

The Swedish Financial Market

2016



S V E R I G E S R I K S B A N K

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Contents

Preface 4

CHAPTER 1 – The roles of the financial system 5

ARTICLE – Supervision and regulation of the financial sector in Sweden 10

CHAPTER 2 – The financial markets 15

The fixed-income market 16

ARTICLE – How can government bond purchases make monetary policy more expansionary? 29

The stock market 46

CHAPTER 3 – Financial intermediaries 58

Credit institutions 61

Private equity investment companies 74

Securities institutions 81

ARTICLE – Shadow banking from a Swedish perspective 83

CHAPTER 4 – The financial infrastructure 87

Different types of payments 87

Transactions when trading in financial instruments 90

Transactions in foreign-exchange trading 93

Retail payments 94

ARTICLE – Reduced cash usage and the role of the Riksbank
– Sweden's experience 99

Central systems in the financial infrastructure 105

Payment flows in the Swedish financial infrastructure 111

APPENDIX 1 – Tables 114

APPENDIX 2 – Market conventions in the Swedish fixed income and foreign exchange markets in SEK 130

APPENDIX 3 – Articles published in the five latest issues of The Swedish Financial Market 132

Preface

The Swedish Financial Market describes the 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 function in two ways: 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 stock market. This provides an account of how trading takes place. In addition, there is a presentation of various marketplaces and the different types of securities traded in these marketplaces, 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.

The descriptions are confined to the Swedish financial system. This distinction is, at times, difficult to make, 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 2016

Lisa Marklund
Editor

CHAPTER 1 – 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 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 by helping to channel savings into investments in an efficient manner.

The capital market is the supply channel that makes it possible for companies, households, organisations and governments to access capital to use for investments and operations. Put another way, this market also helps investors to find interesting investment opportunities. The capital market consists of the stock market and the credit market. Governments primarily fund their activities on the credit market, for example by issuing bonds¹, while certain companies can find capital by also turning to the stock market. In terms of value, the significance of the stock market in Sweden and many other countries is relatively limited in comparison to that of the credit market. 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 is a bank. Savers who, for example, want to even out 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 shares or debt securities, or in funds on both the Swedish market and

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

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 or their project's creditworthiness – it is sufficient to convince the bank alone. Similarly, the saver does not need to determine the creditworthiness of every borrower; it is enough to be convinced that the bank can meet its obligations. The financial sector – in this simplified case represented by a bank – thus contributes to a more efficient allocation of capital in the economy. Other examples of financial intermediaries are mortgage institutions and finance companies.

However, it is not always the financial intermediaries that are the most efficient means of distributing funding. It is sometimes better for companies to turn directly to the capital market and borrow money by issuing bonds and money market instruments². Funding can be provided even more efficiently by using these standardised securities³ that can be easily bought and sold on a market. In simple terms, the *issuers* of bonds and other debt instruments thus correspond to the banks' borrowers.

A share is another common example of a standardised security. Unlike bonds and other debt instruments, shares do not generate interest. Instead, they represent shares in a company and the return 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 shares normally accept a higher risk than investors in, for example, government bonds. Thus, unlike the credit market, the stock market is therefore usually regarded as a market for venture capital.

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.

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 shares, bonds and other financial instruments that represent an economic value and that can be traded.

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 risks⁴.

Both companies and private individuals need to protect themselves against different kinds of risk. Individuals, for example, may need to insure themselves against fire or theft. They can do this by using the products offered by property and liability insurance companies. They may also need to secure their livelihood after retirement or provide for their survivors in the event of premature death. They can do this by taking out life 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 constructing portfolios of securities (mutual funds) and thus spreading (diversity) their holdings among several securities, fund management companies can reduce the risks compared to a holding of only one or a few securities. The financial sector thus does not simply play a role in the mediation of capital, but also contributes to more effective risk management.

Efficient and safe payments

In addition to mediating capital flows and managing risks, the financial companies create the conditions for the 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 refers 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).

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

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 payment 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. But as Swedish banks normally fund their operations at short maturities and lend at longer maturities, liquidity risks arise in their operations. This means that their liabilities fall due more frequently, and must be rolled over 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 the markets being liquid.

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 such a case, it thus 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 thereby make it difficult for a bank to obtain 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 depends on the market at large and on the depositors' confidence in the bank. The banks have become increasingly dependent on the markets for their risk management and funding, and this means that they are also more sensitive to liquidity problems in these

markets. Liquidity shortages have arisen on several 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 temporary halt.

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

A serious crisis in the financial system risks leading to extensive economic and social costs. The authorities are therefore keen to avoid such a crisis and aim to be as well-prepared as possible to manage any crisis that may arise. 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 article Supervision and regulation of the financial sector in Sweden). Cooperation between authorities in different countries and with other international bodies is also of central importance as financial companies now increasingly work across national borders.

ARTICLE – Supervision and regulation of the financial sector in Sweden

Companies in the financial sector provide services that are important to the functioning and growth of the economy and thereby support the financial system's basic functions. 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 it 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 resolution⁵ or bankruptcy and that they 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 regulations, laws and statutes and thus have ultimate responsibility for the financial system. However, responsibility for safeguarding financial stability and maintaining an effective financial system has been divided between the Government (through the Ministry of Finance), the Riksbank, the Swedish National Debt Office and Finansinspektionen. They have different roles and tasks for the purpose of promoting financial stability. The Ministry of Finance is responsible for the regulation of financial markets and has overall responsibility for crisis management. The Riksbank is responsible for a central payment system and providing liquidity in the system. Finansinspektionen has the primary responsibility for macroprudential policy and the supervision of the financial

⁵ Resolution is a special procedure to manage an institution in distress without declaring it bankrupt and without taxpayers bearing the cost. In resolution, the government takes control of such an institution with the aim of sustaining all or parts of its operations and of maintaining financial stability. Institution, in this context, refers to banks, other credit institutions and securities companies.

companies. The Swedish National Debt Office is the resolution authority and bears responsibility for both preparedness and management of institutions in distress, but is also responsible for the deposit insurance scheme and prevention aid. Even if the authorities have different areas of responsibility, they must cooperate to be able to efficiently promote financial stability.

Cooperation between authorities

The Riksbank, Finansinspektionen, the Ministry of Finance and the Swedish National Debt Office play important roles when financial crises occur. 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 the need for various measures to counteract the accumulation of financial imbalances. In the event of a financial crisis, the need for measures to deal with the 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 makes it necessary 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. The EBA is to promote an uniform application of the regulations for banks in all member states but also plays a coordinating role towards the national supervisory authorities. As a consequence of 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, 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.

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).

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. 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 in the financial system 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 those 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.

⁸ The Riksbank's role and tasks in the work of promoting financial stability are described in *The Riksbank and financial stability*, February 2013, Sveriges Riksbank.

⁹ This is what is meant by the term "lender of last resort".

Finansinspektionen (Swedish financial supervisory authority)

The overall tasks and objectives of Finansinspektionen (FI) are to promote stability and efficiency in the financial system. Apart from acting to achieve a high level of resilience in the financial system, FI holds responsibility for counteracting imbalances on the credit market. The aim of FI's work is to prevent problems in the financial system leading to costs for society. FI can do this with the help of various instruments, such as the introduction of a loan-to-value limit or higher capital requirements for the banks, for example. FI also aims to contribute towards consumer protection in the financial area. It does this, for example, by issuing licences or permits, conducting supervision and issuing regulations.

Finansinspektionen issues 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 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 and in the event that changes in the legislation is warranted, the Ministry of Finance initiates such. The Ministry of Finance is also responsible for implementing EU directives and adapting Swedish legislation to EU regulations on the financial markets. The Government and the Ministry of Finance has overall responsibility for crisis management and coordination of this. In addition, the government has to consider certain issues relating to financial stability. This applies to e.g. resolution measures that could have direct fiscal or systemic effects and agreements on

preventing state aid to financial institutions. The Ministry of Finance is responsible for handling these issues and to establish proposals for government decisions.

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. By being responsible for the deposit insurance scheme, 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 enter bankruptcy. 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 resolution authority under the Resolution Act. In this capacity, the Office holds responsibility for both preparedness and the management of institutions¹⁰ in distress. Resolution is an alternative procedure to bankruptcy and means that the government takes control over the institution with the aim of sustaining all or parts of its operations if required to maintain financial stability. Owners and creditors must bear the institution's losses, not the taxpayers. The Office is also responsible for preparing and providing preventive government support to viable banks and other credit institutions. This support is primarily to be given via guarantees. In special cases, capital injections may be made.

¹⁰ Institutions refers to banks, other credit institutions and securities companies.

CHAPTER 2 – The financial markets

The financial markets are categorised here as the fixed-income market, the foreign exchange market and the stock market. Nowadays, Swedish banks and companies operate to a great extent on global financial markets, but this chapter focuses mainly on the Swedish financial markets. It describes 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 stock 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 takes place by the borrowers (mainly governments, banks and companies) issuing securities at various maturities, such as bonds and money market instruments. This gives the investors return in the form of interest. On the stock 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 the 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 to shield 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

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.

maturities that characterise these securities. We conduct a review of 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.

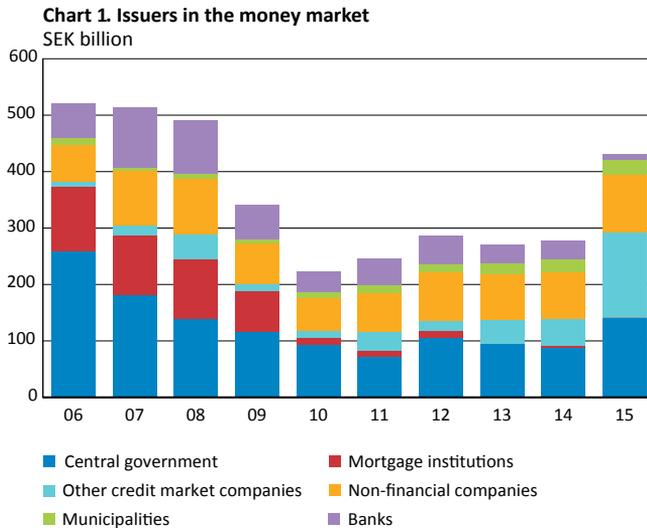
In 2015, the value of the total stock of money-market instruments rose by just over SEK 150 billion, amounting to SEK 432 billion at the end of the year (see Chart 1). The total stock of money market instruments issued has fallen by about SEK 100 billion since 2006.

A treasury bill¹² is a debt instrument¹³ 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 outstanding volume of treasury bills increased by approximately 60 per cent to SEK 141 billion at the end of 2015, which is equivalent to approximately 33 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.¹⁴

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 A debt instrument enables the issuing party to raise funds by promising to repay the lender in accordance with terms of a contract.

14 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.

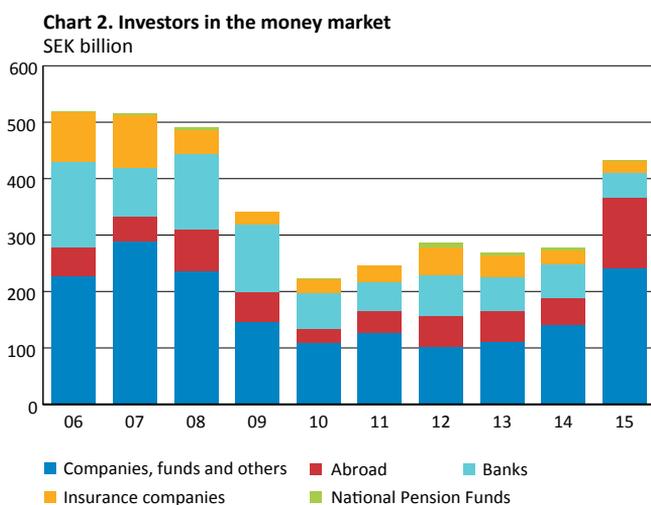


A certificate is the same kind of debt instrument as a treasury bill but is issued by mortgage institutions and companies, for example. The mortgage institutions' short-term borrowing in certificates issued in Swedish kronor has substantially decreased in recent years. The volume of certificates issued by the banks decreased in 2015 and amounted to about SEK 12 billion at the end of 2015.

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.¹⁵

Non-financial companies' borrowing amounted to SEK 103 billion at year-end 2015, an increase compared with the preceding year. The borrowing volume for Other credit market companies increased by SEK 101 billion to SEK 150 billion by year-end. In recent years, municipalities have steadily increased their borrowing volume. At year-end 2015, this was SEK 26 billion.

¹⁵ For example, the Basel III regulation includes requirements for a higher proportion of borrowing with long maturities.



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

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 about one-tenth of the total money market at the end of 2015, while the insurance companies' holdings corresponded to about 5 per cent of the market. The banks' and insurance companies' holdings amounted to SEK 43 billion and SEK 22 billion respectively at year-end 2015. Foreign investors accounted for slightly less than 30 per cent of the market's total volume at year-end 2015.

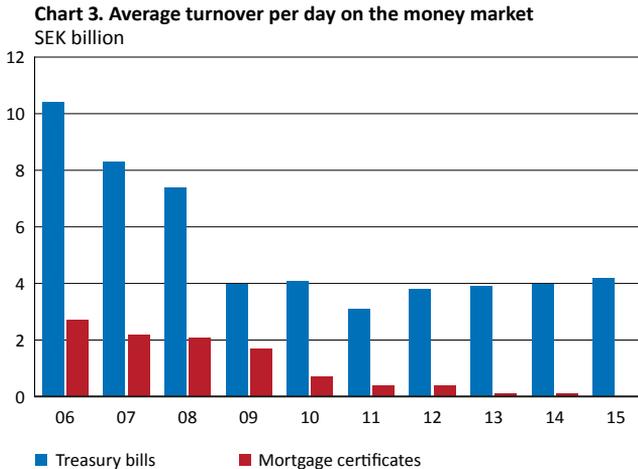
The category Companies, funds and others accounted for about half of the outstanding stock at the same point in time, corresponding to SEK 240 billion. The National Pension Funds (AP funds) have invested very little in short-term fixed-income securities over the last 10 years.¹⁶ At the end of 2015, their holdings amounted to about SEK 1 billion, or 0,5 per cent of the total volume of short-term fixed income securities.

Low turnover on the money market

Between 2014 and 2015, 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'

¹⁶ More information about the National Pension Funds is available in the section on state-owned pension funds in the chapter Financial intermediaries.

portfolios for their entire term. According to statistics from the Riksbank's primary monetary policy counterparties¹⁷, the turnover in mortgage certificates averaged approximately SEK 17 million per day in 2015, after having fallen by SEK 76 million per day compared with the preceding year. At the same time, turnover in treasury bills increased by SEK 221 million per day to slightly more than SEK 4 billion per day in 2015 (see Chart 3).



Source: The Riksbank

Contract types for the money market's shortest maturities

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* (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, which is the shortest period of

¹⁷ More information about the Riksbank's counterparties is available on the Riksbank's website.

maturity on the money market with deposits and lending overnight.¹⁸ 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.¹⁹

The Riksbank's repo rate also influences Stibor²⁰, 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 panel²¹ offer each other for loans without collateral in Swedish kronor. 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 that households and companies have to pay.²²

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 risk²³ for the lender. In principle, all securities that can be traded on the fixed income market can be used as collateral for repos.

18 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.

19 More information on the Riksbank's interest-bearing instruments can be found in the article The Riksbank's monetary policy instruments, *The Swedish Financial Market 2015*, August 2015, Sveriges Riksbank.

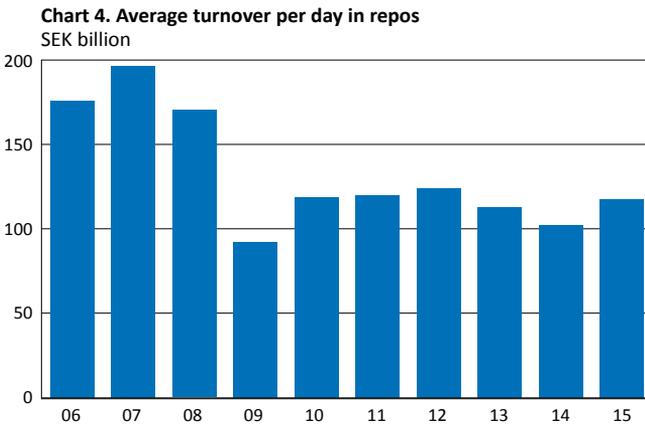
20 Stibor stands for Stockholm Interbank Offered Rate.

21 At the end of 2015 the Stibor panel consisted of Danske bank, Handelsbanken, Länsförsäkringar bank, Nordea, SEB and Swedbank.

