



From A to Z: the Swedish mortgage market and its role in the financial system

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■ Foreword

The Swedish mortgage market – strengths and weaknesses

Since the mid-1990s, housing prices in Sweden have risen and Swedish households' mortgage debts have increased substantially. Even if Swedish housing prices and indebtedness among Swedish households temporarily dampened after the financial crisis of 2008-2009, they have subsequently continued to rise. The Riksbank has long discussed and analysed the effects and risks of growing household indebtedness and rising housing prices from a stability perspective. Household indebtedness has also been discussed from other perspectives. The discussions have, for example, focused on whether the banks' profit margins on mortgages are reasonable. The mortgage market has thus become an issue in focus in the public debate.

This report aims to explain the structure and functioning of the Swedish mortgage market at present, as well as how it has developed over time. The report also describes the factors that have driven households' demand for and the banks' supply of mortgage loans. One particular aim of the report is to shed light on what characterises the Swedish mortgage market in particular and in what respects it differs from the mortgage markets in other countries.

Our hope is that the report will contribute to a greater understanding of the form and structure of the Swedish mortgage market, how it works and of its importance to the Swedish financial system. The report also discusses the strengths and weaknesses of the market. For example, mortgage loans are the greatest asset item on the Swedish banks' balance sheets and are thus highly important to the banks' profits. Mortgages also play an important role for the funding of Swedish banks, as they largely obtain funding by issuing covered bonds with mortgages as collateral. Access to this source of funding has entailed welfare gains in that the banks have been able to provide households with a large number of mortgage loans at a low cost. Large household demand for mortgages, combined with increased supply of mortgages has meant that Swedish households have becoming increasingly indebted. In addition to this, the market for covered bonds has rapidly become the largest bond market in Sweden and has thereby become of great importance to many types of investor, both Swedish and foreign.¹ The report complements other reports in which the Riksbank analyses questions

¹ See, for example, *The Swedish Financial Market 2013*. Sveriges Riksbank.

linked to the Swedish housing market. These include the Riksbank's inquiry into risks on the Swedish housing market² and the Financial Stability Report, which is published twice a year.

The work of preparing this report has been led by Jill Billborn and Clara Fernström, who collected and analysed the material together with Robert Emanuelsson, Hannes Janzén, David Kjellberg, Maria Sandström and Jakob Winstrand.³

Kasper Roszbach
Head of the Financial Stability Department

² The Riksbank's inquiry into risks in the Swedish housing market. 2011. Sveriges Riksbank.

³ The working group has operated under a steering committee consisting of Malin Alpen, Gina Bayoumi, Johanna Fager Wettergren, Joanna Gerwin, Mia Holmfeldt, Martin W Johansson, Olof Sandstedt, Annika Svensson and David Vestin. The steering committee was chaired by Mattias Persson until July 2013. The working group would like to thank the reference group, consisting of Kerstin Hallsten, Göran Lind, Staffan Viotti and Anders Vredin for its comments. We would also like to thank Anders Bjällskog, Emma Brattström, Åsa Ekelund, Robert Emanuelsson, Peter Englund, Thomas Jansson, Reimo Juks, Per Mattsson, Kerstin Mitlid, Marianne Sterner, Albina Sultanaeva, Erik von Schedvin, Jonas Söderberg and Aron Verständig.

■ Summary

The mortgage market is the market in which the households demanding mortgages meet the institutions, usually banks, supplying these loans. A mortgage is used to fund the purchase of housing and differs from other types of mortgage loans in that the housing asset acts as collateral for the loan.

The mortgage market is an important part of the financial system

The Swedish mortgage market is large. At the end of 2013, mortgages comprised 47 per cent of the Swedish banks' total lending. These proportions have grown considerably since the beginning of the 2000s. In 2001 the corresponding figure was 30 per cent.⁴

In Sweden, the mortgage market and the financial system have developed in such a way that

- mortgage institutions and banks are closely interlinked in large corporate groups
- household saving largely takes place in securities instead of in bank accounts
- mortgages are largely financed with market funding rather than deposits
- mortgages in Swedish kronor are largely funded using foreign currencies via the international securities markets
- the banks' circle of counterparties consists, to a large extent, of foreign investors who thus set the terms for the banks' funding
- there is a considerable financing risk in the banks' funding of mortgages

The mortgage market is thus closely interlinked with the financial system. There are several strengths in the Swedish financial system. For example, the banks' funding model has led to access to funding becoming better and that more households have been able to borrow, which has brought about major improvements in welfare. For the households, access to the securities market has also made it increasingly possible to spread risks and increase the return on their savings.

But there are also weaknesses. As the mortgage market has grown, the market for the banks' covered bonds has grown to become the largest market for Swedish securities. This has led to the Swedish banking system now being dependent on

⁴ Refers to lending secured on housing, from Swedish monetary financial institutions (MFI), as a percentage of their total lending to the public.

the mortgage market functioning well and on investors deeming the risks to be low. The Swedish financial system has thereby become vulnerable to disruptions on the mortgage market.

Economic and political changes have created today's situation

The form and functioning of the Swedish mortgage market are the result of a series of economic and political decisions. The basis of the mortgage market we have today was formed in the 1950s when the Swedish financial system was heavily regulated. These regulations not only governed the terms for the households' ability to take on loans, but also the terms for the mortgage institutions' funding of the loans. A funding model was created in which households' savings were channelled into mortgage bonds.

When these regulations were eventually revoked in the 1980s, economic and political initiatives continued to push households' savings into mortgage bonds, now more indirectly via different forms of funds and pension savings. This resulted in the number of intermediaries and links between different financial agents increased and that the Swedish financial system became more complex. Deregulation and increased internationalisation eventually meant that the Swedish banks gained access to international capital markets in a different way than previously.

Low interest rates and generous terms have increased demand for mortgages

Several factors have contributed towards Swedish households' increased demand for mortgages since the mid-1990s. For example, households' incomes have risen at the same time as the cost of mortgages has decreased due to low interest rates. Credit terms for mortgages have also become generous, making it possible for more households to raise mortgages. In addition, the price of housing has increased significantly, particularly since the turn of the century, which has also increased households' borrowing requirements.

Mortgages have been profitable for the banks

At the same time, the banks have been able to offer households an increasing number of mortgages. Lending for housing purposes has been profitable for them, partly due to regulatory changes and partly due to changes in the way mortgages are financed. To a large extent, the banks fund mortgages by issuing covered bonds which are purchased by both Swedish and foreign investors. The increased possibility to obtain funding on the international capital markets has entailed an increase in access to funding and meant that the banks have thus been able to fund Swedish mortgages more easily and more cheaply.

■ 1 Demand for mortgage loans

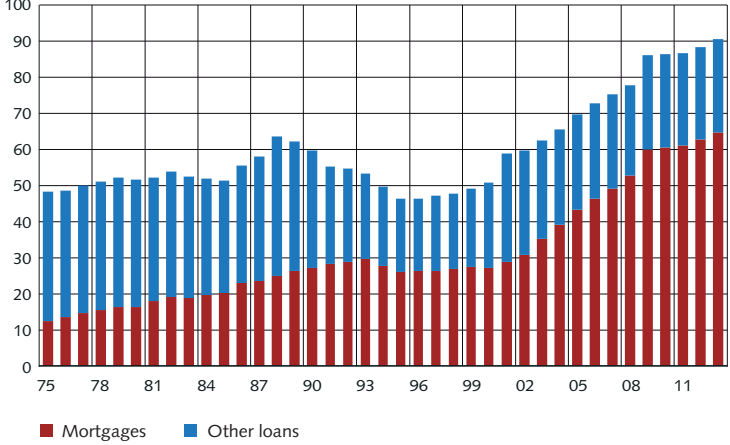
On the mortgage market, households apply for mortgages to finance housing purchases. The size of the mortgage requested by a specific household is influenced by a number of factors, for example income, the price of the home and the cost of the mortgage. This chapter presents a general discussion of the factors that have influenced household demand for mortgages since the mid-1990s. It concludes with a discussion of how a household obtains a mortgage in practice.

1.1 THE DEVELOPMENT OF HOUSEHOLD DEMAND FOR MORTGAGE LOANS SINCE THE MID-1990S

When the Swedish credit market was deregulated in the mid-1980s, Swedish households' demand for mortgage loans increased substantially. Mortgage loans had previously been in short supply but deregulation allowed banks to govern their lending themselves, which gave more households the opportunity to borrow (see also Chapters 2 and 3). Household demand for these loans declined in conjunction with the Swedish banking crisis at the beginning of the 1990s before increasing again when the economy picked up again in the mid-1990s. Demand has increased particularly strongly since the start of this century (see Chart 1.1). Between 2000 and 2013, total household debt increased from approximately SEK 1 000 billion to approximately SEK 3 300 billion. The proportion of mortgage loans in this debt was 72 per cent at the end of 2013. This is equivalent to just over 60 per cent of Sweden's GDP in the same year.⁵

⁵ This figure does not include household loans with collateral in privately-owned flats, apartment blocks, agricultural properties or other properties. If these loans are included, mortgage loans accounted for approximately 79 per cent of total household debt at the end of 2013.

Chart 1.1. Debts of the Swedish households
Per cent of GDP



Note. To the end of 2002, "Mortgages" refers to the mortgage institutions' lending as a percentage of GDP and from the beginning of 2003 to the monetary financial institutions' lending "for housing purposes" as a percentage of GDP. "Other loans" includes households' consumption loans, study-loan debts and tax debts.

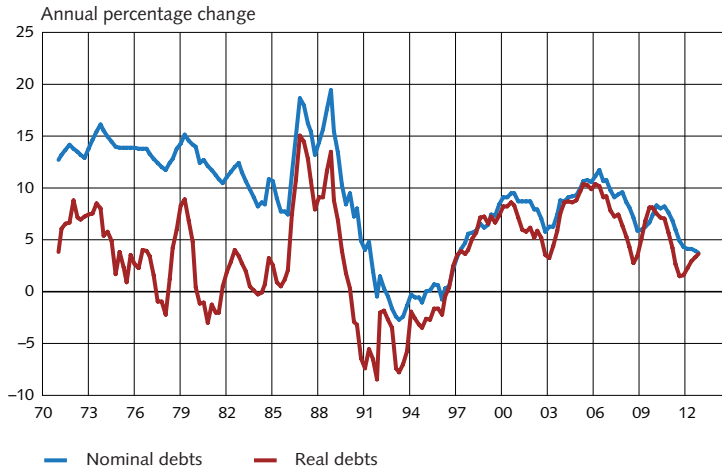
Sources: Statistics Sweden and the Riksbank

Real debts, meaning debts adjusted for inflation, have also increased since the start of the century (see Chart 1.2). This differs from the situation in the 1970s and 1980s, when households' nominal debts increased substantially but the development of real debt was dampened by high inflation. In some periods, the high rate of inflation meant that real debts actually decreased. Another difference is that mortgages formed a smaller part of households' total debt in the 1970s and 1980s than in the present century. The proportion of consumption loans has thus declined in relation to of the proportion of mortgage loans.

Households' total debt burden⁶ can be illustrated by what is known as the debt ratio, which is to say debt in relation to disposable income. This ratio has almost doubled since the mid-1990s, and reached just over 170 per cent at the end of 2013 (see Chart 1.3).

⁶ This measure includes all types of debt such as, for example, different forms of consumption loan, mortgages, tax debts and study-loan debts.

Chart 1.2. The households' nominal and real debts



Sources: Statistics Sweden and the Riksbank

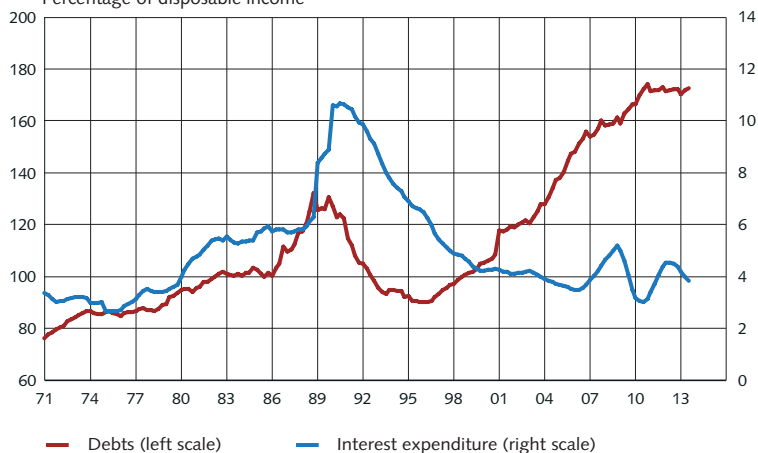
Several factors have led Swedish households' demand for mortgage loans to increase since the mid-1990s. The most important of these is probably that households' economic conditions for managing the costs entailed by a loan have changed over this period. Housing prices have also risen sharply, mainly during the 2000s, which has also affected the demand for mortgage loans. A selection of factors that have contributed, one way or another, to the development of indebtedness in recent years is given below.

Increased incomes in the household sector

Households' disposable incomes have increased in recent decades. During the period 1995 to 2013, households' real incomes increased by about 58 per cent, which is high from a historical perspective. A higher disposable income means that households can afford to increase their loans. However, the increase in mortgages cannot be explained by rising disposable incomes alone, as debts increased more than disposable incomes in the same period. Households' real debts increased by about 210 per cent over the period, which means that debts as a percentage of disposable income (debt ratio) increased (see Chart 1.3).

Chart 1.3. Household debt and post-tax interest expenditure

Percentage of disposable income



Sources: Statistics Sweden and the Riksbank

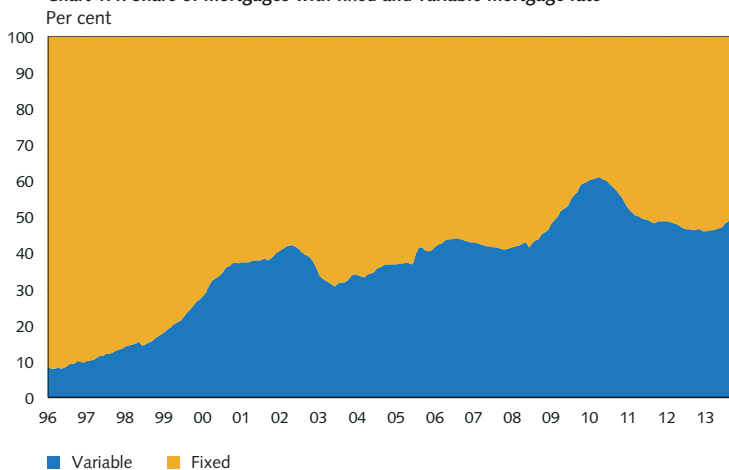
Lower mortgage rates meant lower interest expenditure

Throughout almost the entire period since the mid-1990s, the nominal interest rates that households have had to pay have fallen. In 1996, the average nominal interest rate was approximately 10 per cent and, by the start of 2012, it had fallen to about 3.5 per cent. For a household with a mortgage of SEK 1 million this was equivalent to a reduction of interest expenditure before tax deductions of SEK 65 000 per year (or just over SEK 5 400 per month). This also meant that the households' interest expenditure as a percentage of their disposable incomes decreased despite the fact that their debts as a percentage of their disposable incomes increased (see Chart 1.3).

A household's interest expenditure is also affected by the fixed period chosen for the interest on its mortgage. At the beginning of 1996, the percentage of mortgages with a fixed mortgage rate was just over 90 per cent. By 2013, this figure had fallen to just over 50 per cent (see Chart 1.4).⁷ Although the difference between mortgage rates with different fixed-rate periods varies, interest rates are usually lower for mortgages with short fixed-rate periods than for those with long fixed-rate periods, seen over a longer period.

⁷ The average fixed-interest period for households' new mortgage loans since 2005 has been about 1.4 years.

Chart 1.4. Share of mortgages with fixed and variable mortgage rate



Source: Statistics Sweden

Deductions for mortgage interest and other tax rules made it cheaper for households to borrow

In Sweden, 30 per cent of interest expenditure is deductible from other taxable income, which in practice means that interest costs after tax are 70 per cent of the original interest costs.⁸ However, the size of the interest deductions has changed over the years. During the 1970s and 1980s, the deductions could in practice be equal to the marginal tax rate, on average 50 per cent, which is much more than the current level of 30 per cent.⁹ However, the interest deduction has remained unchanged since 1990 and cannot therefore explain the growth in household debt from the mid-1990s and onwards.

However, other tax changes have been made since the start of the present century that have affected households' scope to borrow in recent years. One of these was the decision to abolish property tax as of 2008. Property tax, which was based on the taxation value of the housing concerned¹⁰, was replaced by a municipal property charge with a ceiling of SEK 6 000 for single-family houses and of SEK 1 200 for each apartment in an apartment block. For the majority of

8 If interest expenditure exceeds SEK 100 000 per year, the interest deduction is 21 per cent of the exceeded amount.

9 The marginal tax rate varied heavily as it depended on the amount of earnings. Over the period 1970-1990, the average marginal tax rate was 52 per cent. This means, therefore, that a household that paid 52 per cent in marginal tax could obtain a tax deduction for more than half of its interest expenditure. The interest deduction was lowered to 40 per cent in 1989 and again to 30 per cent in the following year.

10 The taxation value is set when property tax is levied and should be equivalent to 75 per cent of the property's market value.

homeowners, this meant a reduction of housing costs.¹¹ The ceilings were raised somewhat after 2008, but homeowners' costs were still significantly lower than previously. This change also led to an increase in households' scope for borrowing.

