-TERM FOREIGN-EXCHANGE SWAPS
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
2011	77	28	13	126	96
2012	77	23	11	123	98
2013	86	20	7	94	90
2014	106	21	8	103	86

Source: The Riksbank

Table H. Net issues of Swedish equities
SEK billion, market value

	LISTED EQUITIES	NON-LISTED EQUITIES
2005	-18	74
2006	13	52
2007	10	87
2008	-70	-49
2009	76	122
2010	31	35
2011	29	44
2012	-46	248
2013	46	101
2014	43	80

Note. Net issues refers to new issues of equities minus equity buy-backs
Source: Statistics Sweden

Table I. Equity turnover and market capitalisation on Nasdaq OMX Stockholm
SEK billion

	EQUITY TURNOVER	MARKET CAPITALISATION
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
2011	3 684	3 496
2012	2 769	3 916
2013	2 930	4 826
2014	3 266	5 323

Source: Nasdaq OMX Stockholm

Table J. The balance sheet totals and assets of the financial intermediaries at year-end 2014
SEK billion

	TOTAL ASSETS/ INVESTMENT ASSETS	LENDING TO THE PUBLIC	OTHER LENDING	DEBT SECURITIES	EQUITIES	OTHER ITEMS
Credit institutions						
Banks	7 371	2 962	2 081	888	548	893
Mortgage institutions	2 693	2 513	63	12	0	104
Other credit market companies	905	501	44	208	4	149
Total credit institutions	10 970	5 976	2 188	1 108	552	1 146
Investors						
Insurance companies	3 849	68	18	1 353	2 173	237
National Pension Funds	1 513	–	–	487	965	60
Fund management companies	2 863	–	–	476	1 316	555
Total investors	8 225	68	18	2 316	4 454	852
Securities companies	12	0.2	6	1.0	0.6	4

Note. Column 1 shows the total assets for banks, mortgage institutions, other credit market companies and securities companies, while for insurance companies and AP funds they show investment assets and for securities funds they show the funds managed.
Sources: Statistics Sweden, annual reports and the Riksbank

Table K. Geographical breakdown of the major banks' lending 2014
Per cent

	SWEDEN	OTHER NORDIC COUNTRIES	BALTIC COUNTRIES	GERMANY	UNITED KINGDOM	REST OF THE WORLD
Swedbank	86.1	3.9	9.5	0.0	0.0	0.5
SEB	73.0	4.1	8.2	11.1	0.0	3.6
Nordea	23.9	66.3	2.3	0.0	0.0	7.5
Handelsbanken	62.9	22.5	0.0	0.0	9.5	5.1
Four major banks	52.1	34.7	4.0	1.9	2.2	5.0

Sources: Bank reports and the Riksbank

Table L. The four major banks' deposits and lending in foreign currency
SEK billion

	LENDING	DEPOSITS	DEPOSITS DEFICIT
2005	2 143	1 398	745
2006	2 373	1 499	874
2007	2 957	1 810	1 147
2008	3 946	2 131	1 814
2009	3 685	2 037	1 648
2010	3 299	1 936	1 363
2011	3 537	2 297	1 240
2012	3 506	2 224	1 282
2013	3 656	2 404	1 252
2014	3 892	2 676	1 216

Note. Deposit deficit = lending minus deposits
Sources: Bank reports and the Riksbank

Table M. Credit institutions' lending to the public
SEK billion

	TOTAL	BANKS	MORTGAGE INSTITUTIONS	OTHER CREDIT MARKET COMPANIES
2005	3 237	1 419	1 529	289
2006	3 652	1 668	1 664	320
2007	4 185	2 259	1 595	331
2008	4 622	2 497	1 765	360
2009	4 719	2 355	1 972	392
2010	4 923	2 402	2 107	414
2011	5 220	2 543	2 193	484
2012	5 410	2 685	2 261	464
2013	5 568	2 704	2 372	492
2014	5 976	2 962	2 513	501

Source: The Riksbank

Table N. The banks' assets
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Lending to the public in Sweden	1 181	1 345	1 880	2 027	1 890	2 001	2 132	2 244	2 254	2 439
Lending to the public abroad	224	291	323	415	359	355	365	400	409	452
Swedish National Debt Office and the Riksbank	14	32	56	262	265	54	63	67	58	83
Lending to Swedish monetary financial Institutions	669	721	621	757	781	918	794	847	973	1 077
Lending to foreign monetary financial Institutions	442	547	748	712	737	745	806	775	860	990
Debt securities	503	569	634	927	1 021	864	778	794	869	888
Other	609	681	691	1 176	827	959	1 059	1 115	1 125	1 442
Total	3 643	4 185	4 953	6 276	5 881	5 896	5 997	6 242	6 548	7 371