22 For further information, see *The Swedish Financial Market 2013*, August 2013, Sveriges Riksbank, and *The Riksbank's review of Stibor*, November 2012, Sveriges Riksbank and *Stibor reexamined – a follow-up*, May 2014, Sveriges Riksbank.

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

In 2015, the turnover in repos among the Riksbank's primary monetary policy counterparties and the National Debt Office's dealers was at about the same level as it had been the last 5 years. On the other hand, turnover has fallen since peaking in 2007 (see Chart 4). In 2015, turnover was about SEK 117 billion per day. Almost all of this 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.²⁴



Source: The Riksbank

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.

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 payments²⁵ (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,

²⁴ Inflation-linked government bonds are not included in these figures.

²⁵ The part payments relate to payments of interest.

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 gradually increased over the last three years. At the end of 2015 the outstanding volume of bonds issued in kronor amounted to SEK 3,267 billion. A Swedish participant may also issue bonds in currencies other than Swedish kronor.²⁶

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.

Central government borrowing is used to fund the central government loan requirement.²⁷ At the end of 2015, the outstanding stock of government bonds amounted to SEK 785 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 34 per cent of GDP at the end of 2015, 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 fixed term 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 (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

²⁶ 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.

²⁷ The Swedish National Debt Office manages central government borrowing on the bond market.

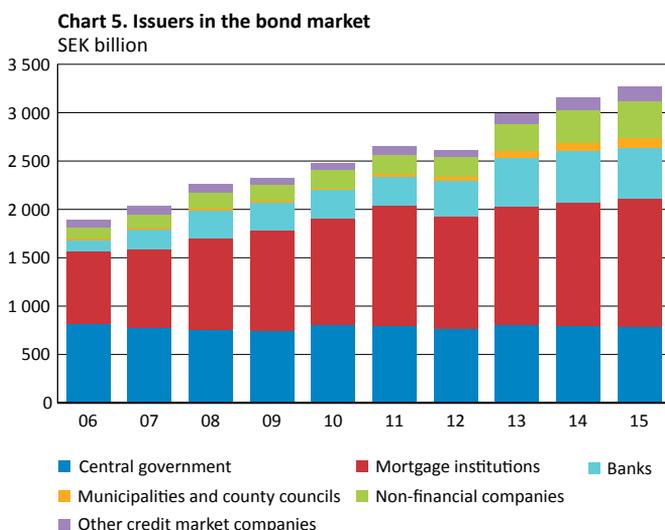
mortgage bonds in Swedish kronor now consists of so-called covered bonds.²⁸ Covered bonds provide the holder with the right to a specific Cover Pool if the issuer should be declared bankrupt.²⁹ Eight Swedish banks or their mortgage institutions have permits from Finansinspektionen to issue covered bonds.³⁰ The outstanding volume of covered bonds in Swedish kronor was SEK 1,523 billion at year-end 2015. The corresponding volume in foreign currency was SEK 479 billion. 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 wholesale funding.

The banks' borrowing on the bond market decreased by about 2 per cent in 2015, compared with 2014. The outstanding volume amounted to SEK 526 billion at the end of the year (see Chart 5).

28 On 1 July 2013, Finansinspektionen introduced new regulations for covered bonds, see Finansinspektionen's website.

29 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*, August 2012, Sveriges Riksbank.

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



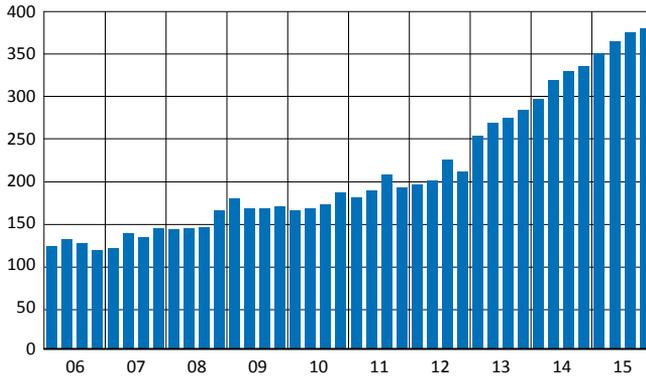
Note. Outstanding nominal amounts.
Sources: Statistics Sweden and the Riksbank

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 2015, a total of 280 municipalities and county councils had outstanding bond loans in cooperation with the credit market company³¹ Kommuninvest. This is an increase of 20 members since 2010. Over the same period, Kommuninvest increased its lending from SEK 134 billion to SEK 251 billion in 2015. At the end of 2015, Kommuninvest's outstanding Swedish bond programme amounted to around SEK 134 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 154 billion at year-end 2015.

Non-financial companies can also fund their operations by issuing bonds. At year-end 2015, Swedish companies had outstanding bonds in Swedish kronor amounting to just over SEK 380 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 one-fifth of the non-financial companies' loan-based funding. Most of their funding is still made up of borrowing from credit institutions, while the remainder comes from intra-group loans.

³¹ 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.

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



Source: Statistics Sweden

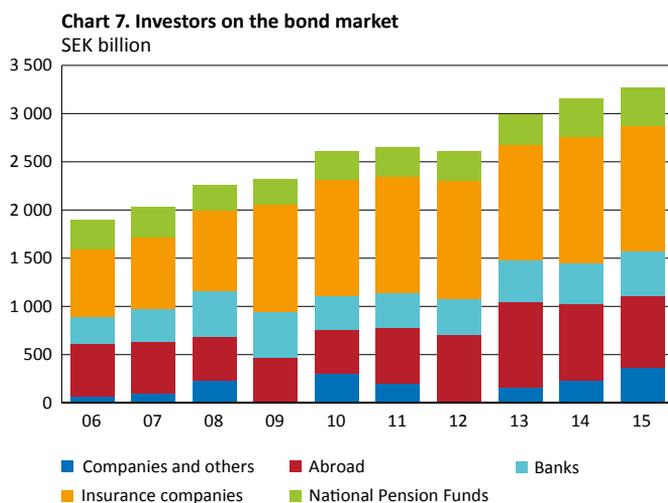
Large, investment-grade Swedish companies account for most of the issue volumes on the bond market. However, in recent years, the number of companies choosing to issue bonds has increased significantly. Smaller high-yield companies have also begun to turn to the bond market. Consequently, there has been 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.³²

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 2015. They accounted for SEK 1,297 billion, which is equivalent to 40 per cent of the total holdings among investors (see Chart 7). The banks' bond holdings amounted to SEK 468 billion at the same date. In 2015, foreign investors³³ decreased their holdings on the bond market by SEK 59 billion, to SEK 741 billion by year-end.

³² For further information, see the Economic Commentary Johansson, Tor (2013), Search for yield in a low-interest rate environment, *Economic Commentary* no. 4, 2013, Sveriges Riksbank.

³³ 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.



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

Companies and others³⁴ increased their bond holdings by over SEK 140 billion in 2015. This category had invested about SEK 360 billion in bonds at year-end 2015.

The Swedish bond holdings of the AP funds increased to SEK 400 billion in 2015.

Turnover on the bond market

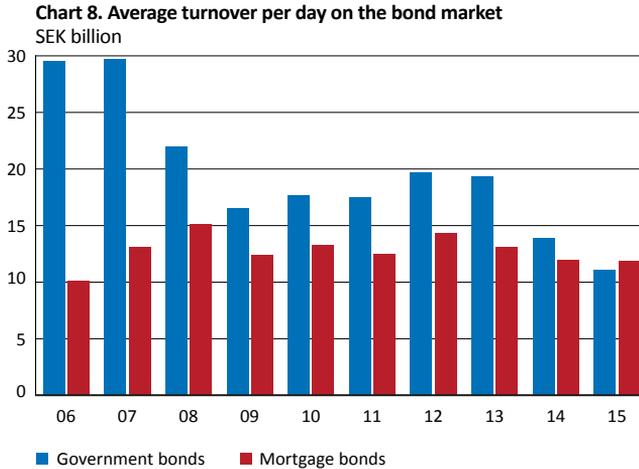
The total average turnover per day in government and covered bonds was approximately SEK 23 billion in 2015, which is the lowest level noted in recent years (see Chart 8). From almost SEK 30 billion per day in 2006-2007, turnover for government bonds has been below SEK 20 billion a day since 2009. Turnover in covered bonds has been more stable.

Government bonds are primarily bought and sold on the secondary market. In 2015, about 97 per cent of all the transactions in government bonds were conducted on the secondary market, while about 3 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.³⁵ Covered bonds also have a relatively good turnover on the secondary market. The turnover in corporate

³⁴ 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.

³⁵ 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 slight.

bonds is, on the hand, much lower as investors to a greater extent retain these bonds in their investment portfolios until they mature.



Source: The Riksbank

Alongside the institutional trading in bonds, trading also takes place in private bonds. A private bond is a debt security primarily aimed at private individuals and other small investors. They are listed on Nasdaq Stockholm or on 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.

ARTICLE – How can government bond purchases make monetary policy more expansionary?

Inflationary pressures have been low for several years both in Sweden and abroad. In recent years, the Riksbank has made monetary policy more expansionary by cutting the policy rate. To further expand monetary policy, the Riksbank started purchasing bonds at the beginning of 2015. The bond purchases are expected to lower the real market rates charged to households and companies, thereby increasing the volume of loans and the scope for consumption.

The Riksbank conducts a policy of flexible inflation targeting which aims to stabilise inflation around two per cent and resource utilisation around a normal level. By adjusting the repo rate and by communicating how the repo rate is expected to develop in the future, the Riksbank can affect activity in the economy, and thus inflation, through various channels. For example, market interest rates for households and companies can be affected.

As inflationary pressures have been low for several years, both in Sweden and abroad, the Riksbank, like several other central banks, has successively cut its policy rate. When the policy rate approaches its lower limit, a central bank may need to resort to other methods than policy rate cuts to make monetary policy more expansionary. The central banks of several countries have therefore chosen to expand their balance sheets by purchasing government bonds. The Riksbank initiated such purchases in 2015. The bond purchases are expected to make monetary policy more expansionary by affecting both short-term and long-term market rates and other financial prices via various channels³⁶:

- The signalling channel: The purchases signal an expansionary monetary policy in which the short-term policy rate can be expected to be held on a low level for a longer period.

³⁶ Alsterlind, Jan, Erikson, Henrik, Sandström, Maria and Vestin, David (2015), How can government bond purchases make monetary policy more expansionary? *Economic Commentary* no. 12, 2015. Sveriges Riksbank.

- The premium channel: The purchases reduce access to government bonds. With this, the premium for government bonds will fall (as the price increases) and government bond yields will thereby also fall.
- The portfolio balance channel: The purchases may have knock-on effects on prices of other assets as a consequence of investors choosing for example to invest in other types of bond. When this happens, the bond yields of these also become pushed down.
- The liquidity channel: The Riksbank pays for the bond purchases by increasing the monetary base. This results in an increase of the banks' liquidity surplus towards the Riksbank, which, in turn, is expected to lead to lower interest rates.

The effects on the economy are created through the interplay of price and volume effects. The purchases are aimed at lowering the real market rates that households and companies meet and thereby increasing the volume of loans. Lower interest rates mean that households with variable-rate loans will have more scope for consumption, which could itself be expansionary.

Decisions to purchase bonds are taken by the Executive Board of the Riksbank which also decides how many are to be purchased and the length of time the purchases are to continue. After such a decision has been taken, weekly auctions are usually held, for which the Riksbank announces in advance which bonds it wishes to purchase and for approximately which amounts. Following this, those banks³⁷ approved by the Riksbank have an hour to enter bids in the auctions, that is to announce which bond they wish to sell to the Riksbank, at which price and in which volume. Investors wishing to participate in the auction contact one of the approved banks and have the bank enter a bid in the auction in question.

In 2015, the Riksbank purchased government bonds for an average of SEK 3 billion every week, usually divided among two different government bonds. At the end of 2015, the Riksbank had purchased government bonds in a nominal amount of SEK 135 billion.

³⁷ Allowed participants in these auctions are the Riksbank's monetary policy counterparties. See the Riksbank's website for more information.

Issues and the trading structure on the fixed-income market

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

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, seven such dealers are used.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.

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. 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

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

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 they receive 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 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 visible as the difference between the different bond categories.

As a rule, yields 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 participants in the market expect in the future. It also reflects the compensation that an investor requires for investing capital over long maturities. Investments with shorter maturities entail a lower interest-rate risk. Bonds with different maturities cannot completely 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, which may affect the slope of the yield curve.

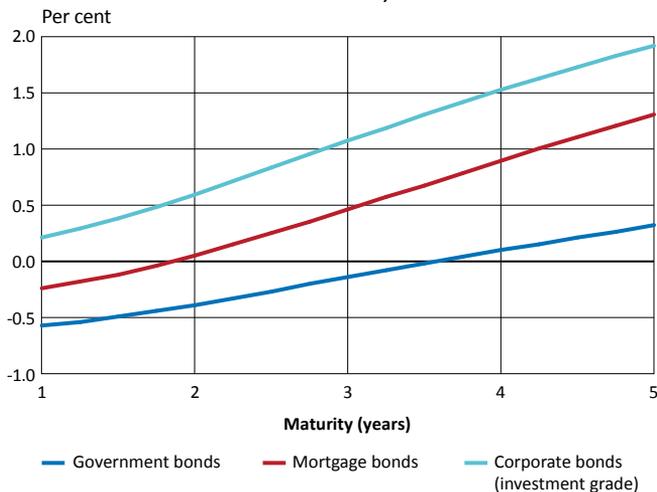
At the end of 2015, Swedish government bonds with maturities of less than 3.5 years were traded at negative rates (see Chart 9). A similar trend with negative government rates was also seen in various parts of Europe. Trading a bond at a negative rate means that the investor that purchases the bond and 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 2015.

39 For more information on covered bonds, see Sandström, Maria, Forsman, David, Stenkula von Rosen, Johanna and Fager Wettergren, Johanna (2013), The market for Swedish covered bonds and links to financial stability, *Sveriges Riksbank Economic Review*, 2013:2. Sveriges Riksbank.

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.

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 than 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-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 regulatory frameworks governing banks and insurance companies, for example, may increase their demand for assets with high credit ratings, even if these holdings have negative yields.

Chart 9. Yield curves for Swedish bonds, December 2015



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 setting 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.

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

		Issuance process					
	Financial instrument	Auction		Type of intermediaries	Clearing of the security	Marketplace for trading	Maturity
		form	continuous issue				
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	CCP/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

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 the 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 and Räntetorget.

Trading must occasionally be anonymous. 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

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.

SEK 103 billion per day during 2015. The corresponding figure for the previous year was SEK 126 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 fictitious contracts, which means that the underlying loan sums are not transferred. The turnover in RIBA contracts is not particularly large compared to that in IMM-FRA contracts. In 2015, turnover in RIBA contracts averaged about SEK 13 billion per day, which is slightly more than the turnover in 2014.

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 2014 and 2015 from SEK 15 billion to SEK 13 billion per day. The turnover in forwards with mortgage bonds as the underlying asset was about SEK 5 billion per day in 2015 (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, obtain 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*

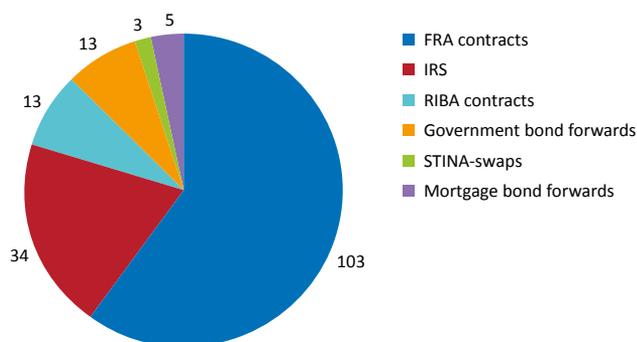
⁴³ An important difference between the RIBA and FRA contracts is that the RIBA contract known as the "March contract" is finally settled against the average repo rate during the three-month period December to March, while the FRA "March contract" is finally settled against the average Stibor during the period March to June.

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

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 was unchanged at SEK 3 billion between 2014 and 2015. The corresponding figures for IRS were just over SEK 28 billion in 2014 and SEK 34 billion in 2015 (see Chart 10).

Chart 10. Average daily turnover on the interest rate derivative market, 2015
SEK billion



Source: The Riksbank

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 these 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 approximately SEK 2 million. Turnover volumes are larger for options with IMM-FRA forwards or interest-rate swaps as the underlying assets.

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

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 response 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.