Households' amortisation decreased and the proportion of interest-only loans increased

Households' expenditure on mortgage loans is affected over the short term by whether or not the household amortises its mortgage. Choosing not to amortise a loan increases a household's scope for interest payments and thus the ability to take on a larger loan. Before the start of this century, it was common for the banks to require households to amortise their mortgages. However, competition for mortgage customers increased in the present century and the banks began to offer interest-only mortgages to a greater extent (see also sections 1.3 and 2.4).

Statistics are lacking over how amortisation has changed over a longer period, but there are some data sources that can be used to investigate the extent towards which Swedish households have chosen interest-only mortgages in recent years.

One such source is the Finansinspektionen's mortgage survey. The survey is annual and includes a sample of more than 18 000 new loans.¹² The mortgage survey in 2013 showed, for example, that the proportion of interest-only first mortgages increased between 2007 and 2012, while the proportion of interest-only second mortgages decreased over the same period (see Chart 1.5). This development largely reflects the Swedish Bankers' Association's recommendation on amortisation (see section 1.3).¹³

At the same time, the amortisation periods for the first mortgages that were actually amortised were very long. For example, in 2012, the average amortisation period for the first mortgage stock was about 148 years according to the banks' reports to Finansinspektionen and about 130 years according to the random samples gathered by Finansinspektionen. This was therefore significantly longer than the maturity that mortgages had according to contract (see section 1.3).

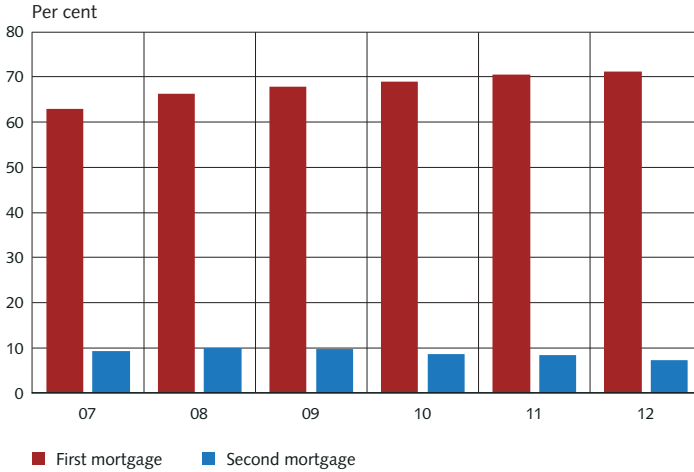
The random samples also showed that households had made some gross amortisation payments, which is to say amortisations according to the conditions of the mortgage contracts. But at the same time, households were taking out new loans faster than they were amortising. For example, the households included in the random samples had increased their total liabilities by eleven per cent in one year, even though about 32 per cent of them had amortised.

¹¹ The property tax rate for single-family houses was 1 per cent in 2007. For a detached house with a market value of SEK 2 million (and thus a taxation value of SEK 1.5 million) this entailed a property tax of SEK 15 000 per year. With the new municipal property charge, the tax on such a house amounted to SEK 6 000 in 2008. In this case, the tax costs had thus fallen by SEK 9 000.

¹² See *The Swedish Mortgage Market 2013*. Finansinspektionen.

¹³ For more information, see Swedish Bankers' Association. www.swedishbankers.se.

Chart 1.5. Interest-only mortgages in Sweden



Note. First mortgages are mortgages with a lower loan-to-value ratio than 75 per cent. The amortisation period relates to that part of the mortgage volume that is amortised under the mortgage agreement.

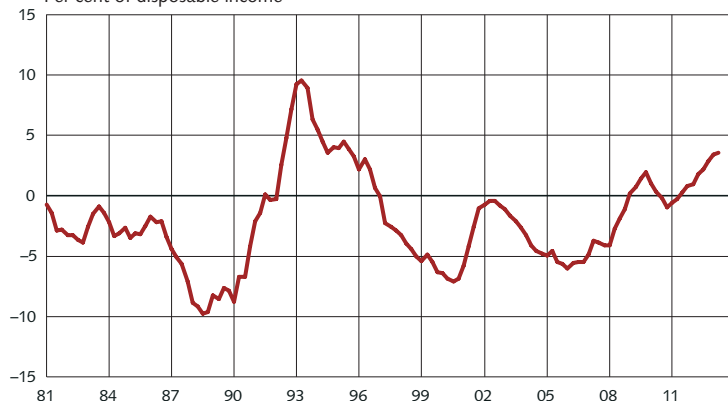
Source: Finansinspektionen

Another way of investigating whether Swedish households amortise is to study households' own financial saving, as collected by Statistics Sweden (see Chart 1.6).¹⁴ If financial saving is positive, then the households have either deposited money in their bank accounts, bought shares or amortised mortgages. Financial saving thus sets a ceiling for amortisation. Since 1997, Swedish households' financial saving has been negative for most of the time, and in 2012 it was close to zero. This therefore indicates that households' amortisation has been low in recent years. Of course, households can use their financial wealth to amortise. But if it is assumed that households want to keep their wealth intact, it is only the households' own financial saving that can be used to amortise.

¹⁴ Financial saving is defined as households' total saving with a deduction for collective and real saving, and shows how much households are saving in financial assets over one month. The level of financial saving also shows how large a financial scope the households have to amortise their mortgages.

Chart 1.6. Household financial saving

Per cent of disposable income



Note. Own financial saving is total saving excluding collective and real saving.

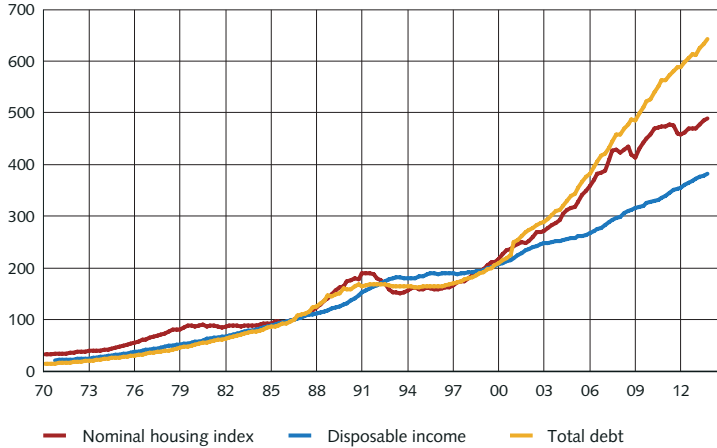
Source: The Riksbank

Housing prices have affected demand for mortgages

The increasing demand for mortgage loans also needs to be seen in light of the substantial price rises on the Swedish housing market. Between 1995 and 2012, nominal housing prices increased by over 195 per cent. Several studies indicate that the price increase can be explained in terms of population growth and urbanisation as well as by the strong development of the households' disposable incomes (see Chart 1.7). Furthermore, inflation development was stable and interest rate levels fell both in real and nominal terms. In many cases, higher housing prices mean that households need to borrow more. There are also studies that indicate that the demand for mortgage loans increases when households and lenders expect housing prices to continue to rise. The lenders then become even less stringent in their credit assessments. In periods with rising prices¹⁵, such behaviour tends to further accelerate the increase in housing prices and in the level of debt.

15 See for example Goetzmann, W. N., Peng, L. and Yen, J. (2009), The Subprime Crisis and House Price Appreciation, *Journal of Real Estate Finance and Economics*, 44, pp. 36-66. The study is based on US data.

Chart 1.7. Nominal housing prices, disposable income and total debt
Index, 1986=100



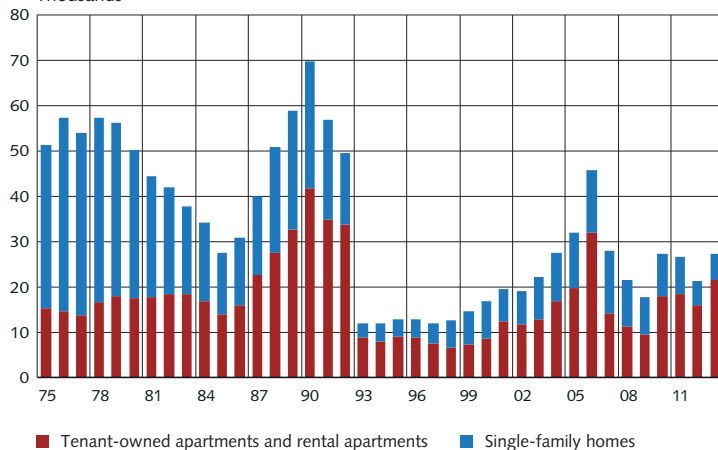
Sources: Statistics Sweden and the Riksbank

However, changes in demand for housing cannot alone explain price increases. Supply factors may also have affected the prices. For example, the supply of new housing is sluggish relative to demand. In many other markets, supply adapt to demand relatively quickly, while it take several years to build new homes. In Sweden, housing construction has fallen sharply since the crisis of the 1990s (see Chart 1.8). The form of tenure has also affected prices. The increasing number of tenant-owned apartments may for example have contributed towards the development of debt in Sweden.¹⁶ Prices of tenant-owned apartments have also increased more than prices of single-family houses, even though more tenant-owned apartments than single-family houses have been built in recent decades. This has pushed up demand for mortgages with tenant-owned apartments as collateral. In addition, according to information from Finansinspektionen, tenant-owners have a higher average loan-to-value ratio than owners of single-family houses.¹⁷

¹⁶ The number of rental apartments increased by about 33 300 in the period 1990-2011. The number of tenant-owned apartments increased by 317 000 in the same period, which is to say almost ten times as much. To a certain extent, the increased proportion of tenant-owned apartments can be explained by the conversion of a large number of rental apartments to tenant-owned apartments, particularly in the Stockholm area. 112 000 of the 155 000 rental apartments converted between the year 2000 and 2011 were in Stockholm.

¹⁷ See *The Swedish Mortgage Market 2013*. Finansinspektionen.

Chart 1.8. Number of housing starts
Thousands



Source: Statistics Sweden

The higher housing prices have made it possible for households to take out further loans on their properties

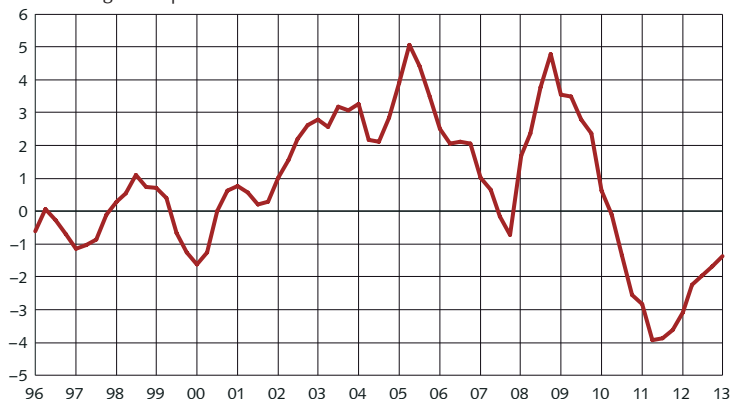
Rising housing prices have meant that established homeowners have been able to increase their existing mortgages.¹⁸ A household can then take a loan against collateral in the home it already owns, which in practice means that the household takes equity out of the house or apartment concerned by increasing the mortgage. This is usually called mortgage or housing equity withdrawal (MEW or HEW).¹⁹ The additional capital that the household borrows, and that is not used for housing improvements, can be used to finance consumption that is not housing related or to invest in financial assets. There are signs that this behaviour is more common in periods when housing prices increase rapidly, so that it is sometimes put forward as one explanation of the increase in household indebtedness in such periods.²⁰ Estimates of MEW in Sweden show that the withdrawal of housing equity was relatively large in the period 2003-2007 (see Chart 1.9).

18 See Mian, A. and Sufi, A. (2011), House prices, Home Equity-Based Borrowing and the US Household Leverage Crisis, *American Economic Review*, 101, p. 2132-2157.

19 See, for example, Reinold, K. (2011), Housing equity withdrawal since the financial crisis, *Quarterly Bulletin*, 2011Q2. Bank of England.

20 Mian, A. and Sufi, A. (2011).

Chart 1.9. Households' mortgage equity withdrawal
Percentage of disposable income



Note. Mortgage Equity Withdrawal, MEW, is here defined as the mortgage institutions' net lending to households with housing as collateral minus housing investments.

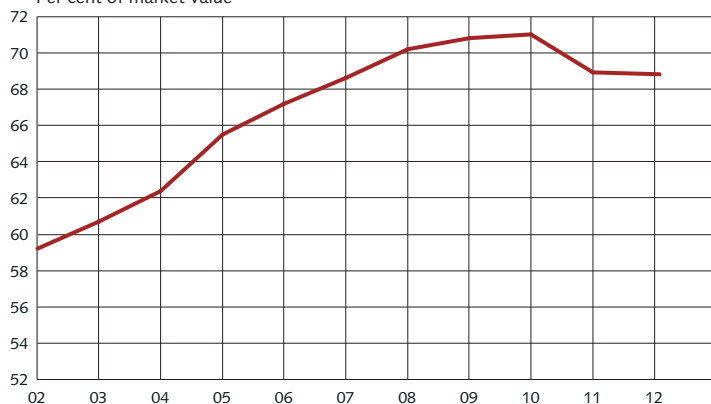
Sources: Statistics Sweden and the Riksbank

Households' average loan-to-value ratios have increased

For a time, the Swedish banks permitted increasing loan-to-value ratios (see Chapter 2). After the turn of the century, Swedish households' loan-to-value ratios for new loans increased from about 60 per cent to just over 70 per cent in 2011 (see Chart 1.10). During this period, a household could in some cases finance its entire housing purchase with a loan. Consequently, this meant that households were taking larger loans than previously to fund housing purchases, which also increased the loan volume more rapidly than would otherwise have been the case. However, in 2010, Finansinspektionen issued a general guideline²¹ that new mortgages should not exceed 85 per cent of the market value of the housing concerned, the so-called mortgage cap. The aim of this was to increase consumer protection, as excessive indebtedness makes borrowers less able to cope with fluctuations on the housing market and in the economy, as well as to counteract the unhealthy development of the credit market. After the mortgage cap was introduced, the average loan-to-value ratio for new loans successively decreased.

²¹ This set a standard but was not a binding legal requirement.

Chart 1.10. Average loan-to-value ratio for new loans
Per cent of market value



Source: Finansinspektionen

1.2 WHAT IS A MORTGAGE LOAN?

A mortgage differs from other loans in that the property stands as collateral, or a pledge²², for the loan. This means that, if the household is unable to make interest and amortisation payments on its mortgage, the bank can decide to let the property be sold via compulsory auction. This gives the bank the possibility of getting back the money it has lent, even if the borrower is no longer able to pay for the loan.²³

Sweden differs from many other countries in that bankruptcy does not provide a solution for a borrower to be rid of his or her debts. This means that Swedish households have a strong incentive to repay their loans. However, individuals that cannot service their debt can apply for debt rescheduling under the Debt Restructuring Act. Under certain circumstances, the borrower may then avoid having to pay all or parts of his or her debt. Debt rescheduling involves drawing up a special repayment schedule, meaning that the household will, in practice, be forced to live on a subsistence level for five years. However, to be granted debt rescheduling, the person must be so heavily indebted that he or she is unable to repay his or her debts within the foreseeable future. The fact that it is so difficult for borrowers to be rid of their debts has contributed to there being no history of major loan losses on mortgages in Sweden.

²² A pledge is a special preferential right or preferential claim that gives the pledgee (the lender) the right to dividend payments before lenders with lesser preferential rights if a property must be sold as the result of a borrower's inability to service a loan. The mortgage deed is the document used as collateral for the loan and is issued for a specific amount. The mortgage deed provides proof that the property has been mortgaged against a bank loan.

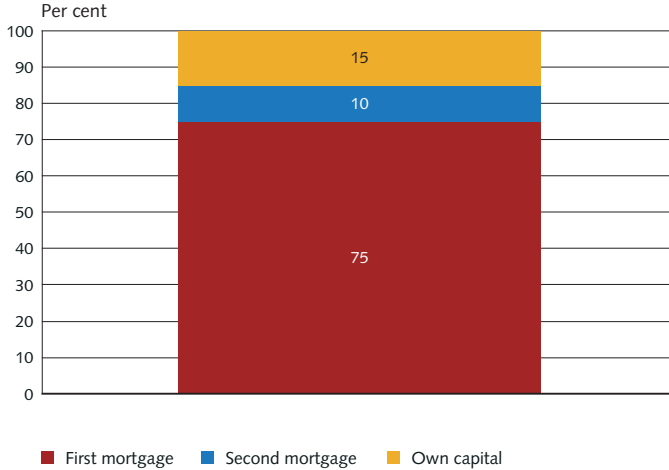
²³ The property's market value determines how much of the money the bank can recover. If the property cannot be sold and the debt remains, the bank normally makes a new attempt to sell it, together with the Swedish Enforcement Authority. If this sale fails, the foreclosure is annulled and the property is returned to the borrower. See www.kronofogden.se.

Mortgage collateral is nevertheless important for banks to be sure of getting their money back. To practically handle the risk linked with a mortgage, many banks divide mortgages into two parts, the first mortgage and the second mortgage. The mortgage cap introduced by Finansinspektionen in 2010 means that the first and second mortgage together should amount to no more than 85 per cent of the value of the house.²⁴ Consequently, a household must finance the remaining part with its own capital or with a collateral-free loan (or with collateral in another asset). Chart 1.11 illustrates how the composition of a mortgage may appear for a household borrowing 85 per cent of the price of a home and financing the remaining 15 per cent with its own capital. In this example, the first mortgage covers 75 per cent of the market value, while the second mortgage covers 10 per cent. However, the exact allocation of first and second mortgages varies between different banks and the example only illustrates a borrower borrowing 85 per cent of their home's value.