Source: The Riksbank

Table O. Banks' lending to the public
SEK billion

	SWEDISH NON-FINANCIAL COMPANIES	SWEDISH HOUSEHOLDS	SWEDISH PUBLIC SECTOR	PUBLIC ABROAD	OTHER SWEDISH LENDING
2005	741	351	49	224	53
2006	827	401	68	291	81
2007	1 093	648	97	323	98
2008	1 218	717	93	415	53
2009	1 050	761	128	359	57
2010	1 058	817	64	354	110
2011	1 144	866	68	365	101
2012	1 156	967	56	400	106
2013	1 142	1 004	53	410	95
2014	1 204	1 050	126	453	129

Source: The Riksbank

Table P. The banks' liabilities and equity
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Deposits from the public in Sweden	1 266	1 439	1 612	1 810	1 829	1 987	2 114	2 257	2 384	2 462
Deposits from the public abroad	134	162	145	131	142	144	182	203	204	210
Deposits from Swedish monetary financial institutions	181	221	307	748	572	264	234	243	261	247
Deposits from foreign monetary financial institutions	825	925	983	1 113	963	859	845	715	736	800
Securities issued	548	659	956	1 226	1 372	1 524	1 626	1 700	1 983	2 189
Other	468	552	666	938	618	733	593	681	514	955
Equity	221	227	283	310	384	385	403	442	465	509
Total	3 642	4 185	4 952	6 277	5 880	5 896	5 997	6 242	6 548	7 371

Source: The Riksbank

Table Q. Banks' deposits from general public
SEK billion

	SWEDISH NON-FINANCIAL COMPANIES	SWEDISH HOUSEHOLDS	SWEDISH PUBLIC SECTOR	PUBLIC ABROAD	OTHER SWEDISH LENDING
2005	451	617	56	134	48
2006	505	712	70	162	151
2007	520	870	63	145	159
2008	603	945	93	132	170
2009	610	987	84	142	148
2010	625	1 080	68	144	214
2011	660	1 172	68	182	215
2012	693	1 269	80	203	216
2013	714	1 338	83	204	249
2014	748	1 414	147	210	153

Source: The Riksbank

Table R. The banks' average deposit and lending rates from/to Swedish non-financial companies and households and treasury bill yields
Per cent

	LENDING RATE	DEPOSIT RATE	TREASURY BILL YIELDS 6 MONTHS
2005	3.30	0.73	1.96
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	3.42	0.95	1.55
2011	4.28	1.59	1.35
2012	3.57	1.10	0.89
2013	3.23	0.81	0.75
2014	2.53	0.29	0.08

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

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

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Single-family dwellings	869	966	915	979	1 069	1 135	1 184	1 216	1 265	1 329
Tenant-owned apartments	196	240	241	279	329	372	395	413	453	507
Multi-family dwellings	395	391	369	389	432	434	441	453	471	488
Commercial and office buildings	28	28	31	35	52	62	71	79	84	91
Other	40	37	39	83	88	103	102	99	99	98
Total	1 528	1 662	1 595	1 763	1 970	2 106	2 192	2 261	2 372	2 513

Source: The Riksbank

Table T. Mortgage institutions' new lending per original fixed-term rates
Per cent

NEW LOANS DURING THE MONTH	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Variable rate	50.3	55.8	47.9	66.5	83.5	68.6	52.1	57.2	63.1	71.2
Fixed-rate term ≤ 5 years	31.0	26.5	29.4	25.1	13.5	24.4	42.8	34.8	27.9	23.2
Fixed-rate term > 5 years	18.7	17.8	22.6	8.5	3.0	7.0	5.2	8.0	9.0	5.5

Source: The Riksbank

Table U. Mortgage institutions' loan stock per original fixed-term rates
SEK billion

POSITION AT END OF MONTH	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Variable rate	604	705	645	799	1 130	1 152	1 040	1 019	1 152	1 384
Fixed-rate term ≤ 5 years	598	603	579	616	523	786	992	1 093	1 087	1 112
Fixed-rate term > 5 years	327	356	370	348	319	140	131	123	113	101
Total	1 528	1 663	1 595	1 763	1 972	2 078	2 163	2 235	2 352	2 597

Source: The Riksbank

Table V. Securities issued by mortgage institutions
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Certificates	175	146	167	81	116	10	27	22	13	10
Bonds	848	1 039	1 134	1 284	1 391	1 432	1 619	1 621	1 632	1 662
Of which covered bonds	–	–	–	–	–	1 431	1 618	1 620	1 632	1 662
Other securities	13	12	18	17	17	13	22	22	26	25
Total	1 037	1 197	1 319	1 381	1 524	1 455	1 667	1 664	1 671	1 698