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, shares 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 stock 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 OTC 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 Clearing 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

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

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

Swedish kronor. The turnover amounts are larger on the foreign exchange market than on the fixed-income market and the stock market.

The Swedish foreign exchange market is in this section 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 as the trade in all currency pairs that is performed by institutions in Sweden. Consequently, this trading 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*.

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

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.

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 fluctuations in exchange rates. 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

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.

example, to reduce the foreign exchange risk in future transactions. The buyer of a foreign exchange option has the opportunity, but not the obligation, to exercise the option on the date that the payment falls due. 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, set 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 more order-driven⁵¹ 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 study⁵² from 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

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, 2013*. Bank for International Settlements.

an EUR rate. If the bank wants to restore its foreign exchange allocations to the position prevailing before the sale of EUR, it will buy EUR for SEK from another bank. This transaction between the two banks may give rise to further interbank trading. The pricing of currency is largely determined on the interbank market, where bid and ask prices are continuously listed for different currencies against SEK. The prices that are quoted to Swedish customers are therefore very often a result of pricing on this market.

Electronic trading

Foreign currency trading is increasingly shifting from telephone trading to 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. Continuous Linked Settlement (CLS) 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 Bergsten, Maria and Forss Sandahl, Johannes (2013), Algorithmic trading in the foreign exchange market, *Economic Review 2013:1*. Sveriges Riksbank.

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 2015, the counterparties consisted of the four major Swedish banks and a further four larger international players.⁵⁴ At an estimate, the Riksbank's counterparties account for about half of the global turnover in SEK.⁵⁵

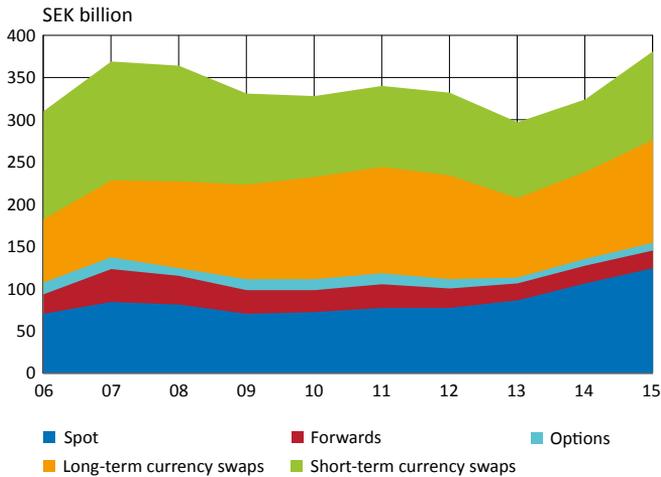
According to the statistics collected by the Riksbank, average turnover amounted to about SEK 382 billion per day during 2015, which was slightly more than in the previous year (see Chart 11).⁵⁶ Of this, the daily turnover in spot transactions averaged around SEK 124 billion per day in 2015.

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

55 According to *The Triennial Central Bank Survey*, Bank for International Settlements 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.

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



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 turnover in foreign exchange swaps was about SEK 230 billion per day in 2015. The turnover in foreign exchange swaps with maturities from two days to 18 months increased by almost SEK 20 billion to SEK 122 billion per day between 2014 and 2015. The turnover in foreign exchange swaps with maturities of up to two days increased by SEK 19 billion to SEK 105 billion per day during the same period.

The turnover in foreign exchange options among the Riksbank's counterparties increased by SEK 1 billion to SEK 9 billion per day between 2014 and 2015. The turnover in foreign exchange forwards in SEK at the Riksbank's counterparties totalled approximately SEK 21 billion per day in 2015.

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).

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, and its share of total turnover was 22 per cent in 2013 (see Table 2). The third largest currency pair was EUR/SEK, and its share of turnover was 14 per cent in April 2013.

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).

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

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

The stock market

The stock 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 needing capital can issue new shares. 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 requirements by issuing new shares that are sold to investors. This takes place on the primary market. Following this, the investors can trade the shares with each other on the secondary market. The stock market, which includes both primary and secondary markets thereby plays an important part in the conversion of savings to funding. It also provides market-based share valuations, making it easier for companies to estimate the financing cost of new investment projects as well as giving owners, company management and the public in general an idea of how well the company is being managed.

A share is essentially a participating interest that provides 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, share capital can be regarded as risk capital. However, the shareholders' risk is limited in the sense that they cannot lose more than the amount they have invested in the company.

Part of 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, a share does not fall due and the company has no formal commitments to repay the invested share 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 stock 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 shares and share-related instruments on Swedish marketplaces. Similarly, Swedish companies can list shares and share-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 stock 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 Stockholm (which is 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 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.

Quoted shares 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 unquoted shares. However, there are market participants who have specialised in mediating the sale and purchase of unquoted shares. Investments in unquoted shares are often channelled through a special

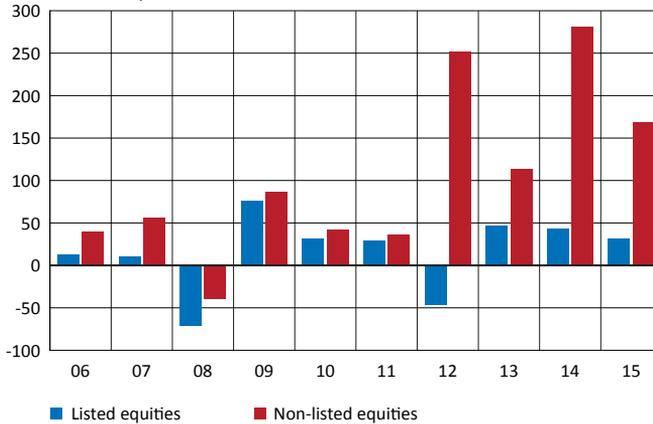
⁵⁸ The normal principle is one share/one vote, although differentiated voting rights also exist. For example, there may be class A shares in a limited company, which confer ten votes per share, and class B shares, which only confer one vote per share.

form of intermediary known as venture capital companies (see the section on venture capital companies in the chapter on financial intermediaries).

As regards the issue of shares, adjusted for repurchases⁵⁹, 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.

Chart 12. Net issues of Swedish shares

SEK billion, market value



Note. Due to a change in the method that calculates transactions of unlisted shares and revised primary statistics, particular concerning the balance of payments, the series of unlisted shares in this edition does not match with the previous editions. For more details see *Sweden's Official Statistics, Statistical Reports, FM 17 SM 1503, Statistics Sweden*.

Source: Statistics Sweden

Investors

The ownership of Swedish shares is widespread and comprehensive. At year-end 2015, the total market value of the shares listed on Swedish marketplaces amounted to just over SEK 5,900 billion. Foreign investors owned 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 just below 12 per cent at the end of 2015. 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 just under 27 per cent at the end of 2015.

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

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

Per cent

Sector	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-financial companies	9.0	9.4	9.5	9.1	9.2	12.0	11.5	11.9	12.4	13.5
Financial companies										
Banks, finance institutions, etc.	2.5	2.2	1.6	2.1	2.2	1.8	2.3	1.9	2.2	1.9
Investment companies	5.2	5.6	5.4	5.3	5.4	5.3	5.5	5.4	5.6	5.3
Mutual funds	11.2	10.9	11.4	12.6	12.3	11.9	11.5	11.7	11.8	11.9
Insurance companies, pension institutions	8.1	8.3	9.0	9.1	8.9	8.7	8.3	8.0	8.1	7.5
Financial companies, total	27.0	27.0	27.4	29.1	28.8	27.7	27.6	27.0	27.7	26.6
Public sector										
Central government	4.5	4.5	4.6	4.7	3.8	3.1	2.9	2.0	1.8	1.4
Local government	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social insurance funds	3.2	3.2	3.5	3.4	3.1	3.3	2.8	2.8	2.6	2.5
Public sector, total	7.8	7.8	8.2	8.1	6.9	6.4	5.7	4.8	4.4	3.9
Households	14.3	13.4	14.5	13.9	13.3	11.2	10.9	10.9	11.1	11.9
Non-profit making organisations										
Companies	2.1	2.0	2.1	1.8	1.6	1.7	1.9	2.2	2.5	2.3
Households	2.7	2.4	2.5	2.5	2.4	2.2	2.2	2.2	1.9	1.8
Rest of the world	37.2	38.0	35.8	35.4	37.8	38.7	40.3	41.0	39.9	40.0
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

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 funds.

Equity and equity index derivatives

In Sweden, futures and options are traded with individual shares and stock 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.

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 is 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 stock 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.

⁶⁰ They also occasionally instead invest in an optimised basket of shares or in derivative contracts.

There are many different types of exchange-traded product 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 these, give the holder the right, but not the obligation, to purchase or sell an underlying 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 level⁶². 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 2015, there were two regulated marketplaces in Sweden: Nasdaq Stockholm and Nordic Growth Market (NGM Equity). There were also three MTFs: First North Stockholm, Nordic MTF and Aktietorget.⁶³ 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 647 listed public limited companies in Sweden at the end of 2015 (see Table 4). Of these, 298 were listed on a regulated market and 349 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

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.

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

63 Burgundy, owned by Oslo Børs, was wound up in April 2015.

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.

Table 4. Swedish marketplaces 2015 (2014 in parentheses)

	Number of companies		Market value, SEK billion	
Nasdaq Stockholm	288	(269)	5 770	(5 323)
NGM Equity	10	(10)	2.2	(1.5)
Aktietorget	146	(129)	25	(14)
First North Stockholm	184	(147)	75	(42)
Nordic MTF	19	(15)	7.8	(3.0)
Total	647	570	5 880	5 384

Sources: Respective marketplace, Statistics Sweden and the Riksbank

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 Stockholm's regulations and is reported to it as normal stock exchange transactions. Examples of such trading include that 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 OTC trading) and is not subject to the regulations of any marketplace.

Equity trading on Nasdaq Stockholm

Nasdaq Stockholm is the predominant marketplace for Swedish shares. The market value of the shares listed on the marketplace made up 98 per cent of the market value of all listed Swedish shares at the end of 2015 (see Table 4). The following section describes the members of Nasdaq Stockholm, its trading structure and turnover.

Members of Nasdaq Stockholm

All trading on Nasdaq 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 Stockholm has 76 share-trading members, 44 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 Stockholm.

Trading structure

Share trading on Nasdaq Stockholm takes place electronically through the matching of orders in the trading system INET Nordic.⁶⁴ 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 stock market.

Many exchange members provide Internet-based services for placing orders. This can often entail lower transaction costs (for example brokerage fees) than when trading via securities companies and banks. When a deal is closed, information is sent to Euroclear Sweden where the transaction is settled.⁶⁵ Settlement entails the shares being deregistered from the seller's account and

64 INET Nordic was launched on the markets Nasdaq Nordic and Nasdaq Baltic in February 2010. This is the same system that NASDAQ uses on its US exchange and on its European trading platform NASDAQ Europe. The fixed-income market on Nasdaq Nordic still uses the old system SAXESS.

65 Those shares that are traded on Nasdaq Stockholm and that belong to the list Large or Mid Cap are settled via Euroclear and cleared via EuroCCP and LCH. LCH started to clear at Nasdaq Stockholm in November 2015 and, in 2016, a third CCP counterparty, Six X-Clear, will also start to clear. Exchange-Traded Funds (ETFs) are also cleared. More information about central counterparties is available in the chapter The financial infrastructure.

registered on the purchaser's account.⁶⁶ 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 two 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 stock market. Algorithmic trading means automated trading where orders and settlement are managed by computers.

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 stock market, but also occurs on other markets, such as the foreign exchange market. Nasdaq 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.⁶⁷

Listed companies

At the end of 2015, 288 companies were listed on Nasdaq Stockholm (see Table 4). Companies listed there are presented on a Nordic list, Nasdaq 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.

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.

⁶⁶ If the customer has a custody account at a broker, the transaction is instead registered in the custodian's management account at Euroclear Sweden.

⁶⁷ 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*.

Turnover and market value

At the end of 2015, the market value of the stock market at Nasdaq Stockholm was SEK 5,770 billion, an increase of just over 8 per cent compared with the previous year. Turnover amounted to just under SEK 4,202 billion in 2015. This is 36 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 just over 62 million (see Table 5). Compared with the bond market, for example, turnover is notably less on the stock market, counted in kronor, but considerably larger when counted in number of transactions.

Table 5. Key figures for share trading on various marketplaces 2015

	Nasdaq Stock- holm	NGM Equity	Aktie- torget	First North Stock- holm	Nordic MTF
Market value, SEK billion	5 770	2.2	24.9	75	7.8
Turnover, SEK billion	4 202	0.6	14.6	36	1.0
Average daily turnover, SEK million	16 741	2	58	143	4
Total number of deals closed during the year, thousand	62 275	109	1 452	2 138	110
Average amount per deal	67 475	5 383	10 055	16 838	9 232
Average number of deals per day	248 108	434	5 785	8 518	438
Rate of stock turnover, per cent	72	31	76	61	19

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

Equity trading on other Swedish marketplaces

Regulated markets

In addition to Nasdaq 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 2015, a total of 10 companies were listed on NGM Equity (see Table 4).

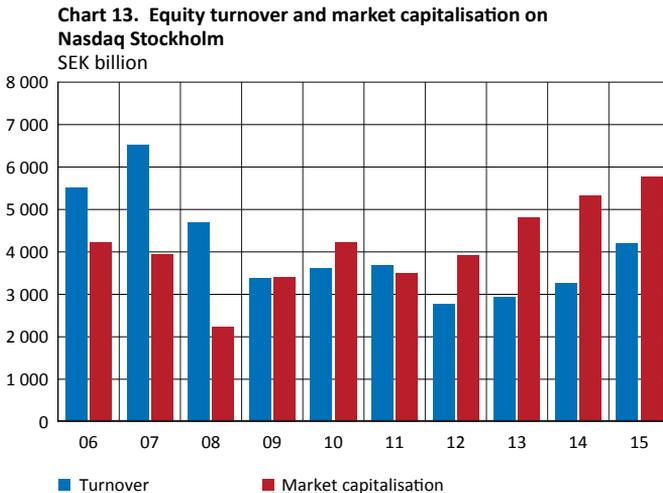
MTFs

At year-end 2015, 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 Stockholm AB. Trading takes place through INET Nordic, the same trading system used by Nasdaq Stockholm. Requirements for trading on First North Stockholm are less stringent than those for Nasdaq 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 2015, 184 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 2015, a total of 19 companies were listed on Nordic MTF.

The third Swedish MTF is Aktietorget. Just as with Nasdaq 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 2015, a total of 146 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 Stockholm. Here, futures and options are traded with shares and stock-indices as underlying assets. Equity index futures are traded the most. Nasdaq 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 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 2015
SEK billion

	NDX Sverige	Nasdaq Stockholm	Total
Warrants	13.1	1.7	14.8
Mini futures	27.6	0.0	27.6
Bull/bear contracts	63.2	17.7	80.9
Other instruments	0.6	5.9	6.6
Exchange-traded products, total	104.5	25.4	130.0
Exchange-traded funds, total	-	118.5	118.5

Note. Numbers for exchange traded funds on NDX Sweden are not available for 2015 due to the NGM no longer publishing this list.

Sources: NGM, Nasdaq Stockholm and the Riksbank

Chapter 3 – 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 risk capital
 - Investors, in the form of insurance companies, fund management companies and pension funds, that manage large shares of the general public's savings
 - Securities companies, which act as brokers and market-makers in the financial markets
-

The various intermediaries described in this chapter are classified by type of institution. The regulation of the financial intermediaries has also been designed using the different types of institution as a basis.

The major banking groups are important players in the Swedish financial system. Table 7 provides an overview of the way in which the business activities have been divided within the four largest banking groups. 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 the groups being organised like this is that several major Swedish banks have long sought to provide products and services in the entire financial field.

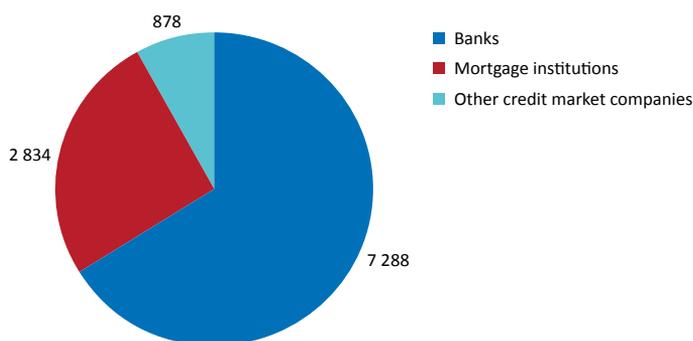
The groups organise their operations in different ways. For example, three of the four largest banking groups in Sweden operate their mortgage business in separate subsidiaries. The fourth offers these services through their banking arms. There are also financial groups that do not have banking activities 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 bank statistics presented in this chapter only 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 market, branches in Sweden and Swedish subsidiaries are included in the statistics.⁶⁸ 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.⁶⁹

However, the banks, mortgage institutions, insurance companies, securities companies and so on are 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.