One difference between these loans is the size of the collateral the loan has in the property. In addition, first and second mortgages, in turn, have different entitlements, meaning that if problems should arise for the household, the lender with the best entitlement will have its money returned first. As first mortgages with collateral are associated with less risk than second mortgages, this also means that first mortgages often have better conditions and lower interest rates than second mortgages. However, fixed-rate terms and amortisation periods for first mortgages can vary, while second mortgages almost always have variable interest rates and shorter amortisation periods than first mortgages.

²⁴ The mortgage cap means that new mortgages should not exceed 85 per cent of the market value of the property. Before the introduction of this, a borrower could use his or her entire home as collateral for a housing purchase. The introduction has also led to a number of banks no longer using last mortgages. Instead, they have replaced these with collateral-free loans, also known as unsecured loans.

Chart 1.11. Example of how a household can finance a housing purchase



Note. The composition of mortgages varies from bank to bank. For example, some banks only use first mortgages to finance housing.

Source: The Riksbank

1.3 WHAT HAPPENS WHEN A HOUSEHOLD TAKES OUT A MORTGAGE LOAN?

When a household applies for a mortgage loan, the bank is obliged to carry out a credit assessment which includes a discretionary income calculation and a risk assessment. Using this credit assessment as a starting point, the bank assesses the household's credit rating and debt-servicing ability.²⁵ If these are deemed to be good enough, the bank presents a proposed loan amount and interest rate level based on current mortgage rates. The household must also decide whether the interest rate it will pay on the loan is to be variable or fixed. If the household chooses a fixed interest rate, it must also decide for how long the interest rate is to be fixed. Consulting with the bank, the household then decides on an appropriate amortisation rate.

Thorough credit assessment

To assess the household's ability to cope with the costs related to the house and loan, the banks are obliged under the Consumer Credit Act to carry out a credit assessment of the household.²⁶ This credit assessment is based on the mortgage application submitted by the household to the bank, which specifies

²⁵ The bank carries out a credit assessment of the person or persons in the household applying for the mortgage.

²⁶ Article 12, Consumer Credit Act. "The person carrying out business activities shall evaluate whether the consumer has the economic conditions to fulfil his or her commitments under the credit agreement. Such credit assessment shall be based on adequate information on the consumer's economic circumstances. Credit may only be granted if the consumer has the economic conditions to fulfil his or her commitments. A new credit assessment shall be carried out for any significant increase of credit."

the intended amount of the loan, as well as the preliminary purchase price and any fees and operating costs for the property. The household also provides information on its income and any other debts. This information is often compared and complemented with information from a credit-rating agency.²⁷ In addition, the bank needs information on the household's composition and the type of employment held by the presumptive borrower. If several individuals are applying for the same mortgage, the bank also needs these individuals' details.

Following this, the bank makes what is known as a discretionary income calculation. When performing these calculations, the bank reduces the household's income by any expenditure relating to the debts the household has, that is interest and amortisation expenditure. In addition, the bank adjusts the household's income for running costs relating to housing and other living costs. Living costs include potential household expenditure on food and clothing per month and are based on data from the Swedish Consumer Agency.

The remaining amount, the household's discretionary income, must be able to cover the household's other expenditure, such as holidays and unforeseen expenses. The banks' estimates in the discretionary income calculation are based on different standard values for interest rates, fees and amortisation rates, and vary depending on how large the household is and which type of home the household plans to purchase. Households' living and housing costs are also based on standard values. Every bank makes some form of discretionary income calculation and, even if the standard values vary slightly between the banks, their calculations use the same principle. Precautionary savings and entertainment costs are not included in the banks' calculations.

When calculating discretionary income, a bank will also make an assessment of the borrower's ability to repay its loans in the event of a rise in interest rates. The bank uses two different interest rates, one the current rate for the mortgage, the other interest calculated for costing purposes. Interest calculated for costing purposes is higher than the current interest rate and is used to stress test a household's debt-servicing ability. At present, there are no requirements for the level of interest calculated for costing purposes, and this varies from bank to bank. Interest calculated for costing purposes usually corresponds approximately to the rate on a mortgage where the mortgage rate is fixed for five years, plus three percentage points.²⁸

In addition to the discretionary income calculations, which provide an idea of the household's debt-servicing ability, the banks also make an assessment of

27 For example, in Sweden, Upplysningcentralen AB (UC AB) is a credit-rating agency that provides credit information on individuals and companies.

28 Interest calculated for costing purposes can differ to a relatively large extent from bank to bank. The Swedish Mortgage Market, published by Finansinspektionen in March 2013, specified that interest calculated for costing purposes for the eight banks included in the survey varied between 6.6 and 8.7 per cent.

the risk that the borrower will fail to fulfil his or her commitments to the bank. This credit assessment often uses a statistical model based on information on the household's credit record, for example whether the household has previously borrowed from the bank, whether it has a record of non-payment and so on. The credit assessment results in a credit score.

This quantitative analysis of the household's debt-servicing ability, based on the discretionary income calculation, the credit score and an estimate of the household's future income is also complemented by a qualitative assessment. In this, the bank considers the characteristics of the property, such as the part of the country in which it is located and whether it is a second home, a single-family house or a tenant-owned apartment. If the property is a tenant-owned apartment, the bank often also analyses the tenant-owner association's economy. If the household's ability to repay loans is deemed strong enough and the collateral is acceptable, the household will be granted a loan for the requested amount.

The mortgage rate is determined by several factors

The mortgage rate the bank offers depends on factors such as the bank's costs for funding the loan, the bank's other administrative costs and various consumer-specific factors. These consumer-specific factors include, for example, the bank's assessment of the household's debt-servicing ability and its other links with the bank. The composition of the loan can also affect the interest rate offered to the household. For example, a household with a high loan-to-value ratio may be offered one interest rate for its first mortgage and another for its second mortgage. While the banks publish what are known as listed prices, as several banks also consider households' credit ratings, these listed prices often differ from the actual interest rates subsequently offered to households. Households with other business with the bank can, for example, receive discounts and other benefits meaning a lower mortgage rate. Such discounts may be permanent or temporary, with a renegotiation of the terms of the mortgage often taking place at the end of the fixed-rate period.

Different fixed-rate periods affect interest costs

The household can decide whether it prefers a fixed rate or a variable rate, or a combination of both. The fixed-rate period is the period over which the interest on a loan is fixed. This should not be confused with the maturity of the loan. For Swedish households, the fixed-rate period normally varies from 1 to 10 years, while mortgages have maturities of between 30 and 50 years.²⁹

²⁹ The mortgage agreement entered into when the contract is signed can be broken by the credit institution under certain circumstances if this is specified in the agreement. Rules governing when a loan may be cancelled are also included in the Consumer Credit Act.

When a household chooses a fixed-rate period, it must consider two main factors: interest-rate risk and the price difference between a fixed-rate loan and a variable-rate loan. With a fixed rate, the borrower knows the amount of interest that must be paid each month. With a variable rate, interest expenditure can vary, as this interest rate follows the development of the fixed-income market. The variable interest rate normally does not change continually, but is adjusted every third month.

During the 2000s, fixed rates have on average been higher than variable rates. However, when a household chooses a fixed-rate period it is not enough to base the choice on the relation between fixed and variable rates today, it must also assess how variable rates may develop in the future.

When choosing between variable and fixed rates, the household must also consider that the bank will require what is known as interest differential compensation if a borrower wishes to pay off a fixed-rate loan before the fixed-rate period has expired.³⁰ Of course, all borrowers have the right to redeem such loans before the fixed-rate period expires, but, as this entails costs and loss of income for the bank, the bank has the right to charge compensation for this. The amount of compensation to the bank depends on how much time remains until the fixed-rate period expires.

Different kinds of amortisation

Amortisation is when a household repays part of its loan. There is no statutory requirement for households to amortise, but the Swedish Bankers' Association recommends that new mortgages exceeding 70 per cent of the home's market value should be amortised in 10 to 15 years.³¹ In addition, Finansinspektionen considers that the banks should offer households individually-tailored amortisation plans. These plans are not binding and it is up to each household whether it wishes to follow them.³² If there is a schedule, that is to say a plan for exactly when repayments are to be made and how large these are to be at any point in time, this is determined by the contract concluded by the household and the bank.

Three different kinds of amortisation exist. The most common type is known as continuous repayment, where the borrower pays the same amount on each payment date. This type of amortisation means that the loan debt decreases by the

30 A household paying a variable interest rate does not have to pay any interest differential compensation if it wishes to fix its interest rate.

31 In December 2012, the Swedish Bankers' Association announced that new mortgages with a loan-to-value ratio of over 75 per cent should be amortised. In October 2013, the Association added that new mortgages with a loan-to-value ratio of over 75 per cent should be amortised over a period of 10 to 15 years. In March 2014, this was revised to cover new mortgages with a loan-to-value ratio of over 70 per cent. (See www.swedishbankers.se).

32 In the spring of 2013, the government gave Finansinspektionen the task of proposing way to strengthen the households' amortisation culture. See the press release "FI wants to strengthen the amortisation culture" and "Individually tailored amortisation plan", from October 2013 (www.fi.se).

same amount each month, with the result that total housing expenditure decreases as the borrower pays off more of his or her mortgage.

Another type of amortisation is graduated payment, in which the amortisation amount is initially relatively low, following which it increases successively at each payment date. The size of this increase depends on the type of mortgage and the amortisation period agreed on by the borrower and the bank. With this amortisation method, expenditure is slightly more evenly spread over time than with continuous repayment, as interest expenditure decreases as the mortgage is repaid.

Another amortisation method used by the banks is annuity repayments, in which the mortgage is repaid in fixed annual instalments. With this method, the borrower pays a constant amount for interest and amortisation, with the result that expenses for the mortgage do not vary over the maturity of the mortgage. The total sum to be paid is thus calculated when the loan is raised. Interest payments are initially high, but the proportion of interest falls in stages while the payoff amount increases. Thus, the borrower's total mortgage expenditure will remain constant over the maturity of the mortgage.

A household can also choose to make larger amortisations in conjunction with the expiry of the fixed-rate period.

Mortgage contracts often run for 30-50 years and, theoretically, this means that the loan should have been repaid by the time the contract expires. In practice, the rate of amortisation varies from bank to bank and from borrower to borrower, and it is not unusual for the amortisation rate to mean that it will take more than 100 years to repay a loan.³³ This may mean that there is a residual debt when the contract expires and that the borrower must renew the contract. In Sweden, interest-only loans have also become common (see also section 1.1). An interest-only mortgage means that the household only pays interest on the loan until the day the household sells the property and the bank demands payment for the loan. It is also possible to have a loan on an interest-only basis for a number of years before then starting to amortise the loan. The bank and the borrower usually decide on amortisation period and form when the loan is raised, but it is also possible to renegotiate these conditions on a later occasion.

An interest-only loan means that the household defers its costs to a later date. An example of this is presented in Table 1.1. The table presents figures for a mortgage of SEK 1 million over 30 years, given different assumptions on amortisation and a mortgage rate of 5 per cent. The first column specifies the

33 In the random sample taken in the autumn of 2012 on conjunction with Finansinspektionen's mortgage survey, the average repayment period among households with a loan-to-value ratio below 75 per cent, and which actually amortised, was 140 years. However, this should not be confused with the maturity of the loan. Repayment period in this case refers to the maturity implied by the amortisations and not the maturity specified in the loan agreement. The maturity of a mortgage is usually between 30 and 50 years according to mortgage contracts.

figures for a household amortising a mortgage over 30 years. Column two shows corresponding figures for a household amortising the loan over 70 years. In the last column, figures for a household with an interest-only mortgage are shown. In this calculation, the total nominal interest expenditure over 30 years is twice the size for an interest-free mortgage than for a loan amortised over 30 years. Consequently, it is up to the household to decide whether it is worth deferring repayment of the loan to obtain a lower living cost at the start of the loan's maturity.

Table 1.1. Household's expenditure on mortgage loans under different assumptions regarding amortisation
SEK

AMORTISATION RATE	30 YEARS	70 YEARS	INTEREST-ONLY
Amount to be amortised over 30 years	1 000 000	428 571	0
Amortisation amount per month	2 778	1 190	0
Total interest expenditure over 30 years	752 083	11 794 64	1 500 000
Loan amount after 30 years	0	571 429	1 000 000

Note. The calculations are based on a mortgage of SEK 1 million with continuous repayment. Interest expenditure is before tax deductions and is not discounted, which is to say that the amount has not been back-calculated in consideration of a given interest rate. The mortgage rate is assumed to amount to 5 per cent over the entire period, which was the average mortgage rate over the period 1996-2013.

Source: The Riksbank

■ 2 The banks' supply of mortgage loans

Financial companies, usually banks, offer households mortgages. The supply of mortgages depends on the possibilities for profit existing for the party offering the mortgage. This, in turn, is determined by the difference between the revenue generated by the mortgage and the cost of providing it.

This chapter starts by explaining how mortgages are funded and how the funding costs affect the interest rates that households have to pay. This is followed by a discussion of the factors that have affected the supply of mortgages, particularly since the start of the century.

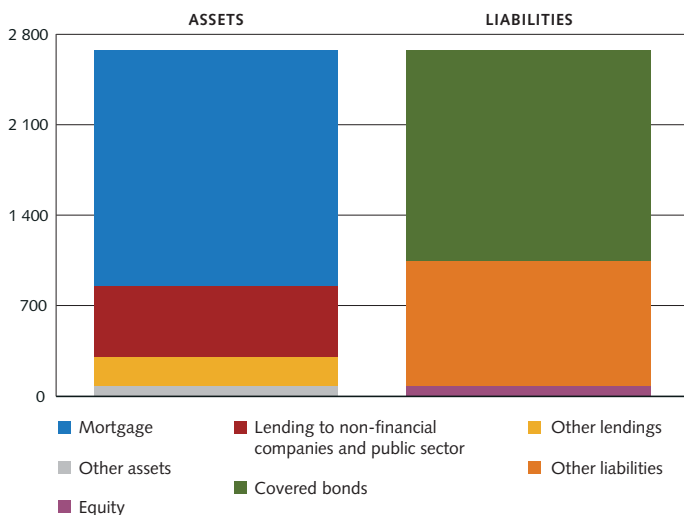
2.1 BANKS AND MORTGAGE INSTITUTIONS

In Sweden, the four major banking groups, Handelsbanken, Nordea, SEB and Swedbank account for almost 80 per cent of the mortgage market. The Swedish banking groups usually manage their mortgaging operations through separate subsidiaries known as mortgage institutions. However, SEB's mortgage institution is not a separate subsidiary but incorporated into the parent bank.

Mortgage loans are reported as an asset on the mortgage institutions' balance sheets (see Chart 2.1). The mortgage institutions usually fund mortgages by issuing covered bonds (see section 2.2). The mortgage institutions also borrow from the parent banks. The parent banks, in turn, obtain funding by issuing short-term unsecured bank certificates and long-term unsecured bank bonds. The parent banks also obtain funding through deposits from the public.

In practice, the division between mortgage institutions and parent banks is of little importance. The two parts are closely interconnected and mortgages are reported on the banking groups' consolidated balance sheets. In this section, the word 'bank' is used synonymously with 'mortgage institution' to describe the process of issuing and funding mortgages, even though it is the mortgage institutions that take care of this in practice. When it is necessary to describe the funding flows within a banking group, a distinction is made between parent banks and mortgage institutions.

Chart 2.1. Balance sheet for the Swedish banks' mortgage institutions
December 2013, SEK million



Note. The mortgage institutions whose figures are included in the chart are Stadshypotek, Swedbank hypotek, Nordea hypotek, AB Sveriges säkerställda obligationer (SBAB) and Länsförsäkringar hypotek. Landshypotek issues covered bonds but is not classed as a mortgage institution according to Statistics Sweden. SEB transferred its mortgage institution to SEB Bank in 2007. Consequently, neither of these two institutions is included in the figures in the chart.

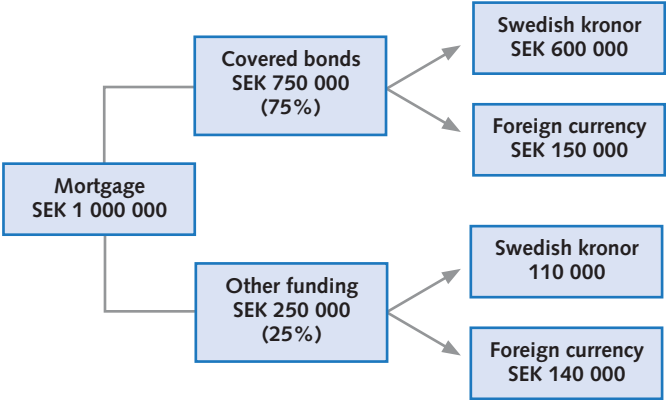
Source: Statistics Sweden

2.2 HOW DOES THE BANK FUND A MORTGAGE?

When a Swedish mortgage institution funds a mortgage, in most cases this is largely with the use of covered bonds (see the box Covered bonds). Figure 2.1 shows an example of how a mortgage institution, could fund a mortgage of SEK 1 000 000. The example is based on the way that the four major banking groups, on average, allocate the funding of a mortgage. The figure shows that SEK 750 000 or 75 per cent of the loan is funded through covered bonds. Of this, SEK 600 000 is issued in Swedish kronor and SEK 150 000 in foreign currency. The remaining SEK 250 000 is funded with loans from the parent bank. How the parent bank, in turn, chooses to fund the loan to the mortgage institution depends on how the bank allocates its funding within the group, which varies from bank to bank. The loan can either be funded by deposits from the public, short-term unsecured borrowing or long-term unsecured borrowing.³⁴ The calculation therefore assumes that the bank will use several sources of funding.