Source: The Riksbank

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

	SWEDISH NON-FINANCIAL COMPANIES	SWEDISH HOUSEHOLDS	SWEDISH PUBLIC SECTOR	PUBLIC ABROAD	OTHER SWEDISH LENDING
2005	104	115	38	31	0
2006	116	121	41	41	1
2007	114	124	42	49	0
2008	135	91	49	79	0
2009	150	97	54	83	0
2010	160	104	54	96	0
2011	183	110	76	114	0
2012	183	67	94	119	0
2013	197	69	94	131	0
2014	183	64	101	154	0

Source: The Riksbank

Table X. Insurance companies' investment assets
SEK billion

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Life insurance companies	1 833	1 990	2 132	1 931	2 246	2 459	2 447	2 665	2 900	3 349
Non-life insurance companies	420	439	468	447	485	498	497	500	507	530
Total	2 253	2 429	2 600	2 378	2 731	2 956	2 943	3 166	3 408	3 879

Source: Statistics Sweden

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

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Equities	1 051	1 215	1 282	947	1 344	1 546	1 383	1 569	1 847	2 173
Bonds	894	953	1 016	1 164	1 114	1 087	1 205	1 219	1 194	1 310
Short-term investments	188	140	148	133	90	94	112	124	117	121
Loans, other financial investments[1]	51	49	78	68	120	164	173	183	176	166
Property	70	72	76	65	63	66	70	70	73	76
Total	2 253	2 429	2 600	2 378	2 731	2 956	2 943	3 166	3 408	3 846

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

Table Z. Value of banknotes and coins in circulation (annual average, banks' holdings excluded)
Percentage as a proportion of GDP and SEK billion

	NOMINAL AMOUNT	PERCENTAGE OF GDP
2005	96 342	3.3
2006	96 541	3.1
2007	97 019	2.9
2008	96 688	2.9
2009	96 555	2.9
2010	95 452	2.7
2011	90 670	2.5
2012	86 816	2.4
2013	84 373	2.2
2014	78 164	2.0

Sources: Statistics Sweden and the Riksbank

Table AA. Card transactions in payment terminals and ATM withdrawals
Number of transactions in SEK millions and transaction value in SEK billions

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
ATMs										
Number of ATMs	2 814	2 816	3 085	3 236	3 319	3 351	3 566	3 416	3 237	3 231
Number of transactions	321	313	320	295	269	241	225	214	217	216
Transaction value	289	270	240	239	232	225	209	193	216	214
Payment terminals										
Number of ATMs	176 637	184 590	187 330	194 776	217 760	203 117	209 631	198 388	195 709	196 985
Number of transactions	801	1 000	1 154	1 358	1 490	1 646	1 799	2 048	2 329	2 423
Transaction value	312	423	463	488	496	557	598	654	722	754

Source: The Riksbank

Table AB. Use of various instruments of payment

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of transactions, millions										
Cards	970	1 212	1 405	1 650	1 773	1 940	1 982	2 190	2 398	2 620
Debit cards	777	972	1 107	1 322	1 438	1 558	1 629	1 810	1 987	2 170
Credit cards	193	240	298	328	335	382	353	380	411	450
Credit transfers	517	575	651	699	726	768	831	859	894	957
Electronic	430	484	555	605	638	686	756	789	827	888
Form	87	91	96	94	88	82	75	70	67	69
Direct debit	160	197	208	229	241	272	289	297	312	323
Cheques, including bank drafts	1	1	1	1	1	0	0	0	0	0
Total	1 648	1 984	2 265	2 579	2 741	2 981	3 103	3 346	3 604	3 900
Transaction value, SEK billion										
Cards	537	562	651	718	745	781	814	849	900	980
Debit cards	413	432	477	520	540	561	577	617	658	719
Credit cards	124	130	174	198	206	220	237	232	242	261
Credit transfers	8 090	8 666	10 020	10 806	10 615	11 528	12 605	13 633	14 175	14 770
Electronic	7 635	8 269	9 674	10 499	10 358	11 315	12 430	13 471	14 024	14 627
Form	456	397	346	307	257	213	174	162	151	142
Direct debit	344	384	424	452	469	504	543	545	553	558
Cheques, including bank drafts	55	54	60	69	42	27	30	41	13	7
Total	9 027	9 666	11 155	12 045	11 871	12 842	13 991	15 067	15 641	16 315

Source: The Riksbank

Table AC. Average value of a card payment
SEK

2005	554
2006	505
2007	464
2008	435
2009	420
2010	403
2011	411
2012	388
2013	375
2014	374

Source: The Riksbank

Table AD. Percentage of electronically-initiated debits and transfers
Per cent

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Percentage of transaction value	94.4	95.4	96.5	97.2	97.6	98.2	98.6	98.8	98.9	99.0
Percentage of transaction volume	83.2	84.2	85.2	86.6	87.9	89.3	91.0	91.9	92.5	92.7

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).