Chart 14. Balance sheet totals for Swedish banks, mortgage institutions and other credit market companies at year-end 2015
SEK billion



Source: The Riksbank

⁶⁸ 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.

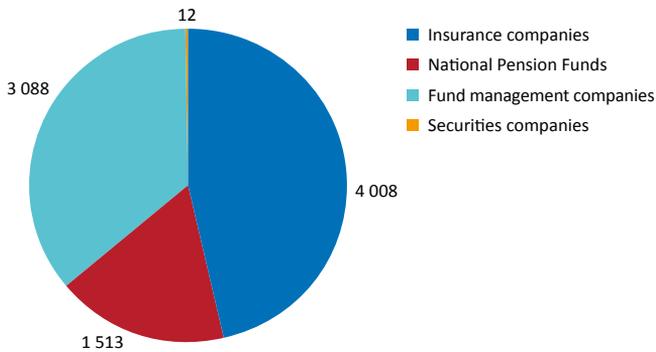
⁶⁹ See the *Financial Stability Report*, published by the Riksbank twice a year, for more information on developments in the four major banks.

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 Funds AB, svensk filial	Nordea Investment Management AB	Nordea Liv och Pension AB	Nordea Finans AB
Svenska Handelsbanken AB	Svenska Handelsbanken AB	Stads-hypotek AB	Handelsbanken fonder AB	Conducted by the bank	Handelsbanken Liv Försäkrings AB	Handelsbanken Finans AB
Skandinaviska Enskilda Banken AB	Skandinaviska Enskilda Banken AB	Conducted by the bank	SEB Investment Management AB	Conducted by the bank	SEB Trygg Liv AB och SEB Pension och Försäkring 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

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.

Sources: The banks' annual reports

Chart 15. Balance sheet totals and investment assets at year-end 2015
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

Credit institutions

Credit institutions include banks and non-bank credit institutions, in Sweden called credit market companies (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.

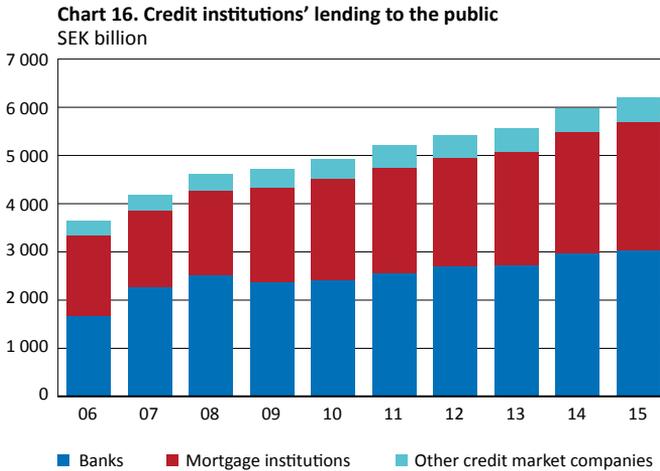
The banks have long played a key role among credit institutions⁷⁰ as they perform an important function in the payment system (see also the chapter The financial infrastructure). Among other services, the banks provide the accounts through which many payment transactions are made plus a number of additional payment services.

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 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.⁷¹ 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 shares. Chart 16 shows a breakdown of lending to the public, between banks, mortgage institutions and other credit market companies.

⁷⁰ 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 the article Shadow banking from a Swedish perspective on page 83.

⁷¹ The deposit guarantee scheme aims to protect customers' deposits in accounts up to the amount in Swedish kronor that corresponds to SEK 950,000 per customer and institution.



Note. 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.

Source: The Riksbank

Table 8. Different types of credit institution

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

Banks

The *banks* are the largest group of lenders among all credit institutions in Sweden. The banks account for almost half of the credit institution's total lending to the public, corresponding to SEK 3,031 billion (see Chart 16). In the Swedish market, the four largest *limited liability banks* together account for 72 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 the limited liability banks, the 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 as a consequence of 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.

In December 2015, there were a total of 116 banks established in Sweden. These comprised 39 limited liability banks, 28 foreign-owned branches and subsidiaries, 47 savings banks, and two co-operative banks.

Table 9. The ten largest banks' balance sheet totals at year-end 2015

SEK billion

SEB	1 560
Nordea Bank	1 552
Swedbank	1 139
Handelsbanken	1 013
Danske Bank ¹	866
SBAB Bank	181
Länsförsäkringar Bank	138
Landshypotek	81
DNB ¹	67
Skandiabanken	58
Total 10 largest	6 656
Total all	7 288

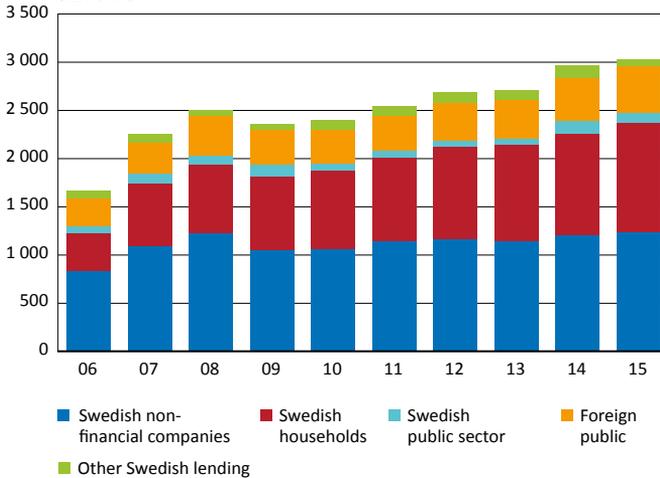
1) Swedish branch of foreign bank.

Source: The Riksbank

The banks' assets and liabilities

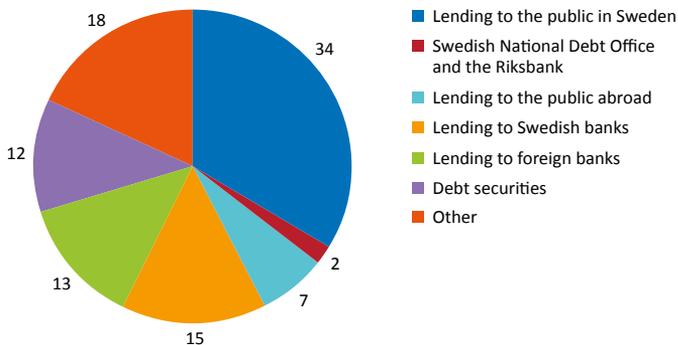
The banks' assets consist for the most part of loans to the public. At year-end 2015, this lending to the public amounted to SEK 3,031 billion. This corresponded to 41 per cent of the banks' total assets (see Charts 17 and 18).

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



Source: The Riksbank

Chart 18. The banks' assets at year-end 2015
Per cent



Note. Claims on the Riksbank amounts to 0.96 per cent of total assets. The corresponding figure for the Swedish national debt office is 0.70 per cent.
Source: The Riksbank

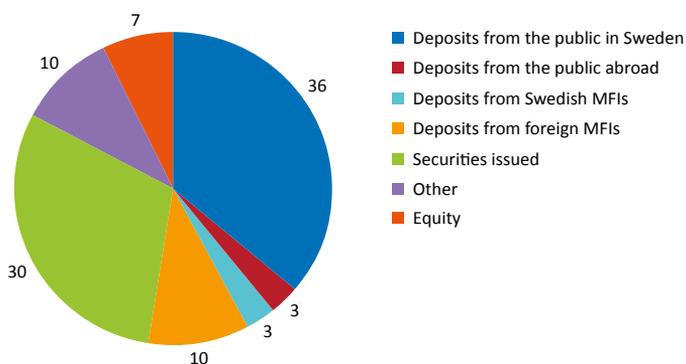
41 per cent of total lending went to Swedish non-financial companies and 37 per cent to Swedish households. About 16 per cent of the lending went to the foreign public.⁷² The remaining five per cent consisted of lending to the Swedish public sector and other Swedish lending.

In addition to lending to the public, the banks also have large claims on both Swedish and foreign monetary financial institutions.⁷³ Together, these claims comprised around 28 per cent of the banks' assets (see Chart 18). In addition to this, about 12 per cent of the assets were formed of interest-bearing securities.

The largest item on the liabilities side of the banks' balance sheets is deposits from the public. In 2015, deposits from the public corresponded to 39 per cent of the banks' total liabilities (see Chart 19). Swedish households accounted for about 54 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. In addition, the banks also have liabilities in the form of wholesale funding. This includes both deposits from Swedish and foreign monetary financial institutions and securities issued. The banks' equity only constitutes a minor part of the balance sheet total.

Chart 19. The banks' liabilities and equity at year-end 2015

Per cent



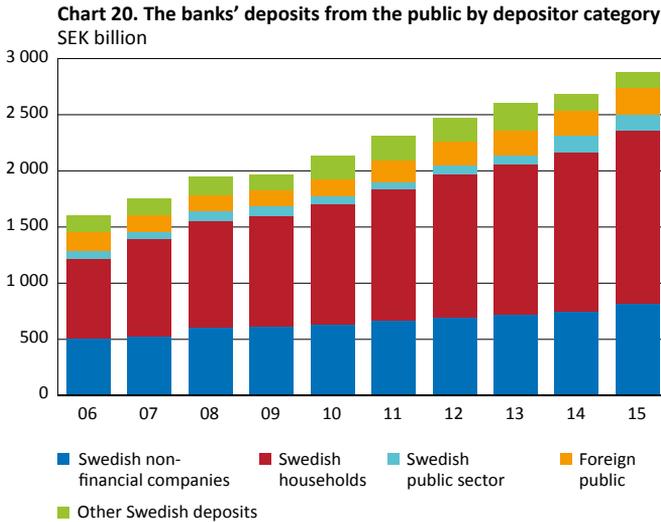
Note. For Swedish banks, the figures refer to liabilities and equity for operations conducted in Sweden. Swedish banks' overseas operations conducted by branches or subsidiaries are not included. For foreign-owned banks, branches in Sweden and Swedish subsidiaries are included.

Source: The Riksbank

72 This represents only a small part of the Swedish banking groups' lending to the public abroad. The remainder was thus lent by the bank's foreign operations (see the introduction to this chapter).

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

In addition to the assets and liabilities on the balance sheet, banks may also have off-balance sheet commitments. Typical off-balance sheet items are certain derivatives, guarantees and sureties. The common factor for these items is that they do not, as yet, show any real and quantifiable value. That is, it is uncertain whether the bank's commitments will actually result in an asset or liability, when it then will occur, and the total amount involved.



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

The major Swedish banks' foreign operations

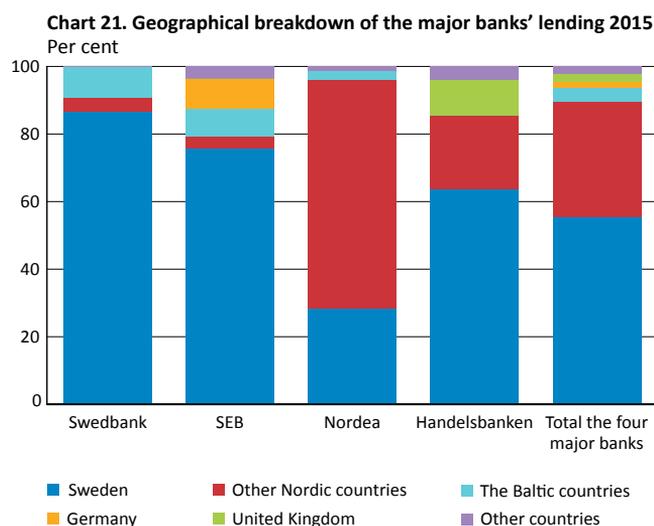
The four major banking groups (Handelsbanken, Nordea, SEB and Swedbank) also conduct a significant part of their operations outside of Sweden. Around 45 per cent of the major banking groups' lending to the public is lending to the public abroad. This, in turn, means that a large share of the banks' risks are abroad.

Nordea is the bank undertaking the largest proportion of lending to borrowers outside Sweden. Just over 70 per cent of Nordea's lending is to the public abroad. Also the three major banking groups have some of its lending abroad, the majority are however in Sweden (see Table 10). Chart 21 shows the geographical distribution of lending in each major banking group at year-end 2015.

Table 10. Operations of the four dominant banking groups on the Swedish financial market at year-end 2015
SEK billion

	Handels- banken	Nordea	SEB	Swedbank	Total, four major banks
Total assets	2 522	5 944	2 496	2 149	13 111
Loans to public, of which:	1 866	3 133	1 353	1 414	7 767
– loans to Swedish public	1 191	882	1 008	1 186	4 267
– loans to the public abroad	675	2 251	345	228	3 500

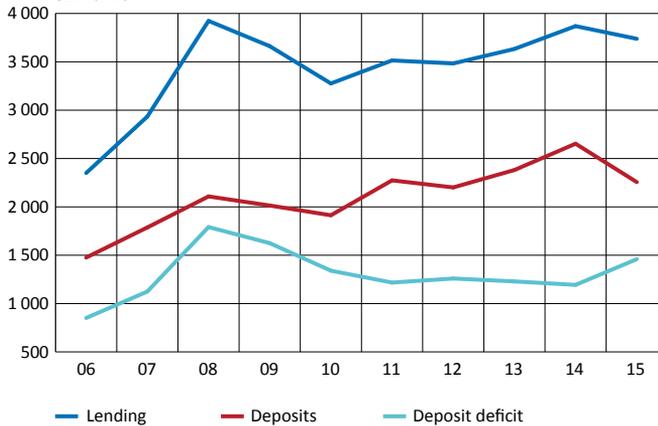
Note. To some extent repos are excluded from the lending to the Swedish public and the public abroad respectively.
Sources: Bank reports and the Riksbank



Just over 60 per cent of lending abroad is funded by 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. The banks usually fund this deficit with the help of wholesale funding in foreign currencies. At the end of 2015, the deposit deficit in foreign currencies amounted to SEK 1,482 billion.

The wholesale funding taking place 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 model. The Swedish banks usually 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 money on the global capital 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 3 600 billion at the end of 2015.

Sources: 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 43 per cent of the total lending of credit institutions.

Table 11. Mortgage institutions' total assets and lending at year-end 2015

SEK billion

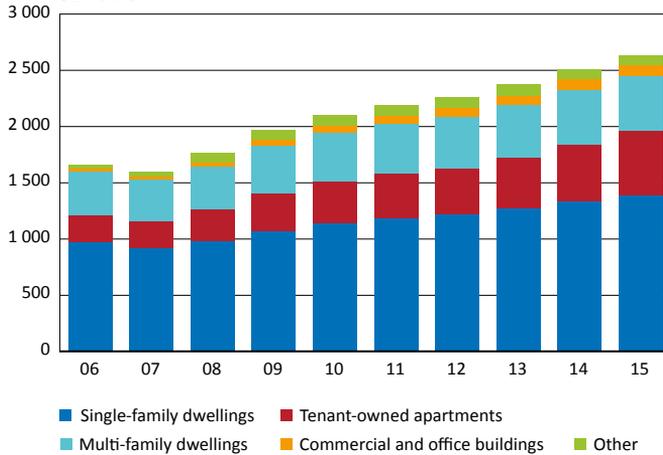
	Balance sheet total	Lending
Swedbank Hypotek	967	936
Stadshypotek	961	855
Nordea Hypotek	516	501
AB Sveriges säkerställda obligationer ¹	223	216
Länsförsäkringar Hypotek	167	147
Total	2 834	2 655

1. Fully-owned subsidiary of SBAB.

Source: The Riksbank

There are, in all, five mortgage institutions in the Swedish market. The three largest institutions are part of banking groups and together account for about 87 per cent of the mortgage institutions' total assets (see Table 11). At year-end 2015, lending by the mortgage institutions to the public amounted to SEK 2,655 billion. Lending with single-family dwellings and tenant-owned apartments as collateral comprised the largest part – about 74 per cent (see Chart 23). The rest consisted of lending with multi-family dwellings and commercial and office buildings as collateral.