³⁴ While an unsecured bond means that the investor only has a claim on the issuer, a covered bond means that the investor has a claim on the issuer and a priority right to specific collateral linked to the bond.

Figure 2.1. Example of how a Swedish mortgage institution funds a new mortgage



Sources: Statistics Sweden and the Riksbank

Funding via covered bonds

The average maturity of a mortgage is between 30 and 50 years according to the contracts.³⁵ A bank will usually fund a mortgage by issuing a covered bond with an average maturity of four years.³⁶ The difference between the mortgage’s maturity and the maturity of the bond mean that the bank is taking a financing risk.

The bank usually pays a fixed interest rate to the bond investor. The bank could issue a covered bond at a variable rate, but this does not happen very often as investors usually prefer bonds at a fixed rate as this provides predetermined payments.

If the household has chosen a fixed rate for its mortgage the bank can match its interest payments during the maturity of the bond, as the household pays a fixed rate to the bank which in turn pays a fixed rate to the investor who purchased the bond.

If, on the other hand, the household chooses a variable rate, the interest that the household pays to the banks will be adjusted every third month and will therefore not match the fixed rate that the bank pays to the investor. If interest rates are changed in a way that is unfavourable to the bank, the bank will receive a lower amount from the household than it is to pay to the investor. In other words, the bank runs an interest rate risk. Consequently, the different interest-rate flows must be adjusted to each other so that the bank can manage the interest rate risk. The bank usually does this by entering what is known as a swap contract (interest-

35 *The Swedish mortgage market 2013*. Finansinspektionen. In contrast, the fixed-rate period of a mortgage can vary from three months to five years.

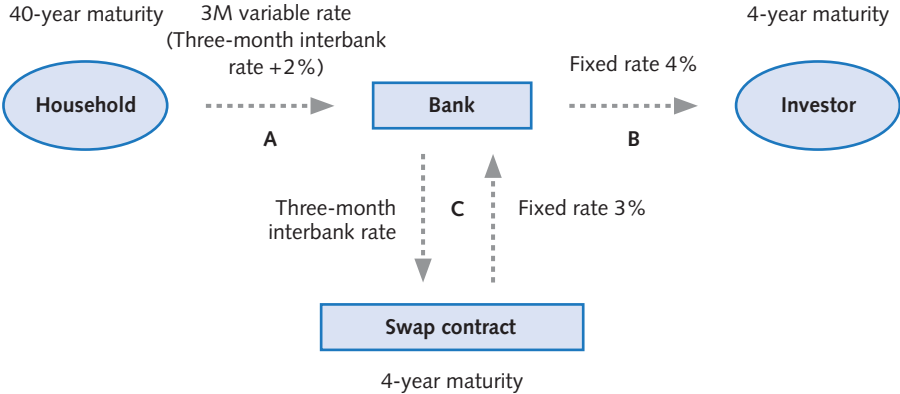
36 This refers to the average maturity of Swedish covered bonds issued in the autumn of 2013, according to the Association of Swedish Covered Bond issuers. The average maturity for the stock of covered bonds was at the same point in time just below three years.

rate swap), in which it changes the variable interest rate from the household to a fixed interest rate, in order for it to match the interest rate the bank pays the investor. In this way, the fixed-rate period for the funding becomes the same as the fixed-rate period for the household's interest payments. Figure 2.2 illustrates, in three steps, how a bank funds a variable-interest rate mortgage with the help of a covered bond in Swedish kronor with a maturity of four years. The example is based on the way that the four major banks, on average, usually fund their mortgages.

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

If the bank's various flows are totalled, funding cost becomes the three-month interbank rate plus 1 per cent. In the swap contract, the bank pays the three-month interbank rate and receives a fixed rate of 3 per cent. After this, 4 per cent is paid to the investor, which leads to the net cost being the three-month interbank rate minus 3 per cent plus 4 per cent, which corresponds to the three-month interbank rate plus 1 per cent. This is the bank's funding cost for a mortgage. The cost of one percentage point above the three-month interbank rate arises because the bank has secured its own funding for four years instead of only borrowing money for three months. As the bank receives a variable rate corresponding to the three-month interbank rate plus 2 per cent from the household, at the same time as it is borrowing at the three-month interbank rate plus 1 per cent, the bank's gross margin on the mortgage is 1 per cent (more information on the banks' gross margin is available in section 2.3).

Figure 2.2. Example of how the interest rate flow from a mortgage with a three month interest rate is converted to a fixed rate via a swap contract



Source: The Riksbank

The Swedish banks also issue covered bonds in currencies other than Swedish kronor to fund Swedish mortgages. They do this both to spread their borrowing between different markets and investors and to obtain the least expensive funding possible. About 20 per cent of the covered bonds are issued in foreign currency, primarily euros.

In the same way as when the bank funds mortgages via covered bonds in Swedish kronor, it must use swap contracts when obtaining funding in euros. The bank then issues a covered bond with a maturity of four years as in Figure 2.2. But this time, the bond has been issued in euros instead of Swedish kronor. This means that the bank, apart from protecting itself against interest-rate risk, must also protect itself against the currency risk that arises when the funding is in one currency and the asset (the mortgage) is in another. As the bank must repay the loan in euros, which it has borrowed through the covered bond, four years later, there is a risk that the Swedish krona may have fallen in value against the euro and that the loan would thus become more expensive. The bank manages this risk by simultaneously conducting a transaction, a swap contract, in which euros are exchanged for Swedish kronor over four years. In this way, the bank protects itself against any loss resulting from exchange rate risk.

Covered bonds³⁷

What is a covered bond?

The Swedish banks usually fund their operations in the longer term by issuing bonds that are purchased by investors. The bonds may be unsecured or a covered bond. The main difference between the two types of bond relates to the rights that the investors have if the issuer, in this case the bank, goes bankrupt. While an unsecured bond means that the investor only has a claim on the issuer, a covered bond means that the investor has a claim on the issuer but also a priority right to collateral that is specifically linked to the bond (the so-called cover pool).³⁸ This claim on the underlying collateral pool means that the investor runs less of a risk of losing money if the issuer goes bankrupt than would be the case if the investor only had a claim on the issuer. Consequently, the investors do not demand as high an interest rate for the covered bonds as they do for the unsecured bonds. As a bank's covered bonds provide a priority right to specific collateral, they may have a higher credit rating than the bank's own credit rating. This applies in particular

if the value of the underlying collateral is significantly higher than the value of the outstanding bonds.

There is no generally-accepted international standard for the structure of covered bonds. The form of the bonds instead differs from country to country.³⁹ However, unlike other financial instruments, in most countries covered bonds are governed by a better-defined regulatory framework that is overseen by national supervisory authorities. The legislation in most countries also governs what collateral may be included in the cover pool, as well as the composition of the cover pool. The most common collateral is mortgages. A simplified illustration of a bank's balance sheet following the issue of covered bonds is given in Figure B2.1.

The Swedish legislation on covered bonds

Until the mid-2000s, the Swedish mortgage institutions issued mortgage bonds which in formal terms were unsecured bonds. However, an agent that invested in a mortgage bond had in practice a claim on the assets on the

37 For further information, see Sandström, M., Forsman, D., Stenkula von Rosen, J. and Fager Wettergren, J. (2013), The market for Swedish covered bonds and links to financial stability, *Sveriges Riksbank Economic Review*, 2013:2. Sveriges Riksbank.

38 There are also other types of secured bonds, for example asset-backed securities (ABS) for which the investor only has a claim on the underlying assets.

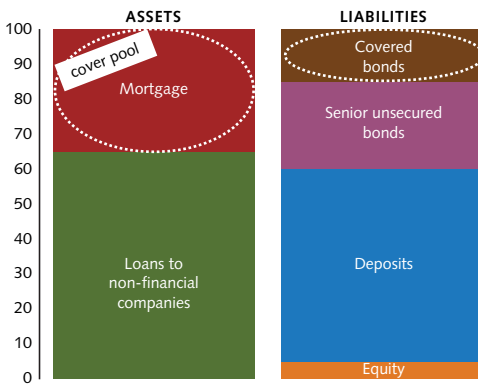
39 However, the European Covered Bond Council (ECBC) has drawn up a voluntary standard for what securities may be regarded as covered bonds.

mortgage institution's balance sheet, that is mainly mortgages. The mortgage bonds could thus to some extent be regarded as bonds covered by mortgages even though they were not regulated by law. The Swedish Covered Bonds Issuance Act came into force on 1 July 2004. Between 2006 and 2008, the Swedish banks and mortgage institutions moved from issuing mortgage bonds to issuing covered bonds in line with the new law. At present, there are eight Swedish banks (or their mortgage institutions) that have a permit from Finansinspektionen to issue covered bonds. These are Swedbank hypotek, Stadshypotek AB (Handelsbanken), SEB,

Nordea Hypotek AB, The Swedish Covered Bond Corporation (SBAB) Länsförsäkringar Hypotek, Landshypotek and Skandiabanken.

According to the Act, the value of the underlying collateral must constantly correspond to at least the value of the issuer's outstanding covered bonds. The underlying collateral may consist of loans for housing, loans to commercial properties and loans to agricultural properties.⁴⁰ However, loans to commercial properties may not constitute more than 10 per cent of the cover pool. Certain other assets, such as loans to the public sector, may constitute a limited part of the cover

Figure B2.1. Illustration of banks' balance sheets in connection with the issue of covered bonds



Note. The example illustrates the consolidated balance sheet of a banking group and is based on a simplified assumption that all mortgages on the asset side are included in the cover pool. This is often not the case as only that part of the mortgage that falls below a certain loan-to-value ratio may be included in the cover pool. Some banks also choose not to place all the approved loans in the cover pool.

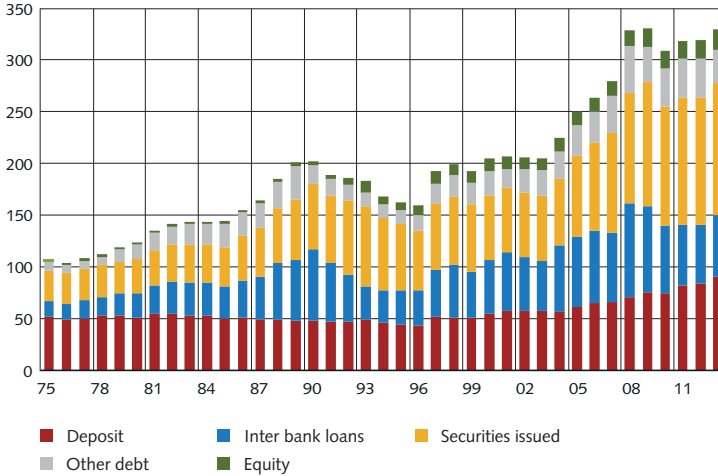
Source: The Riksbank

40 The loans must be issued within the European Economic Area (EEA).

pool. In practice, Swedish covered bonds are almost exclusively covered by Swedish mortgages. In the case of mortgages, the highest permitted loan-to-value ratio is 75 per cent of the market value of the housing concerned, while the figure for agricultural properties is 70 per cent. For commercial properties, the highest permitted loan-to-value ratio is 60 per cent of the market value. Market value is set by means of a valuation of the asset when the mortgage is issued and is subsequently regularly reassessed. If the market value of the asset acting as collateral for the

mortgage falls over time, the loan-to-value ratio may exceed the level permitted by law. In such a case, the issuer may only include that part of the loan that falls below the highest permitted loan-to-value ratio after taking the new market value into account. If a borrower is more than 60 days late in making mortgage payments, the mortgage may no longer be included in the cover pool. In order to demonstrate that they are complying with the provisions of the Act, the Swedish issuers must keep a register of the underlying cover pool and the issued covered bonds.⁴¹

Chart B2.1. Liabilities in the Swedish banking system
Per cent of GDP



Note. This data relates to monetary financial institutions (MFI). MFI include both banks and mortgage institutions. Foreign banks' subsidiaries and branches in Sweden are included, as are Swedish banks' branches abroad. However, Swedish banks' foreign subsidiaries are excluded.

Sources: Statistics Sweden and the Riksbank

⁴¹ The register should also cover related derivative contracts.

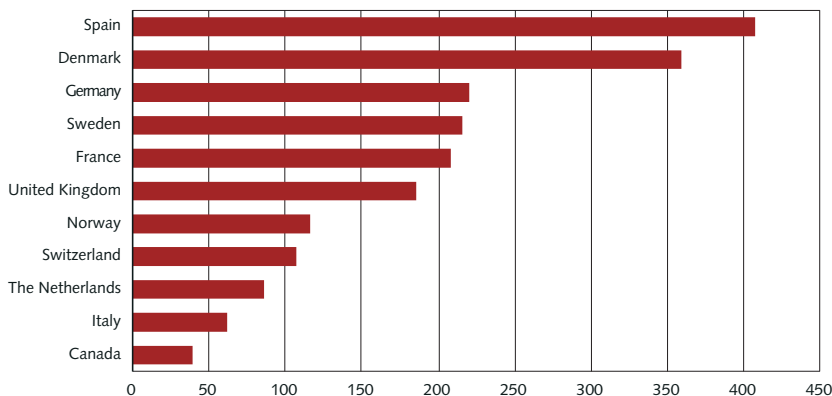
Finansinspektionen is the Swedish authority that has the mandate to ensure that the Swedish issuers comply with the Act. Finansinspektionen is assisted in this by an independent inspector who, among other things, oversees the issuers' collateral registers. The inspector submits a report on the banks' compliance with the regulations to Finansinspektionen each year.⁴²

The Swedish market for covered bonds

Covered bonds with mortgages as collateral presently form the main part of the banks' funding through issued securities, which, in turn, is a large part of the banking system's total funding (see Chart B2.1).

By the end of 2013, the volume of covered bonds issued by Swedish banks in accordance with Swedish legislation amounted to SEK 1 930 billion, which corresponds to just over half of Sweden's GDP. This also means that the outstanding volume of Swedish covered bonds is greater than the outstanding volume of Swedish government bonds, which amounted to SEK 800 billion at the same point in time. The Swedish market for covered bonds with mortgages as collateral is also the world's fourth largest market for this type of security (see Chart B2.2). The majority of Swedish covered bonds are issued in Swedish kronor, while about one-quarter are issued in foreign currency, primarily euros (see

Chart B2.2. Outstanding covered bonds with mortgages as collateral 2012, EUR billion



Source: European Covered Bond Council

42 The examiners work on behalf of Finansinspektionen but are paid by the issuers. They are usually people with a background in accounting.

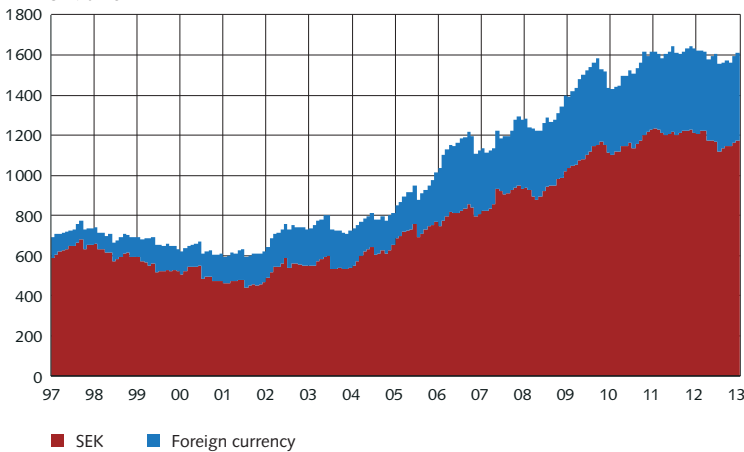
Chart B2.3). The Swedish banks also issue covered bonds in countries such as Denmark, Norway and Finland in accordance with legislation in these countries. This borrowing primarily funds the banks' operations in these countries.

As the market for covered bonds is the largest bond market in Sweden, it is natural for Swedish investors to invest in these bonds. In the same way, it is natural for foreign investors wishing to invest in Swedish securities to purchase Swedish covered bonds.

Among the Swedish investors, it is primarily insurance companies, other banks and the AP pension funds that purchase the Swedish banks' covered bonds (see Chart B2.4). The Swedish

banks invest in covered bonds both to have a buffer of liquid assets and to hold a stock of bonds to facilitate the purchase and sale of bonds to other investors (the Swedish banks thus act as market-makers). In particular, Swedish insurance companies have increased their holdings of covered bonds in recent years, as have foreign investors (see Chart B2.5). Foreign investors generally purchase bonds issued in foreign currency to a greater extent than bond issued in Swedish kronor. However, at present, there are no public statistics showing which foreign investors are making investments in the Swedish banks' covered bonds. However, the general statistics for investors investing in covered bonds

Chart B2.3. Outstanding volumes of Swedish covered bonds
SEK billion



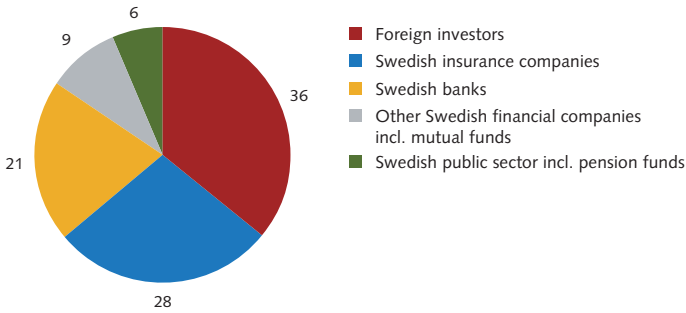
Note. The figures in the chart do not include covered bonds issued by SEB.