Appendix 3. Boxes published in the five latest issues of The Swedish Financial Market

The Swedish Financial Market 2014
Supervision and regulation of the financial sector in Sweden
The Riksbank's monetary policy instruments
Creating money
Why and how are the banks regulated?
How do the banks finance a mortgage?
Central regulations in the financial sector
The OTC derivative reform – safer risk management and increased transparency
Virtual currencies

The Swedish Financial Market 2013
Supervision and regulation of the financial sector in Sweden
Riksbank facilities for short-term borrowing and deposit requirements
A new framework for the Swedish reference rate Stibor
Foreign operations – a part of the banking groups
Creating money
Why are banks regulated?
Central regulations in the financial sector
The OTC derivative reform – more robust risk management and increased transparency
Swish – a new mobile payment service
Payment behaviour in Sweden

The Swedish Financial Market 2012
Supervision and regulation of the financial sector in Sweden
Riksbank facilities for short-term borrowing and deposit requirements
Covered bonds in Sweden
The TED spread and the basis spread – different measures of risk
Covered interest rate parity
Foreign operations – a part of the banking groups
The banks' wholesale funding
Central regulations in the financial sector

Central counterparty clearing
Risks in the financial infrastructure
What is the cost of a payment?

The Swedish Financial Market 2011

Supervision and regulation of the financial sector in Sweden
Riksbank facilities for short-term borrowing and deposit requirements
Phase-out of the measures taken by the Riksbank during the financial crisis
Covered bonds in Sweden
The Swedish market for corporate bonds
The TED spread and the basis spread – different measures of risk
Covered interest rate parity
High frequency trading
Foreign operations – a part of the banking groups
The banks' wholesale funding
Central laws in the financial sector
Risks in the financial infrastructure
New payment service laws
The payment behaviour of the Swedes

The Swedish Financial Market 2010

Covered bonds in Sweden
Riksbank facilities for short-term borrowing and deposit requirements
The impact of the Riksbank's extra lending on the balance sheet
RIBA and NOIS – two new derivatives on the fixed-income market
The TED spread and the basis spread – different measures of risk
Covered interest rate parity
Share trading via an electronic system
Foreign operations – a part of the banking groups
Central laws in the financial sector
Risks in the financial infrastructure
SEPA and the Payment Services Directive
TARGET2-Securities – securities settlement on a common European platform

Index

A

accounting 58, 118
Aktietorget 55n, 60
algorithmic trading 46n, 58
arbitrage 47
authorisation 109

B

Bankgirot 123n, 129nn
banking business 97
banks 8n, 62nn, 74n, 81nn
Basel regulatory framework 75
BIS (Bank for International Settlements) 41, 45, 48n
bond 6, 18n, 28nn, 81
bond market 18, 28nn
brokers 23, 38, 45, 57, 62, 101
buffer capital 103

C

capital adequacy 71, 98
capital injection 100
capital requirement 75, 98
card payment 106, 112, 116n, 119n
cash 13, 23, 69, 106, 113nn
central bank 13, 25, 41, 68n, 109
central bank money 68, 109, 125
central counterparty (CCP) 42, 58, 103n, 111nn, 125nn
centralised funding 77
certificate 18n, 35n
charge card 115
clearing 36, 102n, 108, 112, 122nn
clearing organisation 102, 108, 122
CLS 47, 112, 122, 127nn
commission trading 94
corporate bonds 33, 35, 37nn,
correspondent bank 113, 128n
counterparty risk 23, 111, 112
covered bonds 21, 29n, 35, 37, 40, 69, 81
covered interest rate parity 43
CRD IV (Capital Requirements regulation and Directive) 75, 98
credit 7nn, 12, 27, 31n, 62, 64, 94, 97, 114, 117, 119, 125
credit derivatives 39
credit institution 8, 11, 27, 50, 62nn
credit market company 30, 98
credit risk 8, 10, 33, 35, 64, 71
credit transfer 116n
cross-border payments 129
cross trading 47
currency swap 43n
customer trading 38, 45