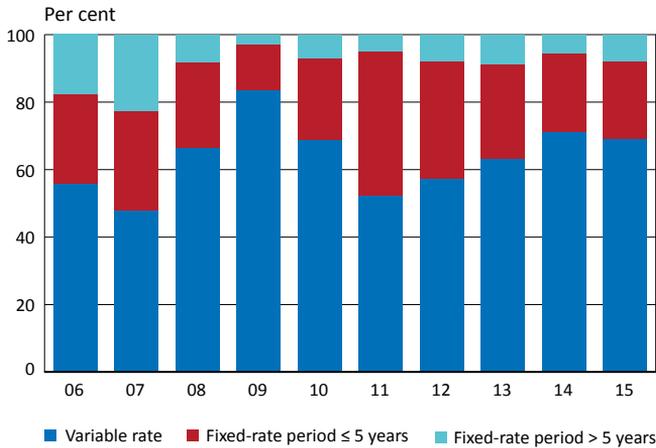
Chart 23. Mortgage institutions' lending to the public
SEK billion



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

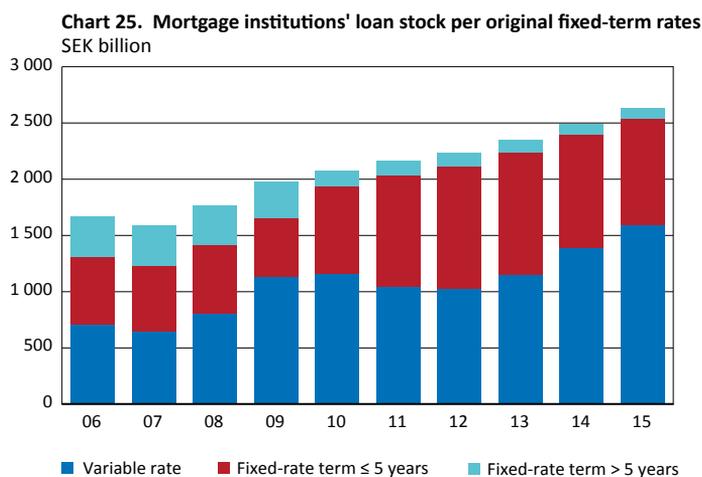


Source: The Riksbank

Interest rates on loans from mortgage institutions can be fixed, for different terms, or variable. The choice of interest-rate fixation period is affected, for instance, by customers' expectations regarding the development of short-term and long-term interest rates. In 2015, the proportion of new loans granted at variable rates was

69 per cent. The proportion having an interest-rate fixation period of five years or less was 23 per cent and the remaining eight per cent had an interest-rate fixation period of over five years (see Chart 24).

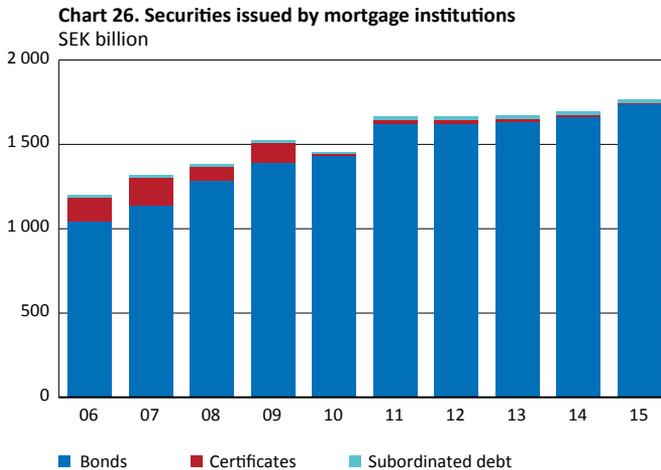
The distribution of the various fixed-interest periods in the mortgage institutions' total loan stock has varied over the most recent ten-year period. Over this entire period, the percentage of fixed-rate loans for over five years has declined, while loans at fixed rates for terms of five years or less and variable-rate loans have increased. At the end of the year, 60 per cent of the total consisted of variable-rate loans, while 36 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).



The mortgage institutions primarily obtain funding by issuing bonds that are largely purchased by large asset managers such as the insurance companies, the banks and the AP funds. Around 25 per cent of these bonds are in foreign currency. The rest of the funding obtained by the bank-owned mortgage institutions primarily consists of loans from their parent bank.

Many of the bonds issued by the mortgage institutions have fixed interest rates at the same time as a large part of their lending is at a variable interest rate. This gives rise to interest-rate risks. To reduce these risks, the mortgage institutions use derivatives (see the description of interest-rate swaps in the section the Fixed-income market).

At year-end 2015, the mortgage institutions' long-term funding amounted to SEK 1,764 billion. Of this amount, SEK 1,738 billion referred to covered bonds and the remaining SEK 26 billion were subordinated debt. Short-term funding through certificates amounted to only SEK 10 billion (see Chart 26).



Source: The Riksbank

Other credit market companies

Other credit market companies include *finance companies* and *corporate- and municipality-financing institutions*. Outstanding loans to the public by the other credit market companies amounted, at the end of 2015, to SEK 541 billion (see Chart 27). This corresponds to approximately eight per cent of the lending by credit institutions. Of these loans, about 37 per cent were made to Swedish companies, while twelve per cent went to Swedish households, 31 per cent to the public abroad and 20 per cent to the Swedish public sector. There are 40 companies categorised as other credit market companies on the Swedish market. Most of these companies are financial companies but they also include corporate- and municipality-financing institutions, monetary securities companies and monetary investment funds (see Table 12).

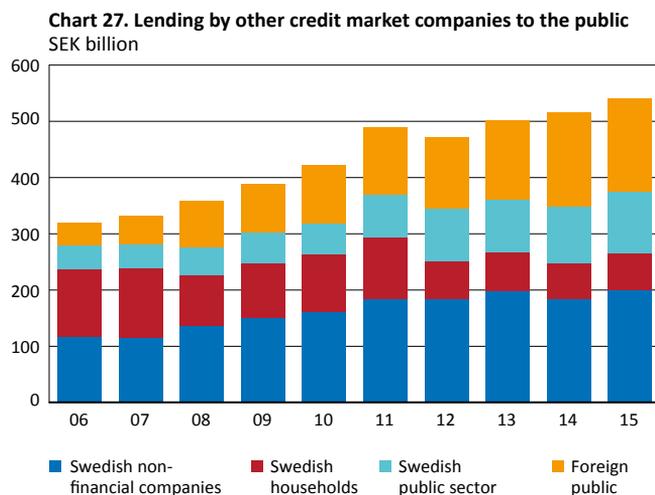


Table 12. The ten largest institutions in the category other credit market companies, balance sheet totals at year-end 2015
SEK billion

Kommuninvest i Sverige	341
Svensk Exportkredit	280
Handelsbanken Finans	44
Nordea Finans Sverige	44
Volkswagen Finans Sverige	33
Wasa Kredit	16
Hoist Kredit	17
Entercard Sverige	11
Toyota Material Handling Europe Rental	10
Svenska Skeppshypotekskassan	8
Total, 10 largest	804
Total	878

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

Source: The Riksbank

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, leasing⁷⁴ and factoring⁷⁵ services to corporate customers and promissory note loans and credit card accounts⁷⁶ to households. For administrative reasons, they still operate as independent companies within the banking groups, in particular cases.

There are also finance companies that are 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 institution is Svensk Exportkredit (SEK), whose main owner is the Swedish government. 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 and bonds in the securities market.

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.

74 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.

75 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.

76 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 thus invest in unlisted companies in the form of equity. The investments are usually called *private equity* 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 higher 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. In 2015, there were 133 private equity investment companies, which together administered around SEK 450 billion. The majority of these focus on the buy-out segment.⁷⁷

A large part of the capital in Swedish equity funds is from foreign investors. Institutional investors, such as fund-in-fund managers⁷⁸ and pension funds, are among the categories of investor.

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 2015, there were 265 Swedish *insurance companies* active in the domestic market. In addition, a further 40 foreign companies and branches were operating 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 4,000 billion

⁷⁷ Swedish Private Equity and Venture Capital Association: www.svca.se.

⁷⁸ A fund-in-fund is a fund that invest in other funds.

at year-end 2015 (see Chart 28). Slightly more than 85 per cent of this amount was held by the ten largest insurance companies (see Table 13).

Insurance companies are divided into life assurance and non-life assurance companies. The life insurance companies' investment assets accounted for almost 88 per cent of the insurance companies' total investment assets (see Chart 28).

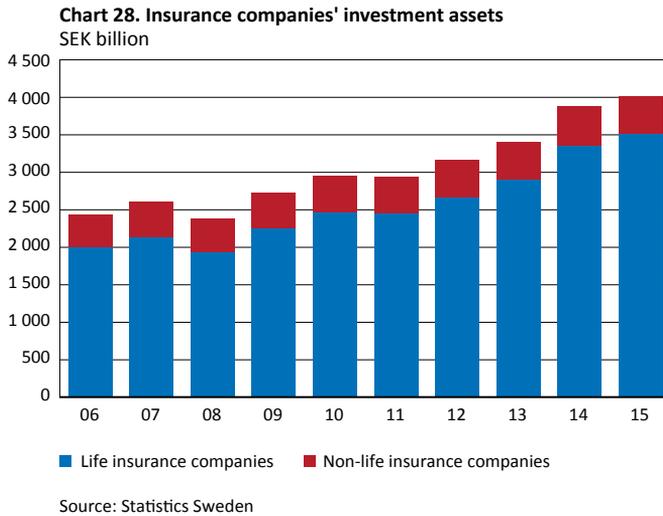


Table 13. The ten largest insurance companies' investment assets at year-end 2015, by group
SEK billion

Alecta	737
Skandiakoncernen	541
AMF Pension	488
Folksam	460
SEB Trygg Liv	373
Länsförsäkringar	309
SPP	169
Swedbank Försäkring	148
Handelsbanken	115
Nordea Liv	104
Total, 10 largest	3 444

Source: Insurance Sweden

Life assurance and non-life assurance companies both offer their customers insurance against risks, 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 saving in unit-linked insurance is determined by the performance of the individual funds. Such saving thereby 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 any property damage. 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 their own funds.

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

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

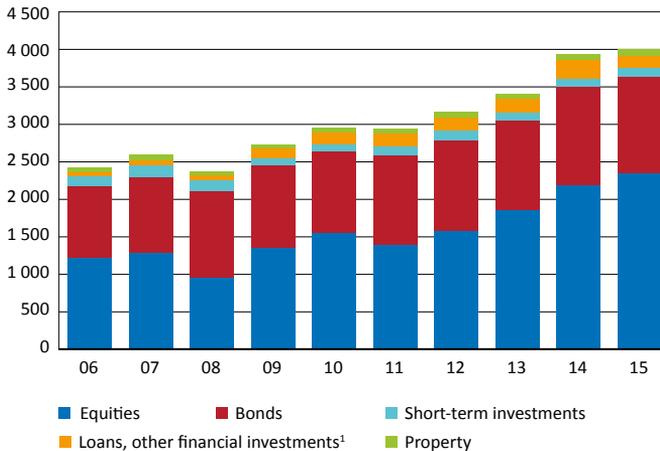
The assets of a dividend-paying limited liability insurance company consist of investment assets, i.e. premiums invested in various securities. The liabilities consist primarily of what are known as technical provisions. These provisions should be equivalent to the amount required by the company to ensure that it can meet all the commitments that may arise from its existing insurance policies.⁷⁹ Shareholders' equity consists of bonus funds – the insurance company's accumulated profits. In a dividend-paying limited liability insurance

⁷⁹ 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, equity is owned by the shareholders. If the 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, because the policyholders there ‘own’ the equity themselves. In these companies, all surplus arising accrues to the policyholders, but, at the same time, the policyholders also stand for the risk of a deficit arising, which may, for example, entail 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 market. At year-end 2015, equities accounted for 58 per cent of investment assets. Holdings of bonds made up 32 per cent. Investments in properties only accounted for a minor part (see Chart 29). Investment assets accounted for 33 per cent of investments abroad.

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

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 2015, there were 64 insurance associations in Sweden.^{80, 81}

Pension saving can also be conducted through pension foundations. An employer can choose to set up a pension foundation and transfer an amount to it each year, which is then paid out to the employees later on in the form of a pension. A pension foundation is a legal entity in itself. At year-end 2015, there were 1,735 active pension foundations in Sweden, which, together, had about SEK 236 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. In the case of these fund management companies, the banks' branches or Internet services act as distribution points.

Fund investment in Sweden totalled SEK 3,088 billion in managed capital at year-end 2015. The assets managed in equity funds amounted to SEK 1,718 billion. 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 617 billion and SEK 698 billion respectively over the same period. In addition to these types of funds, there are also hedge funds, which differ from other funds in that their management is relatively unrestricted regarding both investment strategies and the financial instruments that may be used, such as derivatives. The assets managed in the hedge funds totalled SEK 54 billion at year-end 2015 (see Table 14).

80 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.

81 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.

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

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Equity funds	868	895	543	863	1 160	933	1 054	1 319	1 593	1 718
Fixed-income funds	340	354	373	378	403	466	476	514	614	617
Mixed funds	238	247	204	254	297	308	387	475	612	698
Hedge funds	82	76	66	88	84	95	96	40	44	54
Total	1 528	1 572	1 185	1 583	1 944	1 802	2 013	2 347	2 863	3 088

Sources: MoneyMate and the Swedish Investment Fund Association

Those fund management companies that are 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 per cent is managed under the pay-as-you-go system and 2.5 per cent under the premium reserve system.

The task of the national pension funds is primarily to manage the pension capital within the framework of the pay-as-you-go system. This task is carried out in the first place by the First, Second, Third, Fourth and Sixth AP Funds. The Seventh AP Fund manages the capital in a premium reserve system, in competition with private fund management companies. It invests the pension

capital of those people who did not choose a particular fund management company for their premium reserve pension.

The AP funds management is regulated by the law on public pension funds as well as the law on the Sixth AP fund. These laws restricts the funds ability to invest in unlisted assets and how much of their assets may be exposed to currency risks.

At year-end 2015, the investment assets of the AP funds totalled about SEK 1,491 billion. This can be compared with life assurance companies and the fund management companies, whose investment assets amounted to SEK 3,511 billion and SEK 3,088 billion respectively in December 2015.

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.

Securities institutions have two primary functions. Firstly, they conduct trade with securities in their own name on behalf of customers, i.e. commission trading, and secondly they buy and sell securities on their own behalf in their capacity of market maker.⁸² Being a market maker involves setting two-way prices (i.e. bid and ask prices) in various types of security. The market makers must therefore be prepared at all times to buy and sell securities. To do this, the institutions need to hold an inventory 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

Another important role of the securities companies is to underwrite and assist 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 2015, 180 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.

⁸² The role of market-makers is described in more detail in the chapter The financial markets.

Securities companies

One type of securities institution is a securities company. These companies are often 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 2015, 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 39 banking companies registered in Sweden at year-end 2015, 24 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, 45 savings banks had one or more securities trading licences at year-end 2015. 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.

ARTICLE – Shadow banking from a Swedish perspective

Shadow banking is a subject that crops up increasingly often in discussions about the financial system. The term *shadow banking* is a collective term for institutions and activities outside the banking system that conduct operations usually carried out by traditional banks. This article describes the concept of shadow banking, what risks it poses and the size of the shadow banking sector in Sweden.

During the financial crisis of 2007–2008, it became apparent that certain financial entities outside the traditional banking sector, so called shadow banks, can have major consequences for financial stability and may have a negative effect on the financial system.⁸³ Shadow banking is not a certain type of institution or activity, but what they have in common is that they conduct operations usually carried out by traditional banks, but that they are not banks. Certain types of investment funds provide examples of institutions often classed as shadow banks.

The term shadow banking is a collective term for institutions and activities outside the banking system that conduct operations.

The term shadow banking may incorrectly lead the thoughts to something acting in secret or conducting illegal activities. On the contrary, shadow banks fulfil an important function in the financial system. They increase the efficiency of the system and contribute towards the funding of Swedish banks and companies alongside the traditional banks. In addition, the shadow banks are usually regulated and under supervision, although not the same regulation and supervision as the traditional banks, as the regulations for the shadow banks are primarily aimed at consumer protection. Most households come into contact with some form of shadow banks, for instance when they invest in some investment funds.