Sources: Statistics Sweden and the Riksbank

issued in euros indicate that the banks themselves are the greatest investors, followed by asset managers, for

example insurance companies and mutual fund companies.

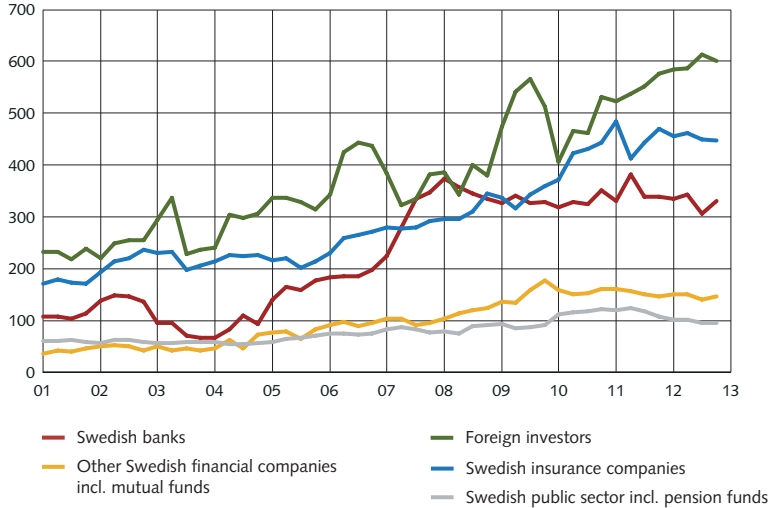
Chart B2.4. The Swedish banks' covered bonds, by owner
September 2013, per cent



Note. The figures refer to covered bonds in Swedish kronor and foreign currency.

Sources: Statistics Sweden and the Riksbank

Chart B2.5. The Swedish banks' covered bonds, volume and owner
SEK billion



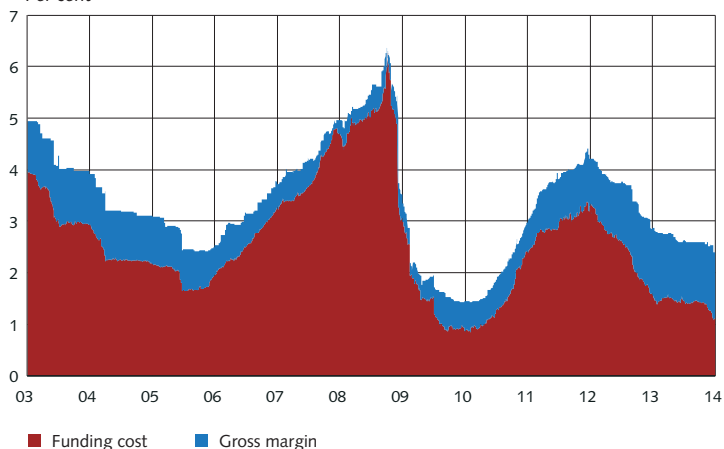
Note. The figures refer to covered bonds in Swedish kronor and foreign currency.

Sources: Statistics Sweden and the Riksbank

2.3 HOW IS THE MORTGAGE RATE DETERMINED?

The lending rate that the banks apply to their mortgages is determined partly by the banks' funding costs for funding such loans and partly by the margins charged by the banks to households (see Figure 2.2). The funding cost is influenced by factors including the Riksbank's monetary policy and repo rate, as well as by investors' assessment of the credit and liquidity risks in the banks' covered bonds. To a certain extent, the banks can influence the average funding cost for mortgages by changing the composition of their funding alternatives, both as regards different maturities and different sources of funding. The margin on the mortgage is set by the banks and this, together with the funding costs, sets the mortgage rate that households face.

Chart 2.2. The banks' funding cost for a newly-issued variable-rate mortgage
Per cent



Note. The figures in the chart refer to the funding cost for a variable-rate mortgage for an average Swedish mortgage institution. The mortgage rate is the total of the funding cost and the gross margin.

Sources: Reuters Ecowin and the Riksbank

From funding cost to lending rate

As section 2.2 makes clear, it is usual for the bank to fund a mortgage to an estimated 75 per cent by issuing covered bonds and to 25 per cent through other funding such as deposits or issues of unsecured bonds (see Figure 2.1). Using the known cost of each type of funding as a basis, the bank's total borrowing cost for issuing a mortgage can be estimated and the gross and net margins of the mortgage can be calculated.

The gross margin constitutes the difference between the bank's lending rate and its funding cost. However, the gross margin cannot be equated with the bank's profit on the mortgage, as the bank must use this to pay for other

expenses apart from the funding cost, for example administration costs and taxes. In addition, the cost for maintaining a liquidity reserve must be added (see also the box Why has the difference between the repo rate and the mortgage rate increased?).

After the bank's other expenses, including costs for the liquidity buffer, have been deducted from the gross marginal, the remaining amount is the bank's net margin. Consequently, the net margin can give an approximate estimate of what the bank earns on a mortgage.

In Table 2.1, the banks' net margins on new mortgages are estimated to be approximately 0.5 per cent. This means that a bank lending SEK 1 000 000 over one year will earn about SEK 5 000 on the loan. However, it is difficult to estimate the banks' profitability by only examining a single product. Instead, consideration should be taken of a household's entire commitments with its bank and the bank's pricing of all the services used by that household. For example, revenues from deposits, fund investments or credit cards can make it easier for the banks to give discounts on mortgages.

Table 2.1. Estimate of funding cost and net margin for newly-issued variable mortgages
December 2013, per cent

A Lending rate					2.6
Calculated funding cost for a mortgage	Percentage of mortgage funding		Borrowing cost for the bank		Weighted cost
Covered bonds in SEK, including swap	50	x	1.2	=	0.6
Covered bonds in EUR, including swap	20	x	1.3	=	0.3
Other funding	30	x	0.9	=	0.3
B Funding cost					1.2 → 1.2
C Gross margin (A-B)					1.2
D Other costs					0.5
E Tax cost					0.2
Net margin (C-D-E)					0.5

Note. The banks may choose to allocate the cost of their funding in various ways within their corporate group. Other funding may consist of deposits from customers, which is a relatively inexpensive source of funding, and of unsecured bonds, which are a relatively expensive source of funding. The calculations assume that the costs for other funding correspond to the three-month Stibor rate, which is a higher cost than deposits but lower than unsecured borrowing. Among other items, the bank's overheads include administrative costs, costs for holding liquidity and costs for expected loan losses. The borrowing cost is illustrated by the red, yellow and grey fields in Chart B2.7 and the gross margin by the blue field.

The repo rate affects mortgage rates

The fundamental factor affecting the banks' funding cost is the Riksbank's repo rate.⁴³ When the Riksbank decides upon the level of the repo rate, this decision influences the market rates via what is known as the operational framework for the implementation of monetary policy. The operational framework is designed to steer the shortest market rate, the overnight rate.⁴⁴ By determining the level of the repo rate and reporting its assessment of how the repo rate will develop over the next three years, the Riksbank also influences longer-term interest rates, for example government bond yields.

The repo rate and changes to it thus affect both short-term and long-term interest rates, albeit to different extents. For example, changes in the interest rates of the interbank or government bond markets in turn influence the banks' funding costs, for example interest rates on bank accounts and bonds from the mortgage institutions. Furthermore, the banks' funding costs affect their lending rates, for example the rates for bank loans, mortgages and corporate loans. In this manner, monetary policy affects many different interest rates in the economy, including deposit and lending rates for households and companies. The level of activity and development of prices in the economy are thereby also affected.⁴⁵

However, the Riksbank's interest rate and monetary policy is just one of several factors influencing interest rates with longer maturities. Another important factor is formed by the risk premiums linked with debt securities. This is because holding bank bonds or covered bonds issued by a mortgage institution can entail both credit and liquidity risks for which the investors wish to be compensated. This leads to bank bond yields becoming higher than government bond yields. This difference is usually known as a risk premium. Risk premiums vary over time and can also affect the deposit and lending rates faced by households and companies.

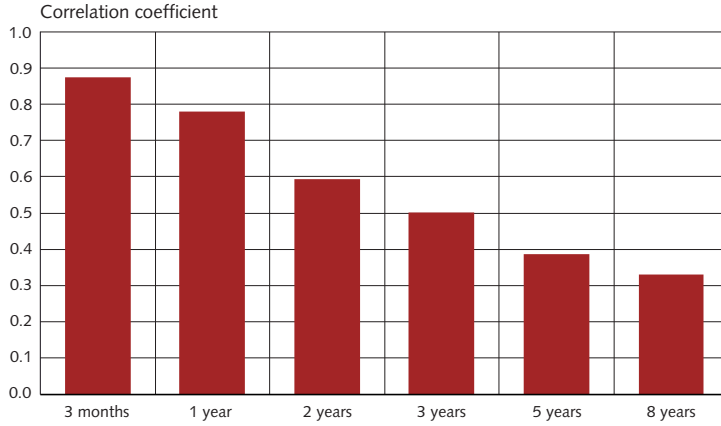
The relationship between the Riksbank's repo rate and a number of listed rates on the Swedish mortgage market can be illustrated with the assistance of Chart 2.3. The chart shows that 90 per cent of the variation in the variable mortgage rate (the three-month rate) co-varies with changes in the repo rate. In contrast, the covariance between the repo rate and mortgage rates with longer maturities is weaker, as monetary policy is one factor among others that affects long-term interest rates.

43 The Riksbank sets the level of the repo rate to make inflation develop in a way that will fulfil the Riksbank's inflation target, which specifies that the annual change in the Consumer Price Index (CPI) is to be 2 per cent.

44 See Sellin, P. and Åsberg Sommar, P. (2012), Review of the Riksbank's operational framework for the implementation of monetary policy, *Economic Review*, 2012:2. Sveriges Riksbank.

45 A more detailed description of the monetary policy mechanism is presented in Hopkins, E., Lindé, J., and Söderström, U. (2009), The Monetary Policy Transmission Mechanism, *Economic Review*, 2009:2. Sveriges Riksbank.

Chart 2.3. The relationship between the repo rate and listed mortgage rates with various maturities



Note. The correlation coefficient specifies the relationship between changes in the monthly average for the repo rate and listed mortgage rates with various maturities. The figures have been calculated for interest rates during the period from January 2000 to August 2012.

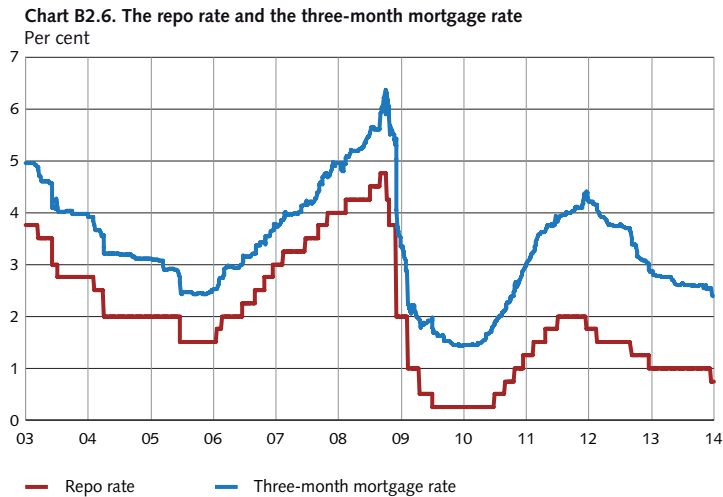
Source: The Riksbank

Why has the difference between the repo rate and the variable mortgage interest rate increased?

The difference between the banks' lending rates for variable-rate mortgages and the Riksbank's repo rate has increased in recent years (see Chart B2.6). Between 2006 and 2008, the average difference was about 90 basis points (0.9 percentage points). This difference increased after the financial crisis. The difference was greatest in 2012 (about 260 basis points) but subsequently decreased, reaching about 160 basis points by the end of 2013.

The variable mortgage rate applied to households, that is the mortgage rate with fixed-rate term of three months, can be divided into two parts:

the banks' funding costs and the margin. In turn, the banks' funding costs⁴⁶ can be divided up into three different parts (see Chart B2.7): the repo rate (red field) and other funding costs (yellow and grey fields). The total of the red and yellow fields corresponds to the three-month interbank rate, which is to say the interest rate the banks offer each other for loans without collateral for three months. In addition to the interbank rate, the banks pay a supplement to obtain funding over a term (this funding is assumed to have an average maturity of 4 years) longer than three months (grey field). This is because the risk



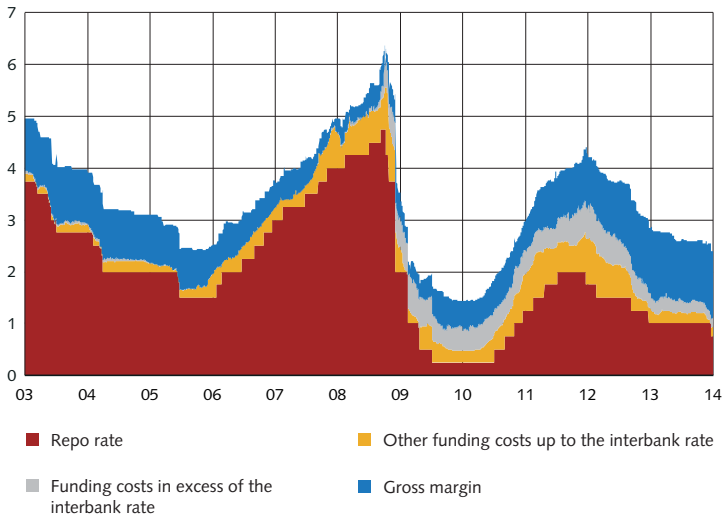
⁴⁶ The funding cost for the banks is calculated using the method described in Table 2.1.

premiums for credit and liquidity risks usually increase with the maturity (see also the section How is a mortgage funded?). The blue field in Chart B2:7 represents the banks' gross margin⁴⁷, which is to say the difference between the bank's lending rate and the funding cost (see table 2.1). While the funding cost is influenced by factors such as the Riksbank's monetary policy and the perceived level of risk in the banks' covered bonds, the margins are set by the banks themselves to cover other costs and provide profits.

In the years before the financial crisis, the banks' risk-taking increased globally, while risk premiums were

pushed downwards on several markets. In other words, financial market participants did not demand sufficient payment for the risks they were taking. Risk-taking also increased on the Swedish mortgage market. Competition for household lending increased, with the result that the banks started to offer interest-only mortgages and higher loan-to-value ratios (for example) to a greater extent than previously. This competition meant that the banks' margins were pushed downwards and that their earnings on mortgages thus decreased. In addition, the banks began to adapt the pricing of mortgages to the provisions of

Chart B2.7. Mortgage rate for new mortgages with three-month fixed rate
Per cent



Sources: Ecowin and the Riksbank

⁴⁷ The gross margin is the difference between the repo rate and the mortgage rate.

the Basel II regulations. Under these provisions, the banks would not need to have as much equity as previously to grant mortgages.

During the financial crisis of 2007-2008, competition for households weakened and the banks' margins increased. The crisis also entailed the increase of the banks' funding costs, as confidence in their debt-servicing ability decreased and investors thereby demanded a higher risk premium for lending to the banks. As a result of this, interbank rates increased both in Sweden and abroad, which can be seen in Chart B2.7, where the yellow field is larger during the crisis years of 2007-2008. The increase of credit risk and liquidity risk in the financial system also meant that it became more expensive for the banks to borrow for longer maturities, as compared with shorter

ones. This is marked by the grey field in the chart, which also shows that, prior to the financial crisis, the banks paid as much, in principle, for loans over the short term as over the long term.

In 2012, the banks' funding costs started to decrease, which indicated that risk premiums on the market had again started to decrease and confidence among the banks had increased.

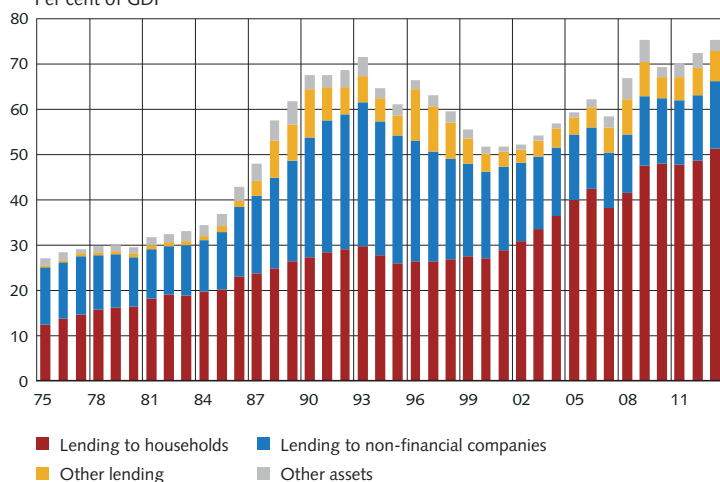
The banks' funding costs for up to the three-month Stibor rate (the yellow field in Chart B2.7) and over the three-month Stibor (the grey field in Chart B2.7) continued to decrease, reaching the same levels as before the financial crisis by the end of 2013. On the other hand, lending rates did not decrease at the same rate, which meant that the banks' gross margin increased over the period.

2.4 THE SUPPLY OF MORTGAGES SINCE THE START OF THE CENTURY

Prior to the mid-1980s, lending by mortgage institutions and banks was limited by government regulations. These regulations governed how much could be lent and for which purposes (see also Chapter 3). When these regulations were eventually lifted, the business interests of the banks and mortgage institutions instead came to govern lending. As a consequence, lending increased substantially to many sectors, including lending for the purchase of housing by households. After a temporary slowdown in conjunction with the Swedish banking crisis of the early 1990s, lending for housing purchases picked up again at an increasing pace, particularly after the turn of the century. The result of this was that lending to households in the new century came to form an increasing proportion of the mortgage institutions' total assets (see Chart 2.4).