D

debit card 99, 115
decentralised funding 77
Delivery versus Payment (DvP) 110
deposit companies 100
deposit contract 21n, 36, 39
depository 103

derivative 8, 18, 36, 39n, 42n, 47, 60, 103, 109, 129n
derivative instrument 18, 39, 42
direct debit 113n
discount bonds 28
discretionary portfolio management 102
domestic payments 130

E
e-invoice 118
electronic money (e-money) 118
electronic trading 46, 56
EMIR (European Markets Infrastructure Regulation 103
equity capital 50n, 65, 75
equity funds 87, 92
equity market 6, 8, 17, 36, 50nn, 128n
EU regulation 12, 97
Euroclear Sweden 124nn
EuroCCP 126
European Banking Authority (EBA) 12
European Systemic Risk Board (ESRB) 12

F
financial companies 8, 12, 15n, 53, 97
financial infrastructure 106nn
financial stability 11n, 14, 106
Financial Stability Council 12
Financing Business 97n
Finansinspektionen 10, 12n, 14n, 97
fine-tuning transactions 26
First North Stockholm 55
foreign exchange forwards 43, 48, 53
foreign exchange options 43n, 48
foreign exchange swaps (FX swaps) 43n, 48
fund management companies 92nn

G
general guidelines 15, 104
government bonds 15, 27, 29, 34n, 37n

H
hedge funds 45, 92n
high frequency trading 58
hub currency 47

I
IMM-FRA 39n
insider trading 104
insurance associations 91
insurance companies 62, 88nn
interbank 38, 45n, 71, 82, 130n
interbank market 46, 71
interbank participants 38, 45
interbank rate 82n
interbank trading 38, 45n
interest-rate forwards 39
interest-rate options 41
interest-rate swaps (IRS) 40
intraday facilities 25
investment advice 102n
investor protection 104
investors 6nn, 18n, 21, 32n, 52, 54, 57, 62n, 81, 87
issuers 7, 19, 28, 51
issues 28, 34, 51, 81

K
Kommuninvest 30, 85n

L
laws 11, 97nn
LCR (Liquidity Coverage Ratio) 75
liability company 51, 91, 98
liquidity 9, 55, 64, 74n

M
macroprudential policy 11
market abuse 103n
market maker 34, 37, 45, 54, 62, 94
market manipulation 104
marketplace 51nn, 110, 111
mini future 54, 61
Ministry of Finance 10, 12, 15
mobile payment 119
monetary base 68
Monetary Financial Institution (MFI) 23
monetary policy 12n, 21, 25n
monetary policy counterparty 21, 25n
money 6, 13, 18, 67nn, 100, 105
money laundering 98, 100, 102
money market 7, 19nn
money supply 70n
mortgage institution 62n, 78nn
Multilateral Trading Facility (MTF) 55

N
Nasdaq OMX Clearing 125n, 127
Nasdaq OMX Stockholm 34, 51, 57nn
non-life insurance companies 89n, 101
Nordic Derivatives Exchange (NDX) 34, 60
Nordic Growth Market (NGM) 55, 59
Nordic Large Cap 59
Nordic Mid Cap 59
Nordic Small Cap 59
Nordic MTF 55n, 60
NSFR (Net Stable Funding Ratio) 75

O
on-tap sale 34
option 8, 41, 44n, 53
overnight market 23, 26n
Over the Counter (OTC) 42, 103

P
payment system 10, 13, 25, 64, 96, 123
pension foundations 91
pension funds 19, 37, 62, 87, 93
prepaid card 119
primary market 18, 33, 38
primary monetary policy counterparties 21, 24, 40
private bonds 33n
private equity investment company 62, 87nn

R
reference rate 22
regulated market 55n, 59, 102
regulations 11nn, 74nn
repos 23nn, 28, 36
retail payment 113n, 123n, 129n
Riksbank certificate 26
Riksbank futures (RIBA) 39n
risk capital 16, 50, 87
RIX 128nn

S
secondary market 18n, 33
securities 7, 18n, 22
securities institution 94

securities trading 46, 57, 62, 94n, 103, 109n
simple payment 106
spot 18, 23, 36, 43, 48
standing facilities 25
Stibor 22
Stina swaps 40
stock exchange 55nn, 87, 91
structured product 42
support authority 16
Support to Credit Institutions Act 16n, 99
swap 40, 43n, 47, 81n
Swedish National Debt Office 10, 15, 20, 29, 34, 123

T
trade repository 103
trading platform 38, 55
trading structure 38, 42
transfer 91, 107nn, 116n, 123
treasury bill 18nn, 20, 34

V
virtual currency 120n

W
warrants 54n

Z
zero-coupon bond 20, 28

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