The shadow banks conduct deposits and lending with different maturities

There are various types of shadow banks and they conduct their operations in several different ways. A common type of shadow bank is one that borrows money over the short term and lends it over the longer term, for example to

⁸³ Hansson, Daniel, Oscarius, Louise and Söderberg, Jonas (2014), Shadow banking from a Swedish perspective, *Economic Review*, 2014:3, Sveriges Riksbank. This discussion is based on the article.

traditional banks and companies by investing in their bonds. These operations are usually called maturity transformations and are carried out by the banks to a great extent. Fixed-income funds, such as money market funds and bond funds, are examples of shadow banks that conduct such operations. The funding of fixed-income funds is short term as the investors in the fund may withdraw their money, that is sell their fund units, at any time. These funds, in turn, invest in bonds and certificates, which can be seen as long-term lending. These funds thereby perform maturity transformation.

Maturity transformation means that the shadow banks may encounter problems if, for some reason, they lose their short-term funding, for example if many fund investors withdraw their money at the same time. In such a situation, the shadow banks will be unable to fund their long-term lending and will have to sell their bonds, which may be difficult, particularly in times of financial unease.

Fewer back-stops make the shadow banks more vulnerable

One important difference between shadow banks and traditional banks, apart from regulation and supervision, is that traditional banks have access to certain back-stops that the shadow banks do not. These are aimed at preventing one bank from getting problems which in turn could spread to other banks and into the rest of the financial system. This means, for example, that shadow banks are not covered by the deposit guarantee⁸⁴. Shadow banks' lack of access to this means that they are more sensitive than traditional banks to shocks on the financial markets, for example if they find themselves in a situation in which they may have problems, such as in the event of large withdrawals from investment funds as discussed above.

There are links to the financial system

If the shadow banks are interlinked with the rest of the financial system, problems they may be facing may spread to other financial participants, for example the traditional banks. One such link is that shadow banks contribute to the banks' funding by investing in their securities, such as for example bonds and certificates. If the shadow banks stop investing in the banks securities, the banks may, in turn, encounter funding problems.

The banks also invest in the shadow banks' assets and lend money to the shadow banks. This creates links making it possible that problems for the shadow banks may spread to the banks, as the banks may lose money if the shadow banks run into difficulties.

⁸⁴ The deposit guarantee means that the state guarantees money deposited in accounts with banks, credit market companies and securities companies up to an amount of SEK 950,000 per individual and institution.

The Swedish shadow banking sector is relatively small

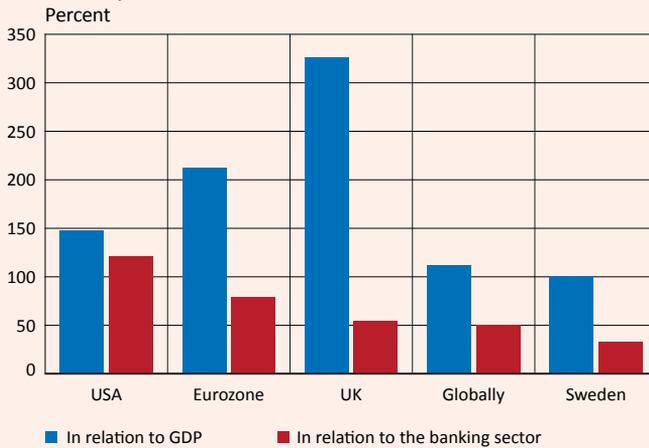
An indication of the risks in a country's shadow banking sector can be obtained by comparing its size with either the country's GDP or the size of its banking sector. It is difficult to exactly measure the size of shadow banking in Sweden, or other countries, due to, for example, difficulties in gaining access to detailed statistics regarding these institutions and what is considered as shadow banking differ between countries, partly because of differences in legislation.

One way of estimating the size of a country's shadow banking sector is to examine the financial institutions that the national statistics do not categorise as either banks (MFIs⁸⁵) or insurance and pension fund companies. This residual is sometimes classified as Other Financial Intermediaries (OFI) and include various types of investment funds, private equity investment companies and investment companies, among others. However, the category OFI can also include institutions that are not shadow banks and some shadow banks may not be included in OFI, meaning that this category may give a somewhat incorrect picture of the size of the sector. The use of OFI, in spite of this, is because statistics on OFI are easily available for many countries over a longer period of time.

Sweden's OFI is relatively small in size, both in comparison with the Swedish banks and internationally (see Chart 30). This suggests that the Swedish shadow banking sector is also relatively small. This is mainly because the Swedish banks carry out parts of the operations that are carried out by shadow banks in other countries. One example of this is mortgage lending, which remains on the banks' balance sheets in Sweden, while in other countries, such as the United States, is transferred to special institutions which are considered to be shadow banks.

85 MFI stands for Monetary Financial Institution.

Chart 30. The shadow banking system in relation to the banking sector and GDP, 2014



Note: The shadow banking sector is measured as Other Financial Intermediaries. In Sweden, this is calculated by totaling investment funds (including money market funds), other financial brokers and financial service companies (excluding intra-group financial institutions) in the financial accounts. Global includes the euro area and over 20 countries from which the FSB collects information. The banks does not include their international operations.
Sources: The FSB and Statistics Sweden

Reforms are underway

Problems in shadow banking, primarily in the United States, contributed towards the global financial crisis of 2007-2008 becoming so serious. Following the financial crisis, initiatives were therefore taken on both international and EU levels to reduce the risks that may be associated with shadow banking. This work has been carried out mainly by the Financial Stability Board (FSB)⁸⁶ and European Systemic Risk Board (ESRB)⁸⁷, which have recommended more oversight and new regulations for shadow banking, among other measures.

⁸⁶ The FSB is an international body that supervises and issues recommendations concerning the global financial system.

⁸⁷ ESRB (European Systemic Risk Board) monitors financial stability risks in the European financial system.

Chapter 4 – The financial infrastructure

The presence of an effective financial infrastructure is an important precondition for financial stability. The financial infrastructure consists of systems through which payments and transactions with financial instruments are handled. Several financial institutions participate in these systems to manage financial positions and settle transactions for themselves and their customers. In many cases, the systems in the financial infrastructure also participate in other systems. This interconnectedness means that there are many interdependencies between the systems in the financial infrastructure. This chapter begins with a general description of how a payment is made. We then describe in more detail transactions resulting from trading in financial instruments and foreign-exchange trading. We also explain 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 payments

There are several different kinds of payments. 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 payments and the demands they impose on the financial infrastructure are described below.

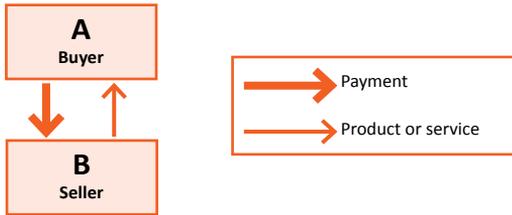
Simple payments

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 1 provides an example of a simple payment.

Payments 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.

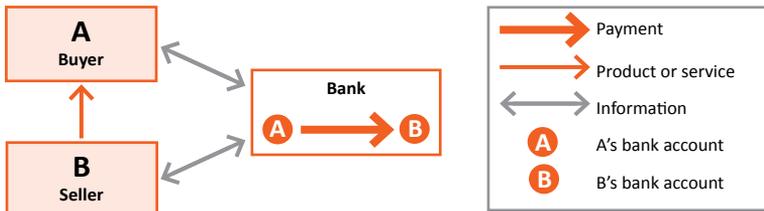
Figure 1. Example of a simple payment



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 2 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.

Figure 2. Example of a payment using an intermediary

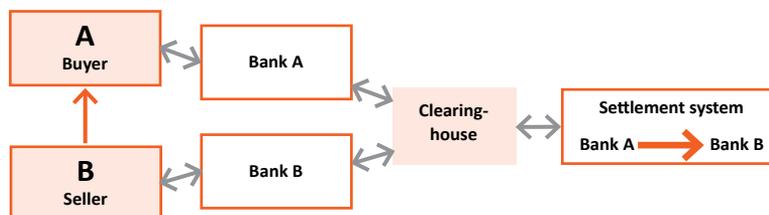


Payments using several intermediaries

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 the completion of the payment.⁸⁸ The financial infrastructure that is required for this type of payment is illustrated in Figure 3.

Figure 3. Example of a payment using several intermediaries



Note. See figure 2 for a description of the different types of arrows.

A and B may, for example, be private individuals, companies or authorities. A buys a product or service from B, and A transfers 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 3, clearing involves a compilation of the transactions between two parties, A's and B's banks, and is therefore referred to as bilateral clearing. If more accounts and payment intermediaries are involved the compilation of transactions can be conducted for all the counterparties at the same time, so-called multilateral clearing.

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 means that two parties offset 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 are compiled, then A's bank will pay SEK

⁸⁸ 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.

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.⁸⁹ 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.

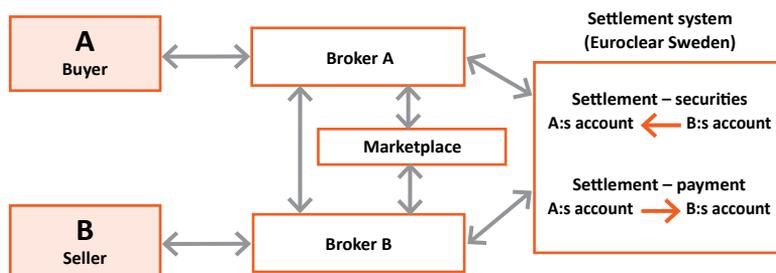
Transactions when trading in financial instruments

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), the actual securities themselves must be transferred from the seller to the buyer (the securities process). Securities trading is outlined in Figure 4.

⁸⁹ 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”⁹⁰. In the second step the transaction is sent to the settlement system.⁹¹ 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.

Figure 4. Example of a financial instrument transaction



Note. See figure 2 for a description of the different types of arrows.

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 instrument⁹². Thus such a transaction does not 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 exposed to a

90 Over the Counter is a collective term for the transactions conducted outside a central marketplace (for example an exchange).

91 This is assuming that the transaction is conducted without using a central counterparty.

92 The underlying instrument may be a security, a certain currency or a commodity.

counterparty risk 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.⁹³

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 5 and 6 illustrate the difference between not using and using a central counterparty, as regards both the size of the payment and the number of payments.

If the transactions are cleared and settled without using a central counterparty, as in Figure 5, 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 6, the number of settlement transactions falls to three, which also reduces the exchange of funds between the participants. The participants' net position with the central counterparty is the difference between what each participant would have paid in total and what they would have received from the other participants if clearing and settlement had been conducted without a central counterparty. This is shown in the table in Figure 6 and is the difference per participant between the final column and the final row in the table in Figure 5. The exchange of funds is thereby reduced to SEK 40. However, the comparison in the example requires that all transactions in Figure 5 can be managed by the central counterparty in Figure 6. If this is not the case, it is not certain that the exchange of funds and the net positions can be reduced.

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

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

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

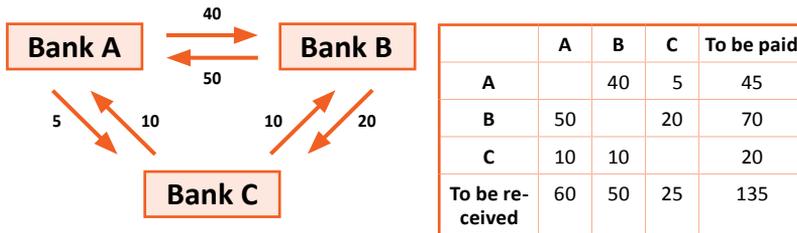
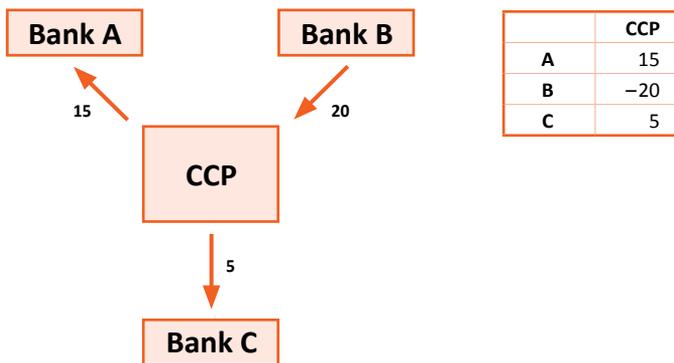


Figure 6. Exchange of funds in securities transactions with a central counterparty



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.⁹⁵

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 presuppose the existence 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.

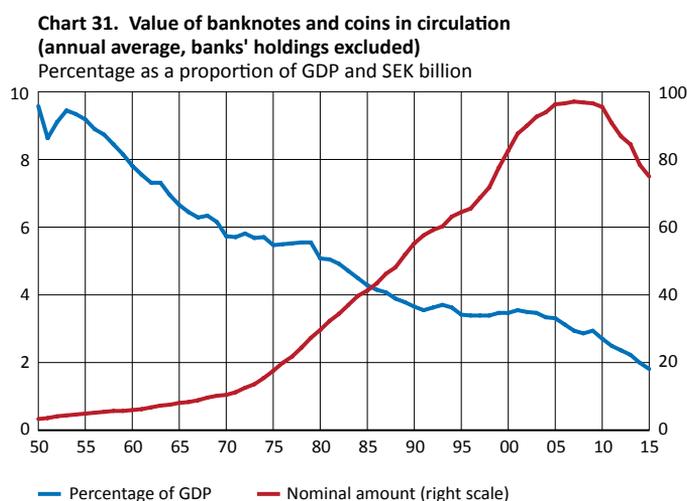
Retail payments are made in a variety of different situations, for many different reasons, and can vary greatly. A description of various types of payment methods on the Swedish retail market is given below.

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.

⁹⁵ For further information on retail payments in Sweden, see *The Swedish retail payment market*, June 2013. Sveriges Riksbank.

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 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 less than 2 per cent in 2015. However, the value of banknotes and coins in circulation increased every year from 1950 to 2007, when the trend seems to have changed. Since then, the value decreased every year (see Chart 31).



Sources: Statistics Sweden and the Riksbank

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 has more than halved over the last ten years (see Chart 32). Between 2005 and 2015, the total value of withdrawals fell by 47 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 thus suggests that the use of cash has decreased.

At the same time as withdrawals of cash have decreased in terms of both value and number, there are now more ATMs in Sweden than there were ten years ago. In 2015, there were ATMs in 680 locations in Sweden.

Card payments

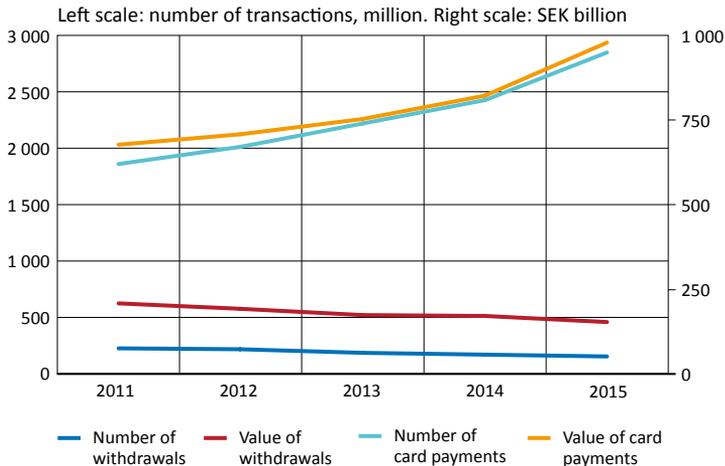
Cards are primarily used when buyer and seller meet directly at a point of sale (so-called point-of-sale payments). Payment is initiated electronically at the merchant's card terminal. Cards are also used increasingly frequently for remote payments and for the purchase of goods and services on the internet.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

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.

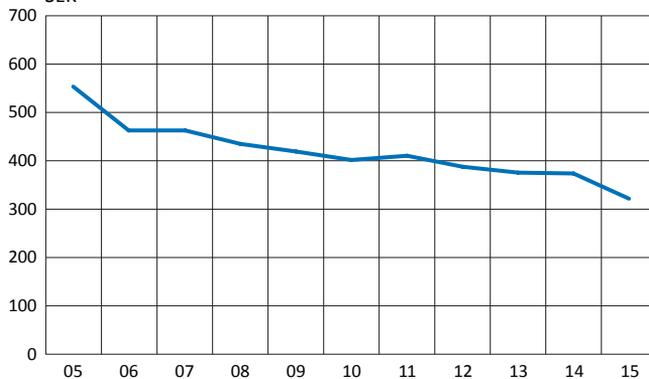
A *charge card* does not debit the cardholder's account directly. Instead, the card issuer gathers purchases for a specified period and then invoices the cardholder for the total amount for the period.

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.

Chart 32. Number of transactions and total value in ATMs and card terminals

Note. For 2011-2014 the calculation method and thus the numbers differ compared to Table AB.