A number of factors that may have contributed to the increased supply of mortgages in recent years are discussed below.

Chart 2.4. The Swedish mortgage institutions' assets
Per cent of GDP



Sources: Statistics Sweden and the Riksbank

Increased competition on the mortgage market increased the supply of mortgages

Competition increased on the Swedish mortgage market just after the turn of the century. To win customers, the banks started to make changes to the terms and requirements they applied to lending to households. They both lowered the requirements for customers to amortise their mortgages and eased the requirement for a cash-down payment. In 2005, SBAB was first to offer its

customers first mortgages of up to 95 per cent of a property's market value.⁴⁸ The banks also competed by offering customers lower interest rates.

Although the increase in competition reduced the banks' margins on mortgages, the larger volumes meant that mortgages nevertheless became good business for the banks. The banks were also able to increase their income by selling other services, such as mutual-fund and pension saving, to their mortgage customers.

One reason why the banks eased their requirements was their assessment that the debt-servicing ability of the households had improved and that the households could therefore manage higher levels of debt. Interest rates were low and households' disposable incomes were increasing. This situation was expected to last. The value of housing also increased, which enabled the households to increase their debts in absolute terms without increasing their debts in relation to the value of their homes (see section 1.2).

Lower capital requirements for mortgages meant lower funding costs for the banks

The regulations governing the banks' capital adequacy are largely determined by the so-called Basel framework. Among other things, these regulations stipulate how much capital the banks need to hold in relation to the size and risk level of their assets. Put simply, the risk in the assets is measured by multiplying each asset, for example a mortgage, by a risk weight. The higher the risk the asset is deemed to carry the higher the risk weight, and the more capital the bank needs to hold as a buffer against potential losses on this asset.

In 2004, an agreement was published on a new regulatory framework for banks, the Basel II framework, which would come into force in 2007. This gave the banks the opportunity to calculate the risk weights for their assets themselves, providing that their calculation models were approved by Finansinspektionen. The aim of allowing the banks to use internal calculation models was to create a closer link between the actual risks, and the capital requirements. When calculating these risk weights, historical loan losses have a major impact on the results. As, historically speaking, the Swedish banks' loan losses on mortgages have been practically non-existent, the risk weights calculated using the internal models are very low. The major banks' risk weights for mortgages would therefore fall from at least 50 per cent⁴⁹ to an average of approximately 6 per cent in the transition from Basel I-framework to Basel II. Holding capital is relatively expensive for the banks and this would mean that they would no longer need to hold as much capital as

48 See SBAB-added value, diversity and competition, *RiR 2012:9*. (2012) Swedish National Audit Office.

49 50 per cent risk weight applies to detached houses. The risk weight for tenant-owned apartments was 100 per cent.

previously.^{50, 51} The new framework would thus mean that the banks could reduce their capital holdings given the same assets, or keep the same amount of capital and increase their lending for housing purposes and still retain their capital ratios (own capital divided by risk-weighted assets).

The Basel II framework was to come into force in 2007, which meant that the banks were forced to hold capital in accordance with the existing framework until that date. It is probable, however, that the banks began to prepare for Basel II by adjusting their lending conditions to the new requirements, for example through lower interest rates for customers. In the years before the financial crisis, average capital adequacy, which is to say capital in relation to risk-weighted assets, was 7 per cent in the major Swedish banks.⁵² With an average risk weight for assets of 6 per cent, this meant that under the new framework the banks could fund a mortgage of SEK 1 000 with just over SEK 4 of capital ($0.06 \times 0.07 \times 1\ 000 = 4.2$) and SEK 996 in borrowed money. For a mortgage of SEK 2 million, the banks would thus only need to retain capital of just over SEK 8 000.

However, there were and still are transitional regulations from Basel I to Basel II that limited the banks' capital from sinking that low. Put simply, the transitional regulations meant that a mortgage of SEK 2 million with a capital adequacy ratio of 7 per cent ultimately required SEK 56 000 in capital.⁵³

However, as the basic idea behind the transitional regulations was that they would be temporary and gradually phased out after three years. It is probable that the banks adjusted to the (lower) Basel II requirements and that this affected the banks' loan conditions and the supply of mortgages. In addition, the transition to Basel II gave the banks strong incentives to consider risk in a different way than before when, for example, a mortgage for a detached house was subject to the same capital requirement irrespective of whether the debt-servicing ability of the borrower was weak or strong, or irrespective of the loan-to-value ratio for the house. They were also forced to review the history of loan losses in their credit portfolios in order to be able to calculate their risk weights. All in all, this meant that the banks probably became even more aware of the fact that mortgages carried a low credit risk and this, in addition to the lower capital requirements, gave them an incentive to increase their lending for housing purposes.

50 Relates to full implementation of Basel II.

51 Investors in the banks' equity take a greater risk for losses compared to investors in the banks' bonds, and therefore demand increased compensation for this risk. In addition, interest rates are tax deductible. This means that equity is a more expensive form of funding than loans.

52 To this was also added what is known as supplementary capital or Tier 2 capital, that is subordinated debentures and so on, which the banks could use to fulfil the total base capital requirements.

53 According to the transitional regulations, the risk-weighted assets in the calculation of capital requirement, were not allowed to fall below 80 per cent of the figure for Basel I, under which the risk weights for a mortgage were 50 per cent. With a capital adequacy requirement of 7 per cent, $2\ 000\ 000 \times 0.80 \times 0.50 \times 0.07 = \text{SEK } 56\ 000$ would be needed to fund a mortgage of SEK 2 million.

The transition to covered bonds increased access to capital

The Swedish Covered Bonds Issuance Act came into force in 2004 and the Swedish banks started to issue these bonds in 2006 (see the box Covered bonds). As covered bonds are considered to have a lower credit risk than unsecured bonds, these are treated favourably in the regulations governing how certain types of investor may act, including banks and funds. According to the capital adequacy framework for banks, banks investing in covered bonds do not need to retain as much equity as a buffer against possible losses on bonds as they do when investing in unsecured bonds. It was therefore more favourable to banks in Sweden and in Europe to own covered bonds than other types of bonds. Demand for covered bonds increased in this manner, making it less expensive for Swedish banks to fund their mortgages.

■ 3 The mortgage market and the Swedish financial system

The Swedish mortgage market has developed as a result of the economic interests of banks and households, technological development and regulatory changes in the form of legislation and other reforms that have affected the market and its participants. This chapter begins with a description of the emergence of the Swedish mortgage market from the post-war period to the present day. This is followed by a discussion of how the emergence of the mortgage market has shaped today's financial system.

3.1 THE EMERGENCE OF THE MORTGAGE MARKET: FROM A REGULATED AND CREDIT-RATIONED SYSTEM TO AN INTERNATIONAL SYSTEM

Regulations governed mortgage lending until the mid-1980s

Between the 1950s and the end of the 1980s, the Swedish financial system was governed by what were known as the credit and foreign-exchange regulations.⁵⁴

The foreign-exchange regulations severely limited all financial operations in foreign currencies and were introduced as a natural consequence of the circumstances that prevailed in connection with World War II.

The credit regulations aimed to keep interest rates low and stable and to steer the distribution of credit in the economy. From the 1950s to the 1970s, credit was above all steered to the construction sector as promoting the construction of housing was an important political objective at this time. Housing policy in this period was largely formulated in accordance with the conclusions of a major commission of inquiry into "social housing" that were presented in 1945.⁵⁵ This inquiry concluded that the State should direct construction and reduce housing costs so that the public could get a better standard of housing. The conclusions led, among other things, to the launch of the so-called Million Programme.⁵⁶

During this period of regulation, banking operations were organised in a slightly different way than they are today. There were a relatively large number of commercial banks that primarily lent to the business sector.⁵⁷ They also granted

54 In addition to formal laws and regulations, the credit market was also governed by informal agreements between financial-market participants and the Riksbank. These agreements covered matters such as the level of certain interest rates and recommendations on the orientation and scope of lending. See for example Chapter 14 in Werin, L., Englund, P., Jonung, L. and Wihlborg, C. (1993), *Från Rântereglering till inflationsnorm*. SNS förlag.

55 See the final reports of the inquiry *SOU 1945:63* and *SOU 1947:26* (in Swedish).

56 The aim of the Million Programme was to build one million homes in the ten-year period 1965 to 1975.

57 However, between 1950 and 1980 the number of commercial banks fell from 21 to 14.

construction credits, that is loans to construction companies building housing and to households building their own homes, during the construction period. As the law primarily permitted the commercial banks to fund their operations with short-term deposits and short-term bonds, they did not have the right to issue long-term mortgages at fixed interest rates. The longest possible maturity for lending by the commercial banks was only one year, although with certain exceptions.⁵⁸

Long-term mortgages were instead issued by special mortgage institutions or housing-finance institutions. The largest issuers of mortgages were savings banks and building societies, which were both independent of commercial banks.⁵⁹ In 1966, the savings banks' lending for mortgage purposes amounted to 23 per cent of the total volume of mortgages, while the building societies' mortgage loans amounted to 16 per cent.⁶⁰ In general, each of the major commercial banks also owned a mortgage institution. However, during the 1970s, the government launched an initiative to concentrate lending from the commercial banks' mortgage institutions to a single large mortgage institution, Svensk Bostadsfinansiering AB, BOFAB, of which the government owned half and ten commercial banks the other half. The idea was to make issuing mortgages more efficient by winding up the mortgage institutions of the various commercial banks and replacing these with BOFAB. In 1988, however, the operations of BOFAB were in turn wound up and the mortgages held by BOFAB were returned to the commercial banks' mortgage institutions.

The mortgage institutions funded their operations by issuing bonds known as mortgage bonds. These generally had a maturity of 30 years, but occasionally up to 40 years.⁶¹ This meant that the maturity of the bonds virtually matched the maturity of the mortgages. Only a small proportion of the mortgage institutions' funding consisted of loans from other banks.

Saving and investment was also regulated, which affected the financing of housing

Until the mid-1980s, in order to facilitate the funding of the mortgage institutions, the government, via the Riksbank, used the regulations for investors, among other things, to influence the demand for mortgage bonds. So-called liquidity ratios regulated, for example, how much the banks should invest in mortgage bonds

58 The commercial banks could issue loans with longer maturities, but it had to be possible to terminate these within one year.

59 However, since 1942, the savings banks had owned a commercial bank, Sparbankernas bank, which handled the individual savings banks' liquidity management. The building societies had a central body, Sveriges Konungarikets Stadshypotekskassa (the Urban Mortgage Bank of the Kingdom of Sweden), that managed their funding via the bond market. This was capitalised by the government, representatives of which were also included on its board. The savings bank movement eventually began to conduct its own mortgage lending through a mortgage institution called Spintab, while the building societies began to issue mortgages through a mortgage institution called Stadshypotek.

60 See Thunholm, L-G. (1966), *Svenskt kreditväsen*. Rabén och Sjögren.

61 However, the maturity of mortgage bonds was not regulated by law.

and government bonds in relation to their deposits. The insurance companies were obliged to invest in mortgage bonds. In addition, the interest rates for the mortgage institutions' bonds were set by the Riksbank at levels below the market rate.

The government also introduced direct interest-rate subsidies for the construction of housing by both households and construction companies in order to further facilitate the financing of housing, in part by issuing second mortgages at a subsidised interest rate for so-called prioritised lending. Prioritised lending included lending for the construction of new housing in accordance with special dimension and design requirements. Interest rate guarantees of various types were also introduced that limited the interest costs of the households and construction companies. On the other hand, the households' loans for housing purchases on the secondary market were not subsidised, which made it more advantageous to borrow to build a new home. The investment and interest-rate subsidies remained in place throughout the 1980s and were gradually phased out between the early 1990s and 2007.

The volume of lending for new housing that met the government's design requirements and that therefore qualified for subsidised loans was not directly limited by the credit regulations. However, there were other regulations, such as reserve requirements, that may have had an indirect effect on lending. But, it was above all the mortgage institutions' lending for housing purchases on the secondary market that was limited by the credit regulations. In practice, lending for housing prioritised by the government constituted about 85 per cent of the total lending for housing purposes. The banks' lending for housing did not, however, meet household demand, which led to credit rationing. The waiting period for a mortgage, particularly for a flat or house on the secondary market, sometimes amounted to several years.

The credit regulations in the banking sector had an impact on the way housing was financed. But government controls on saving in the economy also affected the development of the banks' funding. Before the 1980s, most households had relatively few investment alternatives for their savings. Most households saved in accounts at the savings banks or the commercial banks. Saving in bank accounts increased particularly in the 1960s, when the banks started to expand and build more offices. Initially the government prioritised the financing of housing construction. Savings should therefore be invested in mortgage bonds via the banks. When government budget deficits increased in the 1970s, the financing of the central government budget became the priority instead. The banks then invested the households' saving in government bonds. Households savings were thus channelled from the banking system to the securities market, which affected the preconditions for the banks' funding.

Another factor that came to affect the distribution of household savings was the introduction of the national supplementary pension scheme (the ATP system) in the 1960s. The introduction of a national pension scheme was expected to lead to a fall in the companies' pension allocations and the households' own pension savings, and thus to a fall in total saving.⁶² This risked undermining the companies' scope for investment, so to avoid this it was decided that a proportion of the pension allocations in the ATP system would be invested in the so-called public pension funds (AP funds). The AP fund grew rapidly to become the largest investor on the bond market and the single largest investor in mortgage bonds. In 1976, the value of the fund amounted to SEK 100 billion, almost 30 per cent of Sweden's GDP. This was also equivalent to approximately half of the Swedish capital market. At the same time, the fund's investments in mortgage bonds amounted to SEK 41 billion, compared with SEK 32 billion for the Swedish banks. Setting up the AP fund gave the government further opportunities to direct saving in the economy and thereby the preconditions governing the banks' funding. The fact that the AP fund invested large sums in mortgage bonds facilitated the funding of the mortgage institutions.

The financial markets were deregulated in the 1980s and today's mortgage market emerged

Most of the regulations were dismantled in the 1980s and were thus no longer binding for interest-rate setting and credit distribution in the economy. This entailed major changes for the financial system.

The credit and foreign-exchange regulations were gradually phased out after it became apparent that the participants in the financial markets had begun to circumvent the regulations, particularly the credit regulations. Companies and households were increasingly obtaining loans outside the banking system from finance companies and non-financial companies, or even from other companies and other households. Something similar to an unregulated, shadow banking sector had arisen which made the regulations ineffective. In addition, economic policy in Sweden was influenced by an increasingly widespread opinion that the economy should be steered by supply and demand on the market, rather than by politically-motivated regulations. Several deregulation processes were of particular importance to the future development of the mortgage market.

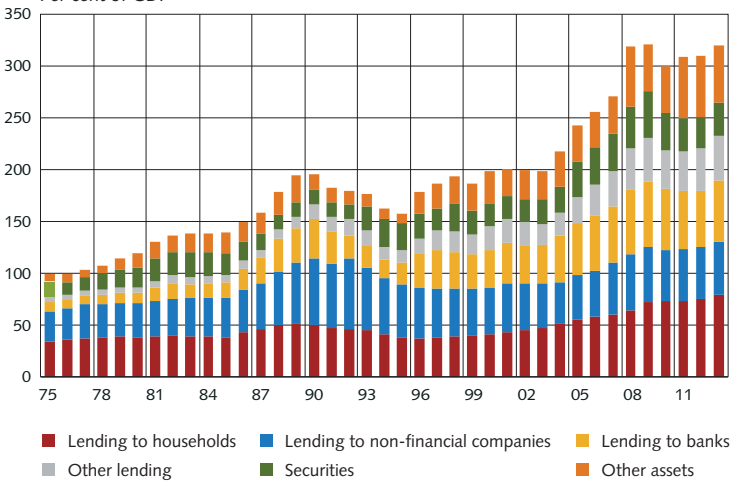
In 1983, the liquidity ratios that forced the banks to invest in the mortgage institutions' bonds were abolished, and three years later the investment obligation of the insurance companies was also abolished. However, the greatest change took

⁶² In the ATP system, the pension was regarded as deferred wages for work carried out and not as a benefit. The ATP system was mainly a direct-payment system in which the year's contributions were used for the year's pension payments. See for example page 261, *SOU 1950:33*, Allmän pensionsförsäkring.

place in 1985 when the credit regulations were abolished. This enabled both the banks and the mortgage institutions to determine the size, purpose and conditions for their lending themselves. This marked the beginning of a dramatic increase in their lending (see Charts 2.4 and 3.1). As credit had previously been rationed, demand pressure was also high in several sectors. Above all, the mortgage institutions increased their lending to property companies and other companies, but their mortgage operations also grew. The banks and mortgage institutions mainly funded this increased lending by issuing securities, primarily in Swedish kronor to start with. By 1989, most of the foreign-exchange regulations had also been abolished and the banks and mortgage institutions could borrow money by issuing bonds in foreign currency. This meant that the banks were able to fund their operations using new sources of funding.

The deregulations thus led to market forces becoming a decisive factor for the banks' and mortgage institutions' supply of mortgages. When the liquidity ratios were removed and the banks themselves were able to determine the purpose of their lending they chose to reduce their investments in mortgage bonds and instead increase their interbank loans to mortgage institutions (see Chart 3.2).

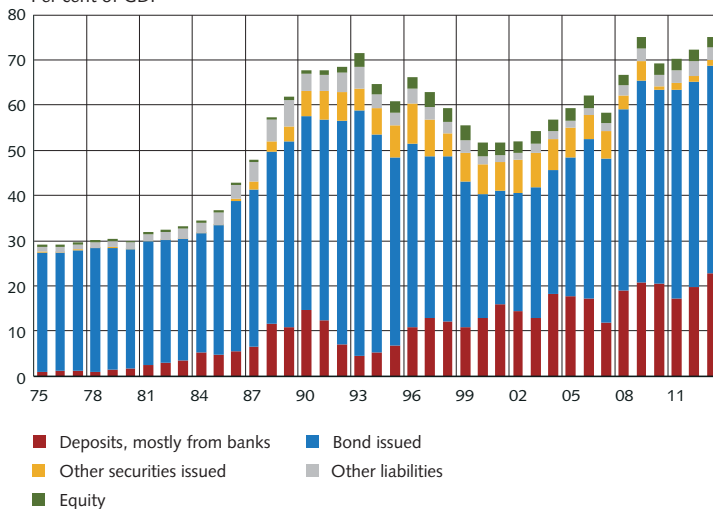
Chart 3.1. Assets in the Swedish banking system



Note. The data in the chart relates to monetary financial institutions (MFI). MFI include both banks and mortgage institutions. Foreign banks' subsidiaries and branches in Sweden are included, as are Swedish banks' branches abroad. However, Swedish banks' foreign subsidiaries are excluded.

Sources: Statistics Sweden and the Riksbank

Chart 3.2. Mortgage institutions' liabilities
Per cent of GDP



Note. From 2007, SEB is not included in the figures in the chart.

Source: Statistics Sweden

Despite the deregulation of the financial markets, the government's intervention in the mortgage market and the government subsidies for the construction of housing continued. In 1984, a special limited company, Statens bostadsfinansieringsaktiebolag, SBAB, was formed to manage government mortgage lending. This made it possible to separate government lending from central government finances.

During the 1980s, households saving continued to flow from the banking system to the securities market. However, in contrast to the period of regulation when household saving was indirectly channelled to the bond market, the households could now invest in securities directly. Technological development in the financial system led to the creation of new financial products and the development of the infrastructure for the financial markets. It also meant that payments could be made more easily and that risks could be managed more effectively. This in turn led to the appearance of new participants on the financial markets that, among other things, began to offer saving in mutual funds. The stock market developed and saving in shares became increasingly popular, not least because share prices rose during the 1980s.

The Swedish banks were a driving force in the development of the new saving options and, for example, set up their own mutual funds for their customers. For the banks, the new saving options entailed a new source of revenue in that they could charge transaction and management fees. For the households, the new saving options offered the possibility to actively invest their savings and to spread the risks.

Political initiatives were also taken to increase household saving in the new options, for example via the public share savings funds known as *allmansfonderna* that were introduced in 1984. Using these funds, households could save in both interest-bearing instruments and shares. The yield from the funds was completely exempt from tax until 1991. When foreign exchange regulation was abandoned, the possibility to invest savings abroad also increased. At the same time, foreign market players were also more able to invest in Swedish assets, for example in the securities issued by the Swedish banks.⁶³

The banking crisis in the early 1990s...

The rapid growth in lending in the second half of the 1980s contributed to the build up of substantial financial imbalances and was thus one of the reasons for the outbreak of a banking crisis in Sweden at the start of the 1990s. Not only the Swedish banks and mortgage institutions but also the finance companies, which were not covered by the banking regulations, had increased their lending to the property sector. This had contributed to a dramatic rise in property prices, especially in the prices of commercial properties. Many players on the Swedish property market were also highly indebted. When the economy then slowed down in Sweden as well as abroad, and property prices fell, the Swedish banking crisis began. Interest rates rose and many borrowers found it difficult to service their loans.⁶⁴

Some of the loans had also been taken in foreign currencies despite the fact that the borrowers incomes were often in Swedish krona. According to the Riksbank's calculations, the private sector's debt in foreign currencies amounted to approximately 35 per cent of GDP in 1992.⁶⁵ As long as Sweden had a fixed exchange rate, borrowing in foreign currencies was not regarded as a problem as it was not seen as posing any exchange rate risk. But when Sweden abandoned the fixed exchange rate later the same year, the value of the Swedish krona fell against other currencies and those with loans in foreign currency suddenly had much larger loan amounts to repay in krona.

The problems in the Swedish economy, for the krona and on the Swedish property market led to a fall in investor confidence in the Swedish banking system. Many foreign investors chose to withdraw their funding of Swedish banks and mortgage institutions. The funding problems of the banks and mortgage institutions were one of the main reasons for the introduction of the government

63 The Undertakings in Collective Investments (UCITS) Directive, which aimed to harmonise the fund market in Europe, may have facilitated investments in funds abroad.

64 Real interest rates rose partly as a result of domestic factors, such as lower inflation expectations and a restructuring of the tax system that benefited saving more than loan-financed investment, and partly due to international factors such as the reunification of Germany.

65 See, for example, Englund P. (2004), *The Swedish banking crisis: roots and consequences*, *Sveriges Riksbank Economic Review*, 2004:2. Sveriges Riksbank.

bank support guarantee in December 1992. The guarantee meant that all of the banks' creditors, except the shareholders, were protected from losses.⁶⁶

The Swedish banks' total loan losses as a result of the banking crisis amounted to over SEK 200 billion, which corresponded to approximately 11 per cent of their lending. Most of these losses came from loans to fund the production and management of commercial properties such as shopping centres. The dramatic increase in the number of bankruptcies among manufacturing companies also led to loan losses for the banks. The poorer economic situation also eventually led to losses in the housing sector, primarily in apartment buildings outside the metropolitan regions. Bankruptcies particularly affected privately-owned rental-apartment buildings, while many tenant-owner associations were reconstructed. Several municipally-owned housing companies that had substantially increased their construction or provided guarantees to tenant-owner associations also experienced problems. However, government grants were provided to reconstruct the municipal housing companies.⁶⁷ Mortgages for private Swedish households only accounted for about 6 per cent of the banks' loan losses, however, showing that, despite the crisis, the Swedish households largely continued to service their mortgages.⁶⁸ Private consumption fell, however, and thus activity in the economy as a whole. As a result, many companies that relied on household consumption experienced problems and there was a substantial increase in corporate bankruptcies. GDP fell by a total of 6 per cent between the summer of 1990 and the summer of 1993 and total unemployment rose from 3 per cent to 12 per cent.⁶⁹

...was followed by consolidation and internationalisation

Other changes that altered the structure of the Swedish mortgage market also took place in this period. As a result of legislative changes, Sweden's two largest mortgage institutions were converted into limited companies. A new law passed in 1991 allowed the conversion of savings banks into limited companies. This resulted in the largest regional savings banks merging with the jointly-owned bank Sparbankernas bank to form Sparbanken Sverige AB. The country's second-largest mortgage institute, Spintab, was thereby incorporated into a large banking group.

In the following year, another law came into force which allowed Stadshypotekskassan to be converted into a limited company. Shortly thereafter, the building societies and their central organisation, Konungariket Sveriges Stadshypotekskassa, merged to form Stadshypotek AB, which continued to be partly owned by the State.

66 See Ingves, S. and Lind G. (1996) The management of the bank crisis – in retrospect, *Sveriges Riksbank Quarterly Review*, 1/1996, Sveriges Riksbank.

67 See Rönneberg, M. (2002), Staten fick Svarte Petter, *ESO report*. Ministry of Finance.

68 For a description of the reasons for the households' good willingness to pay see, for example, the Riksbank's inquiry into risks on the Swedish housing market, 2011. Sveriges Riksbank.

69 See for example Bäckström, U (1998), "Finansiella kriser – svenska erfarenheter", *Ekonomisk Debatt*, year 26, no. 1, pages 5-19.

The connection between the mortgage institutions and the banks was strengthened in 1997, when Handelsbanken acquired the mortgage institution Stadshypotek from the government. This meant that the largest independent mortgage institution became part of a major banking group. The link between the banks and the mortgage institutions was once again strengthened in 2007, when SEB incorporated mortgage activities into the bank.

In connection with the banking crisis the Swedish banking sector was consolidated to five main banks (SE-banken, Handelsbanken, Nordbanken, Sparbanken Sverige and Föreningsbanken) which subsequently became the four major banks (Handelsbanken, Nordea, SEB and Swedbank).⁷⁰ The four major banks continued to conduct mortgage operations via separate mortgage institutions that were funded by issuing mortgage bonds. Lending by the banks for housing purposes declined during the crisis and did not start to recover until the second half of the 1990s (see Chart 3.1). After the crisis, the four major banks' total assets as a proportion of Sweden's GDP amounted to just over 100 per cent.⁷¹ However, the major Swedish banks now began to expand their operations abroad, mainly in the other Nordic countries and the Baltic countries, which contributed to the growth of the Swedish banking system. The foundations of the large and interlinked banking system that we have today were thus laid during the 1990s.

Funding options changed at the start of the 21st century and the connection between the banks and the mortgage institutions continued to strengthen

In the early 2000s, the banks' expansion abroad really took off. In the Baltic countries, lending was mainly conducted in euro. Part of the lending was funded by the parent banks in Sweden borrowing euros on the capital market and then lending them to their subsidiaries. However, it was not only the operations abroad that led the Swedish banks to borrow in foreign currencies. Even the bank's lending in Swedish krona, including lending for Swedish households' housing purchases, was (and still is) partly funded in foreign currencies.

In the first decade of the 2000s, the banks and mortgage institutions continued to increase their funding through the securities market. A number of factors contributed to this. First, financial markets in different countries became more interlinked and accessible. It thus became easier to issue securities abroad and to borrow in foreign currencies.

⁷⁰ Sparbanken Sverige AB later merged with Föreningsbanken and subsequently changed its name to Swedbank.

⁷¹ See Appropriate capital ratios in Swedish banks – an economic analysis, 2011. Sveriges Riksbank.

Second, the Swedish mortgage institutions began to issue covered bonds, which made it possible to reach more investors internationally. The introduction of covered bonds further strengthened the links between the mortgage institutions and the banks in that the mortgage institutions could not fund the entire mortgage with the bond. The difference was funded using loans from the parent bank (see Chapter 2).

A third reason why banks and mortgage institutions turned to the securities market for their funding was that the Swedish households' savings were increasingly invested in securities rather than bank accounts during the 2000s. This related partly to the direct purchase of securities such as shares and partly to the purchase of participations in mutual funds that in turn invest in securities. Saving in Sweden also continued to be affected by government initiatives. During the 2000s, there was an increase in Swedish saving in securities through the public pension system. Collective pension saving, which largely takes place in funds, amounted to 50 per cent of Sweden's GDP at the end of 2012. Government initiatives also affected the households' choices of the form of saving. During the 1990s, standardised taxation of unit-linked insurances and the entitlement to make tax deductions for individual pension saving in funds were introduced. In 2012, what are known as investment savings accounts, which made it possible for households to trade in financial instruments without the individual transactions being taxed were introduced.

Investment savings accounts, unit-linked insurances and individual pension saving are examples of forms of saving that in certain circumstances are subject to a lower rate of tax than savings in traditional bank accounts, which are taxed with a capital tax of 30 per cent from the first krona.⁷² These favourable tax regulations have created incentives for households to use other forms of saving than savings accounts at their banks.

3.2 THE SIGNIFICANCE OF THE MORTGAGE MARKET FOR THE SWEDISH FINANCIAL SYSTEM

The Swedish financial system has in many respects been formed by the development of the mortgage market. This relates to the financial system's large proportion of funding through the securities markets, the size of the banking system and, to a certain extent, the close links between the banks and the mortgage institutions.

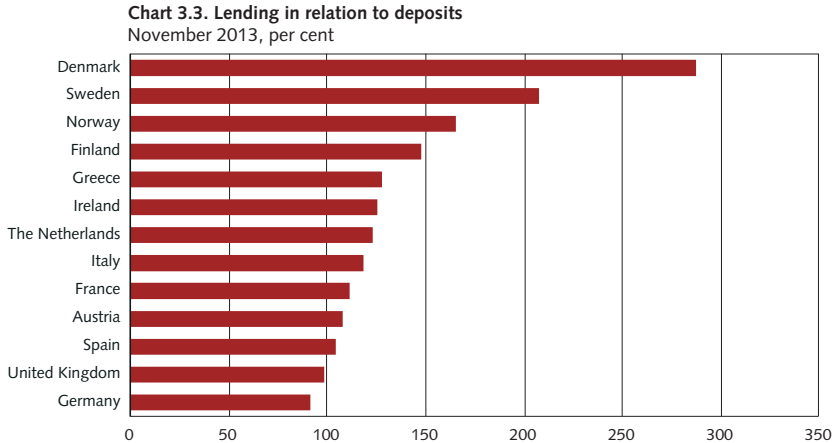
When lending for housing was a prioritised government objective during most of the 1900s, a system was designed that promoted the funding of the mortgage

72 The capital in an investment savings account is subject to a standardised tax irrespective of the level of return. Unit-linked insurances are also subject to a standardised tax. Payments to individual pension savings are tax deductible up to a certain amount. The biggest advantage of an investment savings account is that individuals can buy and sell securities without needing to report capital gains and capital losses in their tax returns. The effective tax rate for saving in investment savings accounts will depend on the size of the return on assets. However, in the budget bill for 2012 the government calculated that the effective tax rate would be approximately 10 per cent lower than if the same transactions had been taxed in the usual way.

institutions using mortgage bonds by forcing the banks and insurance companies to invest in the bonds. The creation of artificial demand for mortgage bonds meant that the risk that a mortgage institution would be unable to fund mortgages over their period of maturity was small. This in turn led to a tradition in Sweden that the mortgage institutions retain the mortgages on their balance sheets and fund them using bonds instead of securitising them.⁷³

In some countries, a tradition has instead developed of securitising mortgages. In the United States, for example, where securitisation began, government-sponsored and government-owned institutions were created which securitised the banks' mortgages.

Another factor that has had an impact on the development of the Swedish financial system is that pension companies and fund management companies have played an increasingly significant role as financial intermediaries (see the box The importance of financial intermediation for the banks' funding, size and complexity). In Sweden, household fund saving has become more extensive than in other countries.⁷⁴ This has led the Swedish banks, unlike banks in other countries, to increasingly fund their lending using market funding as opposed to traditional deposits (see Chart 3.3).



Note. All data in the chart refers to monetary financial institutions, except for Norway, where the data refers to banks and credit companies.

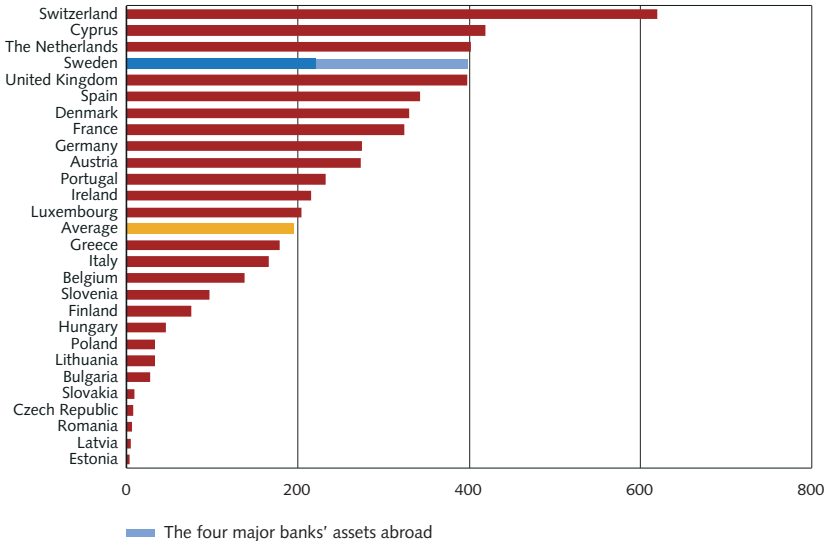
Sources: The ECB, Norges Bank and the Riksbank

73 In securitisation, the mortgages are typically purchased by a special company that funds the purchase by issuing bonds. In this way the investors in the bonds take over the credit risk and the link between the mortgage institution that grants the mortgage and the borrower is weakened.

74 Direct household saving in mutual funds, that is saving in funds that does not take place indirectly in, for example, pension funds, amounted to 8.6 per cent of total financial assets in 2010, which is higher than the European average of 7.2 per cent. See "Trends in European Investment Funds", European Fund and Asset Management Association, 2012.

The possibility to obtain funding on the international capital markets has in addition meant that access to capital has increased and that the banks have thus been able to fund Swedish mortgages more easily and more cheaply. This in turn has meant that more households have been able to borrow. Today, mortgages account for almost half of the Swedish banks' lending to the public and are thus one of the banks' most important types of asset.⁷⁵ The good access to funding and the sharp rise in mortgages have in turn meant that the Swedish banking system has been able to grow and has developed into one of the largest banking systems in Europe. The total assets of the Swedish banks now amount to around 400 per cent of Sweden's GDP, which is a high figure in an international perspective (see Chart 3.4).⁷⁶ The size of the Swedish banking system can also be partly explained by the Swedish banks' strong expansion abroad, as well as the fact that the Swedish banks do not securitise lending. Not securitising lending means that the Swedish banks' balance sheets grow when lending increases.

Chart 3.4. The banks' assets
December 2012, per cent of GDP



Note. The figures in the chart include all banks' consolidated assets both at home and abroad. The shadowed part of the blue bar shows the four major banks' assets abroad in relation to GDP in Sweden. The assets of the major Swedish banks' foreign subsidiaries are therefore included in the figures.