Source: The Riksbank

Chart 33. Average value of a card payment

Source: The Riksbank

The use of cards has increased rapidly in Sweden in recent years (see Chart 32). In terms of the number of payments and total transaction value, cards are the most widely-used payment instrument for point-of-sale payments. Between 1998 and 2015, the number of card payments increased from 213 million transactions to 2,845 million per year. During the same period, the total value of these payments has increased from SEK 149 billion to SEK 916 billion. Debit cards are the

dominating card type and stand for 84 per cent of the number of card transactions and 77 per cent of the total value.

The value of an average card payment fell markedly over the period 1998-2015, from SEK 700 to SEK 322 (see Chart 33). Swedes are thus using cards to a greater degree than previously to pay smaller amounts. Cards are thereby increasingly acting as a substitute for cash.

ARTICLE – Reduced cash usage and the role of the Riksbank – Sweden’s experience

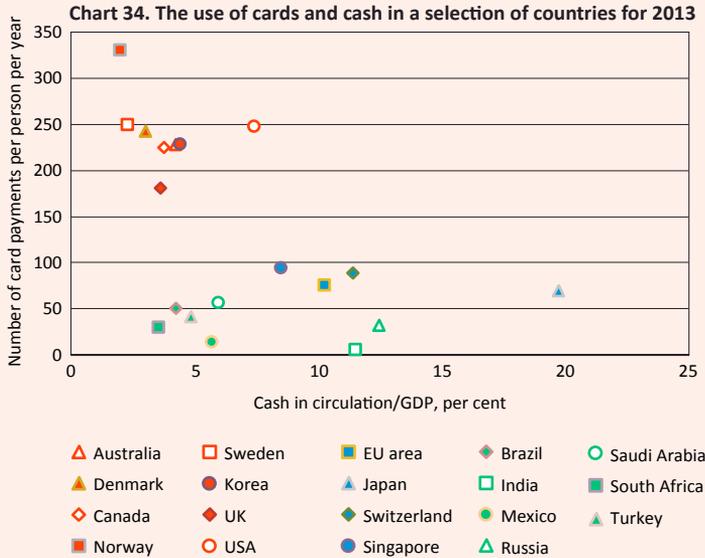
Sweden is one of the few countries in the world in which the value of banknotes and coins in circulation is constantly decreasing. Debit cards are now easily the most usual way of paying in shops. Innovative payment services are being launched and new, non-traditional suppliers of payment services are becoming established on the market. The Swedish payment market is thus undergoing a comprehensive structural transformation that is entailing the replacement of paper-based payments like cash and credit transfer paper forms by electronic payments⁹⁶.

Rapid development towards less cash in Sweden

The use of cash in Sweden has been decreasing for some time and this process has accelerated in recent years. Between 2007 and 2015, cash in circulation decreased by nearly 15 per cent. As mentioned in the section on retail payments, the value of cash withdrawals has also decreased heavily in recent years. Figures for 2015 indicate that only 20 per cent of all payments in shops were made in cash, which is low compared with many other countries. The corresponding figure for 2010 was 39 per cent.

At the same time, electronic payments have increased significantly. In Sweden today, about 95 per cent of the population has access to a debit or credit card. The average Swede made 270 card payments in 2014, which means that Sweden is one of the countries with the highest number of card payments (see Figure 34). The average for the European Union is 93 card payments per year. Cards are used more often than cash for even relatively small purchases. According to a survey carried out by the Riksbank in 2014, the majority of purchases of less than SEK 100 were made using cards. In addition, the banks are in the process of launching so-called contactless cards, meaning that PIN codes will not need to be used for card purchases of less than SEK 200. This will probably lead to even more payments of small amounts being made electronically.

96 For a more in-depth discussion of the structural conversion of the payment market, see Segendorff, Björn and Wretman, Anna-Lena (2015), The Swedish Market for Balancing Liquidity, *Economic Review 2015:3*, Sveriges Riksbank.



The Swedish people are also increasingly choosing to use digital means to pay their bills and carry out banking. In Sweden, about 90 per cent have access to online banking. Over the last decade, the use of electronic invoices (e-invoices) has increased substantially. The number of e-invoices sent to online banks increased from 5 million to 109 million between 2004 and 2015. The payment service Swish, which makes it possible to make payments between bank accounts in real time, around the clock, currently has over four million users. Swish can now also be used by shops and companies and, since 2016, it has also been possible to use Swish for e-commerce.

What are the reasons that progress reached so far in Sweden?

One of the explanations for the developments described above is that Sweden is a sparsely-populated country, which makes the distribution costs for cash relatively high. Consequently, the banks are keen to rationalise this part of their operations. This has led the banks to reduce their supply of cash services by cutting back on the number of bank branches and making about half of them cashless.

Another explanation is that the Swedish banks have been successful in the work of developing electronic payments and other financial infrastructure. This is connected to the way in which the Swedish banking market is concentrated and how the major banks that have dominated the market for many years have established cooperation on payments and other financial infrastructure. In

addition, the banks have the same desire to switch over from cash to electronic payments. The development of payments in real time and the arrival of the payment service Swish form an example of this cooperation between the banks, although the Riksbank has also played a part in this. The Riksbank facilitates the settlement of Swish payments by allowing a small amount of central bank money, in the form of a loan, to be outstanding in the Riksbank's payment system over night.

Sweden is also a technology-friendly country. The infrastructure for the Internet and telecommunications is extensive and a large part of the population has access to and uses new technology. The World Economic Forum ranks countries by how well they have utilised the possibilities offered by information and communication technology. Sweden has received a top ranking in recent years. In 2015, Sweden was ranked as the third best of 148 countries. In addition, a high proportion of Swedish households have access to the Internet, smart telephones and tablets. Swedish society is also characterised by a high level of confidence in suppliers of payment services, which increases its propensity to try new means of payment.

As companies and households gain access to new technology, their demand for payment services is affected. The increasing e-commerce, in addition to the use of other electronic services such as downloads and streaming of music, films and so on, is contributing towards the adaptation of payment services to this new technology. In addition, consumers are placing increasingly high demands on the ease and simplicity of making payments and want it to be possible to make payments everywhere and anytime.

Laws and regulations also affect the use of payment services. One example of this is the requirement from Skatteverket (the Swedish tax agency) from a few years ago that shops selling goods for cash or card payments should have approved cash registers. This requirement for approved cash registers has reduced shops' opportunities to use cash to avoid taxation. This has led to cash becoming less attractive to some stores. Another example is that cash, according to the Sveriges Riksbank Act, has a special legal status as so-called legal tender. In practice, this means that a person making a payment has the right to pay in cash unless otherwise agreed. However, "unless otherwise agreed" means that a shop or bank may decide itself whether to accept cash.

The Riksbank's role

The development towards less cash usage has largely been driven by market forces. However, the Riksbank has played a part in this development through its actions. As mentioned, the Riksbank has contributed to innovation by working out

an arrangement for the settlement of payments in RIX when the service for Swish was developed. The Riksbank has also gradually streamlined and adapted cash handling, for example by making adjustments to the regulations for the collection, deposit and storage of cash. Previously, the Riksbank was involved in the daily flows of cash between banks, retail trade and other participants. Today, banks and other private entities are responsible for the distribution of cash. Lighter and smaller banknotes and coins make the physical handling of cash easier and cheaper. This is also one of the reasons for the banknote and coin changeover that has now been started.

The Riksbank also takes the initiative for discussion forums, where different participants can meet. One example is the Retail Payments Council that the Riksbank initiated in 2014. Developments on the payment market are continually analysed by the Riksbank, for example through regular studies of the Swedish payment habits and studies of the costs of different types of payment.

The use of cash is expected to decline further

We can expect the development towards reduced cash usage to continue. One reason for this is that new innovations such as Swish and contactless cards, which act as alternatives to cash, are expected to increase in usage. However, it should be emphasised that, even if cash usage is expected to decrease further, cash will still be used to a great extent. Cash still performs an important function in society and will probably continue to do so for many years to come.

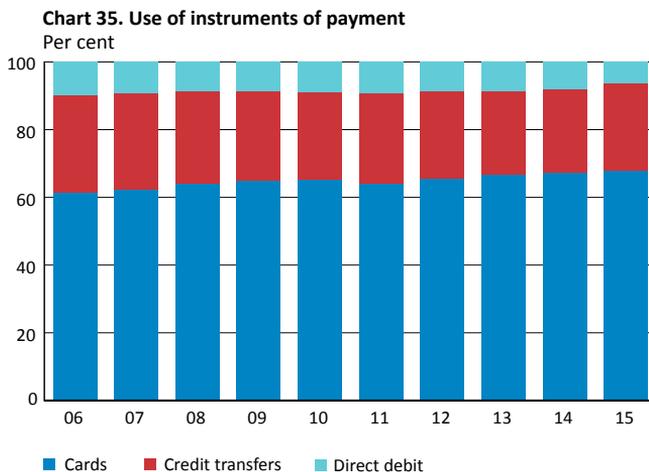
Credit transfers

Credit transfers are used for remote payments, that is for payments where the payer and the recipient do not meet directly. In a credit transfer, the payer instructs his bank to transfer a certain sum from his bank account to the recipient's bank account.

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.

In a credit transfer, a special bank or PlusGiro number is used 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 13,521 billion in the year 2015. The total number of credit transfers and direct debits in the same year was 1,354 million. Credit transfers are thus relatively few in number compared, for example, with card payments (see Chart 35), but in terms of value credit transfers and direct debits account for 94 per cent of the total transaction value of account-based payments.



Source: The Riksbank

Most credit transfers and account-to-account transfers, namely 98 per cent of the value and 95 per cent of the volumes, are now initiated electronically. 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 paper forms or over the counter at a bank.

E-invoices is 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.

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, in principle, an automated giro payment, but, unlike normal giro payments, it is 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.

At the end of 2015, 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 these 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. 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, payments stored via the Internet, such as PayPal, and prepaid cards that can be used at several types of point of sale.

Money orders

A *money order* is a secure means of payment 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 money order is bought at one of the

Swedish banks for the desired amount and is made out to the recipient or to the buyer of the money order. The value of the money order thus represents a claim on the bank. If the money order is made out 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 money orders is negligible, even if they are occasionally used for payment in certain specific situations.

Central 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 7).⁹⁷ RIX thus constitutes an important hub in the infrastructure. The Riksbank owns and runs RIX and is also a participant. The banks' accounts in RIX are used for those direct payments between the banks that include 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 entails lower risks associated with settlement, but on the other hand requires large amounts of liquidity.⁹⁸ 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 Clearing, EuroCCP or CLS

⁹⁷ The banks participate either as direct or indirect participants. In addition to Bankgirot, Euro CCP, Euroclear Sweden, Nasdaq Clearing, CLS, the Swedish National Debt Office and the Riksbank, twenty-one Swedish credit institutions are participants in RIX.

⁹⁸ 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.

(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 2015, the average number of transactions in RIX was approximately 17,000 per bank day and the average turnover per day was SEK 430 billion.

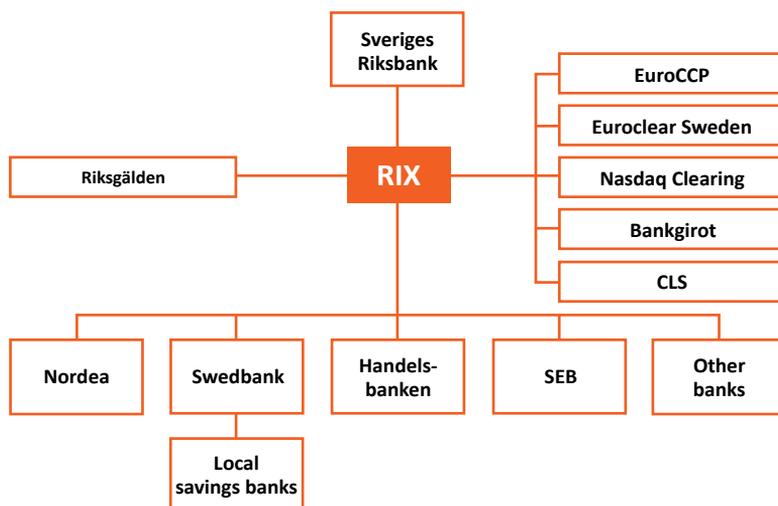
Bankgirot – the system for retail payments

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 53 billion are cleared through Bankgirot's system each bank day. Several different types of payment and transfer are made there. These include bank giro payments (such as direct debits, credit transfers and payments of suppliers and wages), account-to-account transfers and the clearing 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. Since 2012, Bankgirot has also run the 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.

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 settled in SEK. Settlement is carried out in RIX on a Real Time Gross Settlement basis. Bankgirot is then responsible for providing a confirmation to the bank that settlement has been carried out.

Figure 7. The Swedish payment system



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 stock market and fixed income market.⁹⁹ 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 SEK in 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

⁹⁹ For more information on Euroclear Sweden, see www.euroclear.com

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 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.¹⁰⁰ 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 2015, the average gross sum for the settlement of share transactions amounted to SEK 46 billion per day. The corresponding figure for fixed-income market transactions was SEK 325 billion.¹⁰¹ The value of fixed income market transactions is thus higher than that of transactions on the stock market. However, the number of transactions is much higher on the stock market, with an average of 47,000 transactions per day, compared to an average of 1,200 per day on the fixed income market.

Nasdaq Clearing – 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.¹⁰² 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

100 This is called DvP (Delivery versus Payment).

101 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.

102 For more information on Nasdaq Clearing, see business.nasdaq.com

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.

The signing of a derivatives contract usually creates payment flows, for example, in an option transaction, an option premium must be paid.¹⁰³ 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 in 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 2015, a daily average of approximately 458,000 derivatives and repos were traded on Nasdaq Clearing each day.

Euro CCP, LCH.Clearnet, SIX x-clear – foreign central counterparties

Various foreign central counterparties are active on the Swedish market, above all on the stock market. Most of the equities traded on Nasdaq Stockholm AB are cleared via a central counterparty. It is currently possible to choose between three different central counterparties when clearing equities traded on the stock exchange in Stockholm¹⁰⁴. One is EuroCCP N.V. (EuroCCP), another is LCH.Clearnet Ltd (LCH) and a third is Six x-clear. EuroCCP is a Dutch central counterparty that only clears equities. EuroCCP has been a central counterparty for equities traded on the Stockholm stock exchange since 2009, but also clears equities from a number of other marketplaces in Europe.

LCH is a British central counterparty. LCH clears a number of different financial instruments that are relevant to the Swedish market. LCH started to clear equities from Nasdaq Stockholm AB in 2015 but has previously cleared Swedish equities from a number of different marketplaces. The clearing of interest rate swaps, including those in Swedish kronor, forms a large part of LCH's operations.

Six x-clear is a Swiss central counterparty. Six x-clear primarily clears equities

¹⁰³ The price of an option is called the option premium. It reflects the compensation for the risk that the issuer of the option takes.

¹⁰⁴ For a more detailed description of interoperability, see *Financial Infrastructure Report 2016*, Sveriges Riksbank.

but also a number of derivatives. Since 2016, Six x-clear clears equities from Nasdaq Stockholm AB, but has also previously cleared Swedish shares from other marketplaces.

The clearing services offered by these central counterparties involve them acting as the central counterparty in equity transactions in place of their members. The counterparty risk 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.

CLS – the system for foreign exchange settlement

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 2015, average turnover per day in CLS as a whole amounted to SEK 40,000 billion. The daily turnover in the system is thus significantly higher than Sweden's annual GDP.¹⁰⁵ The Swedish krona accounts for only 1.4 per cent of the total turnover, which is SEK 540 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 participants¹⁰⁶ in CLS and several currencies are included in the system.¹⁰⁷

105 In 2015, Sweden's GDP amounted to approximately SEK 4,156 billion.

106 In addition to direct participants, the CLS also has third party participants who use its system via a direct participant.

107 The currencies included in the system at present are the Australian dollar, the British pound, the Canadian dollar, the Danish krone, the euro, the Hong Kong dollar, the Hungarian forint, 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, the Swiss franc and the US dollar.

Payment flows in the Swedish financial infrastructure

Figure 8 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 Clearing, Bankgirot, 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 2015. The different systems may in some cases reduce the total flows by converting gross positions to net positions, which is described below.

The fixed income market

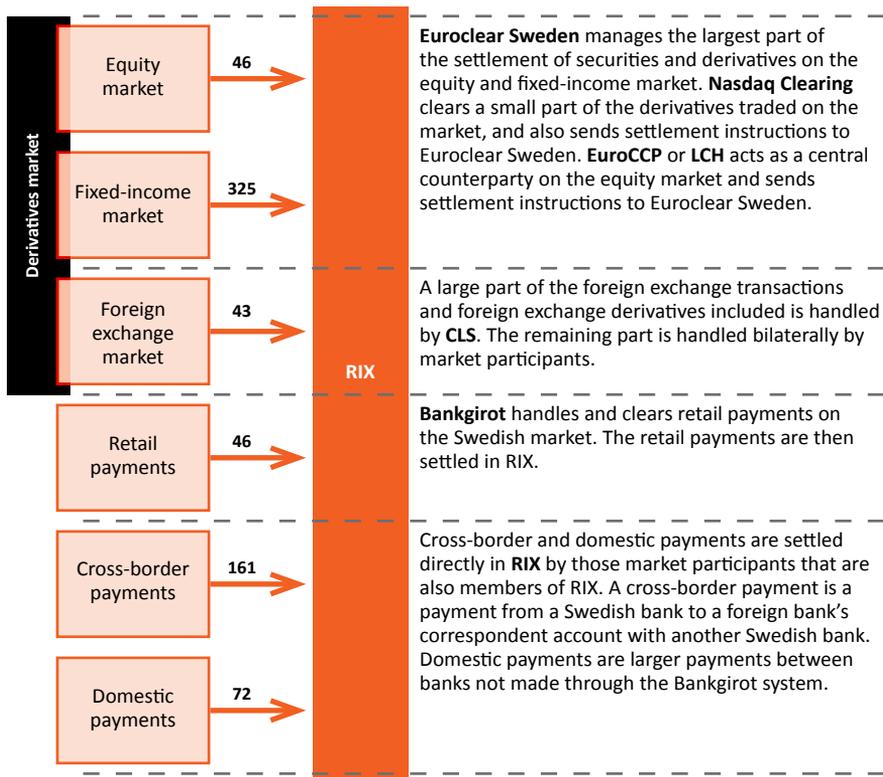
As shown in Figure 8, trade in the fixed income market gives rise to the largest payment flows in the infrastructure. In 2015, Euroclear Sweden settled on average SEK 325 billion per day from the fixed income market.¹⁰⁸ The fixed income market refers to spot trading and derivatives trading that leads to transfer of the ownership of the underlying asset.

The stock market

Euroclear Sweden also settled SEK 46 billion per day from transactions relating to the stock 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 and LCH Clearnet, which act as central counterparties on the stock market, cleared transactions amounting to SEK 16 billion in 2015. After clearing and netting, SEK 5 billion of this sum was then settled through Euroclear Sweden.

¹⁰⁸ 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.

Figure 8. Payment flows in the Swedish financial infrastructure
SEK billion, daily averages 2015



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

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 SEK 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 2015, payments in a value of SEK 540 billion were cleared by CLS every day.

The derivatives market

Derivatives trading on Nasdaq 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 Clearing's system and only a small portion is finally settled in RIX. For 2015, this figure was SEK 200 million per day, divided among the stock market and fixed-income market. At present, Nasdaq Clearing settles no foreign-exchange derivatives. The foreign-exchange derivatives settled in RIX primarily come from CLS.

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, credit transfers, direct debits and card payments. An average of SEK 49 billion a day was cleared in Bankgirot's system in 2015. After netting in Bankgirot, SEK 46 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 161 billion per day in 2015. If the payer and recipient of the payment have accounts in the same bank, no transaction in RIX occurs. The reported value of SEK 161 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 amounted to an average of SEK 72 billion per day in 2015 and refer partly to payments stemming from the money market with short maturities and partly to pure interbank payments. These payments are in SEK and arise between Swedish banks in Sweden. An interbank payment can arise, for instance, when a company needs to make a payment to another company quickly and the sending and receiving companies have different banks. In this case, the payment will go through RIX. Smaller payments that are not urgent usually go through Bankgirot.

APPENDIX 1 – Tables

Table A. Issuers and investors on the money market

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Issuers in the money market										
Central government	259	180	139	116	92	72	105	94	88	141
Mortgage institutions	113	106	105	72	14	10	12	0	2	0
Other credit market companies	9	19	45	12	12	34	18	42	49	150
Non-financial companies	66	96	97	73	58	68	86	82	81	103
Municipalities	11	5	9	6	10	14	15	19	24	26
Banks	62	108	96	62	37	48	51	34	32	12
Total	520	515	491	341	223	246	287	270	276	432
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Investors in the money market										
AP funds	3	4	6	0	1	0	10	7	4	1
Insurance companies	88	92	42	23	26	30	49	38	26	22
Banks	151	87	133	119	64	51	71	61	59	43
Rest of the world	52	43	75	54	23	39	56	53	47	126
Companies and others	226	289	235	145	109	126	101	112	141	240
Total	520	515	491	341	223	246	287	270	276	432

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
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
2015	4.2	0.0

Source: The Riksbank

Table C. Average turnover per day in repos

SEK billion

2006	176
2007	196
2008	170
2009	92
2010	119
2011	120
2012	124
2013	113
2014	102
2015	117

Source: The Riksbank

Table D. Issuers and investors on the bond market

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Issuers in the bond market										
Central government	812	768	753	741	802	796	761	801	794	785
Mortgage institutions	747	821	937	1 035	1 105	1 241	1 159	1 223	1 267	1 317
Banks	115	196	298	290	290	297	372	509	538	526
Municipalities and county councils	20	21	18	18	18	30	40	63	89	106
Non-financial companies	117	143	164	169	188	192	210	283	330	380
Other credit market companies	81	90	88	71	78	94	70	115	136	154
Total	1 891	2 037	2 257	2 324	2 482	2 650	2 612	2 994	3 155	3 267
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Investors on the bond market										
AP funds	301	326	266	268	293	308	315	318	406	400
Insurance companies	701	744	834	1 114	1 087	1 205	1 219	1 194	1 310	1 297
Banks	281	337	475	473	346	364	370	431	420	468
Rest of the world	545	537	459	462	462	581	701	896	800	741
Companies and others	63	93	223	7	294	191	7	154	220	361
Total	1 891	2 037	2 257	2 324	2 482	2 650	2 612	2 994	3 155	3 267

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

2006	117
2007	143
2008	164
2009	169
2010	186
2011	192
2012	210
2013	283
2014	330
2015	357

Note. Data for 2006-2012 are from Statistics Sweden's Financial Market Statistics. Data from 2013 and onwards are from Statistics Sweden's Securities statistics. A revidering of the years 2013-2014 have been made compared to previous versions of the Swedish financial market.

Source: Statistics Sweden

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

	Government bonds	Mortgage bonds
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
2015	11.1	22.9

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
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
2015	124	21	9	122	105

Source: The Riksbank

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

	Listed equities	Non-listed equities
2006	13	40
2007	10	56
2008	-70	-39
2009	76	86
2010	31	41
2011	29	36
2012	-46	252
2013	46	113
2014	43	281
2015	31	168

Note. Net issues refers to new issues of shares minus repurchased shares. Due to a change in the method that calculates transactions of unlisted shares and revised primary statistics, particular concerning the balance of payments, the series of unlisted shares in this edition does not match with the previous editions. For more details see Sweden's Official Statistics, Statistical Reports, FM 17 SM 1503, Statistics Sweden.

Source: Statistics Sweden

Table I. Equity turnover and market capitalisation on Nasdaq Stockholm

SEK billion

	Equity turnover	Market capitalisation
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
2015	4 202	5 770

Source: Nasdaq Stockholm

Table J. Geographical breakdown of the major banks' lending 2015

Per cent

	Sweden	Other Nordic countries	Baltic countries	Germany	United Kingdom	Rest of the world
Swedbank	86.4	4.2	9.1	0.0	0.0	0.3
SEB	75.5	3.7	8.1	9.0	0.0	3.8
Nordea	28.2	67.8	2.5	0.0	0.0	1.6
Handelsbanken	63.5	22.0	0.0	0.0	10.4	4.1
Four major banks	55.3	34.3	4.0	1.6	2.5	2.4

Sources: Bank reports and the Riksbank

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

	Lending	Deposits	Deposits deficit
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
2015	3 761	2 279	1 482

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

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

	Total	Banks	Mortgage institutions	Other credit market companies
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
2015	6 211	3 031	2 655	525

Source: The Riksbank

Table M. The banks' assets

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Lending to the public in Sweden	1 345	1 880	2 027	1 890	2 001	2 132	2 244	2 254	2 439	2 495
Lending to the public abroad	291	323	415	359	355	365	400	409	452	487
Swedish National Debt Office and the Riksbank	32	56	262	265	54	63	67	58	83	121
Lending to Swedish monetary financial Institutions	721	621	757	781	918	794	847	973	1 077	1 117
Lending to foreign monetary financial Institutions	547	748	712	737	745	806	775	860	990	917
Debt securities	569	634	927	1 021	864	778	794	869	888	858
Other	681	691	1 176	827	959	1 059	1 115	1 125	1 442	1 293
Total	4 185	4 953	6 276	5 881	5 896	5 997	6 242	6 548	7 371	7 288

Source: The Riksbank

Table N. Banks' lending to the public

SEK billion

	Swedish non-financial companies	Swedish households	Swedish public sector	Public abroad	Other Swedish lending
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
2015	1 236	1 135	100	485	75

Source: The Riksbank

Table O. The banks' liabilities and equity

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Deposits from the public in Sweden	1 439	1 612	1 810	1 829	1 987	2 114	2 257	2 384	2 462	2 634
Deposits from the public abroad	162	145	131	142	144	182	203	204	210	240
Deposits from Swedish monetary financial institutions	221	307	748	572	264	234	243	261	247	235
Deposits from foreign monetary financial institutions	925	983	1 113	963	859	845	715	736	800	740
Securities issued	659	956	1 226	1 372	1 524	1 626	1 700	1 983	2 189	2 210
Other	552	666	938	618	733	593	681	514	955	702
Equity	227	283	310	384	385	403	442	465	509	526
Total	4 185	4 952	6 277	5 880	5 896	5 997	6 242	6 548	7 371	7 288

Source: The Riksbank

Table P. Banks' deposits from general public

SEK billion

	Swedish non-financial companies	Swedish households	Swedish public sector	Public abroad	Other swedish lending
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
2015	811	1 548	139	241	136

Source: The Riksbank

Table Q. 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
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
2015	1.88	0.09	-0.45

Source: The Riksbank

Table R. Mortgage institutions' lending to the public

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Single-family dwellings	966	915	979	1 069	1 135	1 184	1 216	1 265	1 329	1 386
Tenant-owned apartments	240	241	279	329	372	395	413	453	507	571
Multi-family dwellings	391	369	389	432	434	441	453	471	488	495
Commercial and office buildings	28	31	35	52	62	71	79	84	91	90
Other	37	39	83	88	103	102	99	99	98	88
Total	1 662	1 595	1 763	1 970	2 106	2 192	2 261	2 372	2 513	2 630

Source: The Riksbank

Table S. Mortgage institutions' new lending per original fixed-term rates

Per cent

New loans during the month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Variable rate	55.8	47.9	66.5	83.5	68.6	52.1	57.2	63.1	71.2	68.9
Fixed-rate term ≤ 5 years	26.5	29.4	25.1	13.5	24.4	42.8	34.8	27.9	23.2	23.2
Fixed-rate term > 5 years	17.8	22.6	8.5	3.0	7.0	5.2	8.0	9.0	5.5	7.9

Source: The Riksbank

Table T. Mortgage institutions' loan stock per original fixed-term rates

SEK billion

Position at end of month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Variable rate	705	645	799	1 130	1 152	1 040	1 019	1 152	1 384	1 588
Fixed-rate term ≤ 5 years	603	579	616	523	786	992	1 093	1 087	1 112	949
Fixed-rate term > 5 years	356	370	348	319	140	131	123	113	101	97
Total	1 663	1 595	1 763	1 972	2 078	2 163	2 235	2 352	2 597	2 635

Source: The Riksbank

Table U. Securities issued by mortgage institutions

SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Certificates	146	167	81	116	10	27	22	13	10	1
Bonds	1 039	1 134	1 284	1 391	1 432	1 619	1 621	1 632	1 662	1 738
Of which covered bonds	-	-	-	-	1 431	1 618	1 620	1 632	1 662	1 738
Other securities	12	18	17	17	13	22	22	26	25	26
Total	1 197	1 319	1 381	1 524	1 455	1 667	1 664	1 671	1 698	1 765

Source: The Riksbank

Table V. 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
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
2015	199	66	109	167	0

Source: The Riksbank

Table W. Insurance companies' investment assets
SEK billion

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Life insurance companies	1 990	2 132	1 931	2 246	2 459	2 447	2 665	2 900	3 349	3 511
Non-life insurance	439	468	447	485	498	497	500	507	530	497
Total	2 429	2 600	2 378	2 731	2 956	2 943	3 166	3 408	3 879	4 008

Source: Statistics Sweden

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

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Equities	1 215	1 282	947	1 344	1 546	1 383	1 569	1 847	2 173	2 337
Bonds	953	1 016	1 164	1 114	1 087	1 205	1 219	1 194	1 310	1 297
Short-term investments	140	148	133	90	94	112	124	117	121	111
Loans, other financial investments ¹	49	78	68	120	164	173	183	176	166	167
Property	72	76	65	63	66	70	70	73	76	85
Total	2 429	2 600	2 378	2 731	2 956	2 943	3 166	3 408	3 846	3 997

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

Table Y. 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
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
2015	74 874	1.8

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

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ATMs										
Number of ATMs	2 816	3 085	3 236	3 319	3 351	3 566	3 416	3 237	3 231	3 285
Number of transactions	313	320	295	269	241	221	210	183	167	154
Transaction value	270	240	239	232	225	206	190	174	171	153
Payment terminals										
Number of ATMs	184 590	187 330	194 776	217 760	203 117	209 631	198 388	195 709	196 985	183 818*
Number of transactions	1 000	1 154	1 358	1 490	1 646	1 799	2 048	2 329	2 423	2 501
Transaction value	423	463	488	496	557	598	654	722	754	747*

Note 1. A revision of 2013-2014 has been made for the number of transactions and the transaction value for ATMs compared to previous versions of the Swedish financial market.

Note 2. The decline in the number of ATMs and the transaction value is due to a new calculation method exclusively based on figures from card acquirers.

Source: The Riksbank

Table AB. Use of various instruments of payment

Number of transactions, millions	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cards	1 212	1 405	1 650	1 773	1 940	1 982	2 190	2 398	2 620	2 845
Debit cards	972	1 107	1 322	1 438	1 558	1 629	1 810	1 987	2 170	2 404
Credit cards	240	298	328	335	382	353	380	411	450	441
Credit transfers	575	651	699	726	768	831	859	894	957	1 074
Electronic	484	555	605	638	686	756	789	827	888	1 016
Form	91	96	94	88	82	75	70	67	69	58
Direct debit	197	208	229	241	272	289	297	312	323	280
Cheques, including bank drafts	1	1	1	1	0	0	0	0	0	0
Total	1 984	2 265	2 579	2 741	2 981	3 103	3 346	3 604	3 900	4 199

Transaction value, SEK billion	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cards	562	651	718	745	781	814	849	900	980	916
Debit cards	432	477	520	540	561	577	617	658	719	709
Credit cards	130	174	198	206	220	237	232	242	261	207
Credit transfers	8 666	10 020	10 806	10 615	11 528	12 605	13 633	14 175	14 770	13 043
Electronic	8 269	9 674	10 499	10 358	11 315	12 430	13 471	14 024	14 627	12 815
Form	397	346	307	257	213	174	162	151	142	228
Direct debit	384	424	452	469	504	543	545	553	558	478
Cheques, including bank drafts	54	60	69	42	27	30	41	13	7	4
Total	9 666	11 155	12 045	11 871	12 842	13 991	15 067	15 641	16 315	14 441

Note. The figures for 2015 are based on a new calculation method.

Source: The Riksbank

Table AC. Average value of a card payment

SEK

2006	505
2007	464
2008	435
2009	420
2010	403
2011	411
2012	388
2013	375
2014	374
2015	322

Source: The Riksbank

Table AD. Percentage of electronically-initiated debits and transfers

Per cent

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Percentage of transaction value	95.4	96.5	97.2	97.6	98.2	98.6	98.8	98.9	99.0	98.3
Percentage of transaction volume	84.2	85.2	86.6	87.9	89.3	91.0	91.9	92.5	92.7	94.6

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 – Articles published in the five latest issues of The Swedish Financial Market

The Swedish Financial Market 2015

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
Virtual currencies

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 – safer risk management and increased transparency
Swish - a new mobile payment service
The payment behaviour of the Swedes

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



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