Sources: The ECB, the European Commission, the Swiss National Bank and the Riksbank

75 Refers to lending from Swedish monetary financial institutions (MFI).

76 The four major banks' total assets in Sweden amounted to just over 200 per cent of GDP at the end of 2011. If their foreign operations are included total assets amount to 400 per cent of GDP. The monetary financial institutions' total assets in Sweden amounted to 300 per cent of GDP at the same date.

The increasing number of intermediaries involved in the conversion of household saving into bank funding has also led the Swedish financial system to grow and become more complex (see the box The importance of financial intermediation to the banks' funding, size and complexity). This in turn has meant that more participants have become dependent on the mortgage market working well and more participants also affect developments on this market. Many of these participants are also to be found beyond Sweden's borders, which means that the Swedish financial system is also dependent on how the outside world assesses the Swedish mortgage and housing markets.

Another aspect of the system is that the banks and mortgage institutions have become more interlinked over the course of the years. The banks have of course owned mortgage institutions before, but for a long time the mortgage institutions' funding was formally independent of the banks as it was considered too risky for the banks to fund long-term mortgages using short-term deposits. It was instead the mortgage institutions that matched the maturities of assets and liabilities and that were responsible for lending for housing purposes. However, liquidity ratios that forced the banks to invest in mortgage bonds meant that the banks' funding, in practice, nevertheless came to be closely linked to the mortgage institutions' funding. Following the deregulation of the credit markets, this type of funding was replaced by direct loans from the banks to the mortgage institutions. The link between banks and mortgage institutions was further strengthened in the 2000s when the banks began to apply a centralised funding model. This meant that the banks began to fund the lending of the mortgage institutions to a greater extent. The introduction of covered bonds also led the mortgage institutions to choose a higher proportion of funding from their parent banks in order to be able to have a high credit rating for the covered bonds.

The funding model of the banking groups means that problems in one mortgage institution can easily spread to the entire banking group, and vice versa. Similarly, problems can easily spread between the banking groups as the Swedish banks have substantial exposures to each other, partly because they own each others' covered bonds to a large extent. The size of the Swedish banking system can thus lead to high economic costs in the event of a financial crisis. An efficiently functioning mortgage market is thus a prerequisite for the efficient functioning of the entire financial system.⁷⁷

77 See Sandström, M., Forsman, D., Stenkula von Rosen, J. and Fager Wettergren, J. (2013), The market for Swedish covered bonds and links to financial stability, *Sveriges Riksbank Economic Review*, 2013:2. Sveriges Riksbank.

The importance of financial intermediation to the banks' funding, size and complexity

In an economy there are, on the one hand, households and companies that want to save and, on the other, households and companies that want to borrow. The financial sector can convert savings into lending in various ways. In a simple financial system, households or companies deposit their savings in a bank account. The bank in turn converts these savings into funding by lending them to another household or company. The conversion of savings into loans is called *financial intermediation*.

This financial intermediation is one important source of income for the banks as they can lend at a higher rate of interest than the rate they borrow at. The added value that the banks provide in the conversion of savings into funding is, for example, the specialist expertise they have regarding the management of the credit risk that arises in connection with lending. In addition there are economies of scale, for example in the form of risk diversification and operational management.

An example can be used to illustrate how financial intermediation works. The example also shows how assets and liabilities, and thus the size of and the number of participants in the financial system, increase as the financial intermediation chain

gets longer, that is when financial intermediation becomes more complex.

Assume first of all a very simple financial system in which there are two households, household A, which wishes to borrow to buy a house, and household B which wants to sell its house. There is also a bank in the economy that acts as a financial intermediary. In the initial position, the balance sheets can be illustrated using Figure B3.1.

Figure B3.1. Assets and liabilities in a simplified financial system in the initial position

HOUSEHOLD A	
Assets	Liabilities
BANK	
Assets	Liabilities
HOUSEHOLD B	
Assets	Liabilities
Housing	

Now assume that household A is granted a mortgage by its bank. The bank lends money to household A by crediting A's account with the bank. This gives A an asset in the form of a deposit, and a debt to the bank. At the same time, the loan creates an asset on the bank's balance sheet in the form of a mortgage, and a liability in the form of A's deposit (see Figure B3.2). This transaction has created electronic

money and the assets and liabilities in the financial system have grown.

Figure B3.2. Assets and liabilities in a simplified financial system following the creation of electronic money

HOUSEHOLD A	
Assets	Liabilities
Bank deposit	Mortgage

BANK	
Assets	Liabilities
Mortgage	Deposit from household A

When A then pay household B for the house, the money is transferred from A's account to B's account at the bank. This transaction gives the bank a liability to B. The transaction also means that household B's deposit has funded the mortgage for household A (see FigureB3.3). If household B is a customer at another bank, household A's bank will lack funding for the mortgage at the end of the day at the same time as household B's bank will have a surplus of funding. A's bank will then need to borrow from B's bank on the interbank market. In this way, B's savings still fund the mortgage for A, but through the interbank market.

Assume now that we have a more complex financial system with a greater number of players acting as financial intermediaries. For example, a household could also invest its savings with a pension fund, a fund management company or an insurance

company. In turn, these players invest the household's savings in bonds issued by banks and companies, among others. Fund management companies and insurance companies thereby also become financial intermediaries.

Figure B3.3. Assets and liabilities in a simplified financial system following the purchase and sale of housing

HOUSEHOLD A	
Assets	Liabilities
Housing	Mortgage

BANK	
Assets	Liabilities
Mortgage	Deposit from household B

HOUSEHOLD B	
Assets	Liabilities
Bank deposit	

Figure R3.4 illustrates a more complex system of this type, in which Household B chooses to invest part of its income from the sale of the house in a pension fund which, in turn, invests in a covered bond issued by a bank. This means that the bank can fund its lending not only through deposits directly from households or on the interbank market, but also through the securities market.

In this more complex system, the liabilities grow more rapidly than in a simple financial system. When household B invests its money in a pension fund, the funds acquires a liability on its balance sheet in the form of future pension payments to B.

When the pension fund lends money to the bank by investing in the bank's bonds, the bank acquires a liability to the pension fund. Household A acquires a liability to the bank in the form of a mortgage (see Figure R3.5). This means that, for every mortgage issued, the total liabilities and assets in the financial system increase by three times the loan amount. The balance sheet total is thus

greater in a more complex system than in a simpler system.

It is above all the balance sheets of the financial intermediaries that grow in a complex financial system. On the other hand, the liabilities of the households and the companies may be as large in a complex system as in a simpler system.

Figure B3.4. Saving in funds converted into mortgage loans

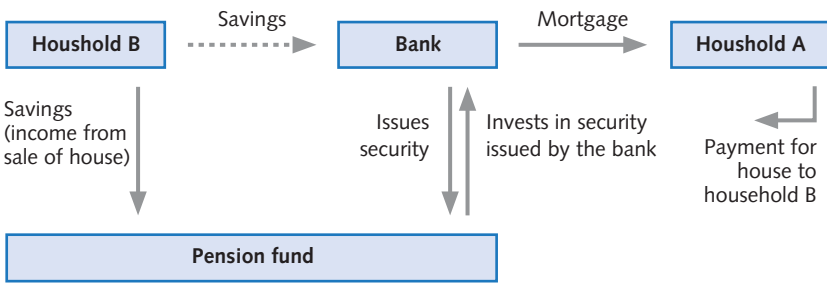


Figure B3.5. Assets and liabilities in a financial system with several financial intermediaries

HOUSEHOLD A	
Assets	Liabilities
Housing	Mortgage

PENSION FUND	
Assets	Liabilities
Covered bond	Pension household B

BANK	
Assets	Liabilities
Mortgage household A	Covered bond

HOUSEHOLD B	
Assets	Liabilities
Savings in pension fund	

■ 4 The Swedish mortgage market – some concluding comments

The Swedish mortgage market and the financial system in Sweden have grown and taken shape as a result of many different factors, above all various political initiatives, economic interests and technological development. Of particular importance to the present form and structure of the mortgage market are primarily the following:

- The banks and mortgage institutions have gone from being independent institutions to being interlinked in large corporate groups.
- As housing construction was previously a prioritised area for the State, a funding model has been created in which Swedish mortgages are largely funded on the bond market instead of via deposits or securitisation.
- The funding of mortgages has also changed in another respect. Previously, the banks largely matched the maturity of the funding with the maturity of the mortgages, but this is not the case today. This means that there is now a refinancing risk that did not exist in the same way before.
- The banks have also gone from funding Swedish mortgages in Swedish krona to partly funding them in foreign currencies.
- The banks' circle of counterparties, which previously consisted mainly of domestic players, now includes an increasing number of foreign investors.
- Access to funding is no longer determined by domestic regulations but by the conditions on the international capital markets.
- The conditions for the banks' lending are in principle determined exclusively by the banks themselves, instead of by the authorities as previously. Nowadays, for example, the banks are permitted to decide on the purpose of their lending and whether the loans should be amortised or not, which was not the case earlier.

In this chapter, we discuss the consequences of some of these changes and development trends in more detail.

Using deposits to fund mortgages compared to using covered bonds

As Swedish household saving has been channelled away from traditional deposit accounts to saving in mutual funds, pension funds and insurance companies for some time now, the banks need to fund their mortgages by issuing securities

rather than with deposits. Compared to banks in other countries, the Swedish banks have a significant deposit deficit.

Irrespective of the form of funding a bank chooses, it will have a refinancing risk. This is because a bank converts short-term funding into long-term lending. There is thus an imbalance between illiquid long-term assets and short-term liabilities. As long as the general public and the market have confidence in a bank, this imbalance is not a problem. However, if a bank's debt-servicing ability is called into question for some reason, its funding costs may rapidly increase, and in the worst case the bank may lose its funding. How quickly this happens depends on how stable the source of funding is.

In this context, deposits are in theory a relatively unstable source of funding as the public generally can withdraw their deposits within a day. This liquidity risk has also increased with the emergence of online banks as transactions can now be carried out even more quickly. This means that a bank may suffer liquidity outflows more rapidly if public confidence in the bank wanes. In practice, however, deposits have proved to be a relatively stable form of funding. This is partly because there is a government deposit-guarantee scheme, so that the public is confident that it will get its money back even if the bank experiences problems.

Market funding usually has a longer maturity than deposits. But despite this fact the refinancing risk remains. The size of this risk depends on the size of the maturity imbalance in a bank's lending and funding. A large proportion of the Swedish banks' mortgages have, according to the mortgage contracts, maturities of between 30 and 50 years. On the other hand, the banks' covered bonds funding has an average maturity of only 4 years.⁷⁸ Put simply, this means that the banks must issue new bonds every fourth year during the maturity of the mortgage. If there is uncertainty on the financial markets, or if investors believe that risks have increased in the banking system when the time comes for the banks to refinance the mortgages, it may be both more difficult and more expensive for the banks to fund themselves.

During the most acute phase of the financial crisis in the autumn of 2008, demand for the Swedish banks' covered bonds, for example, declined and both the Riksbank and the Swedish National Debt Office were forced to support the market.⁷⁹ However, work is currently underway at the global level to reduce maturity risks at the banks. This work aims to ensure that the maturity mismatch

78 Refers to covered bonds issued in the autumn of 2013. The maturity for outstanding covered bonds is just under three years

79 The high demand for safer investments led the National Debt Office to issue extra treasury bills. The outstanding extra treasury bills amounted at most to SEK 120 billion. The additional funds that the National Debt Office acquired in this way were largely invested in covered bonds through reverse repos. Somewhat later, the Riksbank also permitted the banks to submit covered bonds that they had issued themselves as collateral for loans from the Riksbank. At most, the banks submitted covered bonds to a value of approximately SEK 500 billion to the Riksbank during the crisis. The Riksbank's lending to the banking system peaked at SEK 375 billion.

between lending and funding does not become too large and that the banks' funding is not too unstable.⁸⁰

Funding mortgages with foreign currencies compared to Swedish kronor

The Swedish banks have come to largely fund their mortgages in foreign currencies. To some extent, the banks have needed foreign currencies to fund lending in foreign currencies. However, mortgages in Swedish kronor are also funded by covered bonds in foreign currencies which are swapped for Swedish kronor through various counterparties.

One advantage of funding in foreign currencies is that the banks reduce their financing risks by diversifying their sources of funding to different markets. The banks are thus less sensitive to disruptions on individual markets, for example the Swedish market. But if a broadening of the investor base means that the proportion of volatile investors increases, the banks' liquidity risks could increase.

Funding assets in Swedish kronor with foreign currencies also makes the banks dependent on the functioning of the currency swap market since the banks need to swap the foreign currency to kronor. Today, only a few foreign banks supply Swedish banks with kronor in the long term. The Swedish banks that fund their operations in foreign currencies are thus dependent on foreign banks supplying them with kronor in the long term in such swaps. The foreign banks do not themselves usually have any natural access to Swedish kronor. They therefore fund part of their lending in kronor in these swaps by borrowing kronor themselves in the short-term, often from Swedish banks. However, as the Swedish krona is a small currency, liquidity could be affected negatively if only a few foreign banks were to leave the market for such swaps.⁸¹

Retaining mortgages on the balance sheets compared to securitising them

The Swedish banks retain mortgages on their balance sheets to a greater extent than banks in many other countries. In the United States, for example, a tradition has instead developed of securitising mortgages, which means that the mortgages are moved off the banks' balance sheets.

When a bank securitises a mortgage, it usually sells the mortgage to a special purpose entity that funds the purchase by issuing bonds. These bonds are in turn bought by various investors that thereby take over the credit risk in the mortgage, that is the risk that the household will not be able to make the amortisation and interest payments on the mortgage. An advantage of several investors taking

⁸⁰ The work is being conducted within the Basel Committee, which has developed a measure called the Net Stable Funding Ratio. This measure specifies a bank's stable funding in relation to the illiquid assets.

⁸¹ See Ingves, S. (2013). Managing structural risks in the Swedish banking sector. Speech at Affärsvärldens Bank & Finans Outlook in Stockholm, March 2013. www.riksbank.se.

over the credit risk is that the risk is spread between several participants in the financial system. A disadvantage is that it can be difficult to see where the risks lie. This proved to be the case in connection with the global financial crisis of 2007-2009, when lending partly came to a halt because the participants in the financial system were uncertain about which assets were sound and where the risks were.⁸² Another disadvantage is that a bank's incentive to conduct a thorough credit assessment of the borrower weakens when the bank itself no longer risk making a loss on the mortgage loan. However, if there are links between the bank and the company where the mortgage loan is placed, for example lines of credit or other forms of guarantees, the incentive is stronger.

If the bank retains the loan on its balance sheet, as the Swedish banks do, then it also retains the credit risk throughout the maturity of the mortgage. This gives the bank an incentive to conduct a thorough credit assessment before it grants a mortgage in order to ensure that only creditworthy households are allowed to borrow. However, for a bank to be able to retain the loan on its balance sheet it must fund the mortgage throughout its maturity.⁸³ A negative effect of this arises if the funding chosen is too short term in relation to the maturity of the mortgage (see above). One consequence of this type of business model is that the risk is concentrated at banks whose assets grow with lending, and that the banking system becomes larger than would be the case if the mortgages were securitised instead. The Swedish banking system is an example of this as the assets of the Swedish banks currently amount to 400 per cent of Swedish GDP, which is a high figure in international terms. However, this is also due to the Swedish banks' extensive foreign operations. A large banking system can lead to higher social costs in the event of a financial crisis if the authorities try to prevent or mitigate the effects of the crisis with various types of rescue measures.

Changed credit conditions have contributed to an increase in the demand for mortgages

Since the credit regulations were phased out in the 1980s, credit conditions and rules on the mortgage market have been gradually changed. After the phase-out, banks and mortgage institutions were able to decide for themselves the terms and conditions for, and the purposes of, their lending. This marked the start of a substantial increase in the banks' and mortgage institutions' lending. Competition increased on the Swedish mortgage market in the 2000s and the mortgage interest rates fell. The banks also eased the requirements for the households to amortise their mortgages and the requirements for cash-down payments. This has

82 See, for example, Nyberg, L., Persson, M. and Johansson, M. (2008), Unrest in the financial markets – causes and consequences, *Sveriges Riksbank Economic Review*, 2008:1. Sveriges Riksbank.

83 However, the special purpose entity needs to fund the mortgage during its maturity. The total refinancing risk in the financial system as a whole will thus be the same irrespective of whether the bank chooses to securitise the loan or not.

made it possible for an increasing number of households to take mortgages or to take larger loan than would have been possible if the household had been forced to amortise or make a larger cash-down payment.

These developments have probably helped to increase the households' scope for consumption in the short term as their interest and amortisation expenditure has decreased. Mortgages with no amortisation are, however, not less expensive over a longer period of time. If a household amortises its mortgage loan the interest costs fall in pace with the repayment of the mortgage. The longer the amortisation period the smaller this effect will be, which may thus reduce the scope for consumption in the long term.

Low cash-down payments tend to increase new lending and thereby also the mortgage stock. If new borrowers choose not to amortise, this can also contribute to an increase in new lending as the expenditure for the loan decreases and it becomes possible to borrow larger sums. Amortisation behaviour also has a direct effect on the mortgage stock. The more borrowers that amortise continuously, the larger the share of the mortgage stock that is repaid in each period. However, there are indications that the amortisation payments made by the households under their mortgage contracts are counteracted by them taking new mortgages with the house or flat concerned as collateral, which also affects the growth of the mortgage stock.

Housing prices have increased in the 2000s. Rising house prices in turn reinforce credit growth as those who need to purchase housing have to do so at a higher price. At the same time, the loan-to-value ratio for those who already have mortgages decreases. They can take advantage of this by taking further loans, which also accelerates credit growth at the same time as it increases the scope for consumption—at least in the short run.

Long amortisation periods and a large proportion of interest-only mortgages mean that the households' debts in relation to their disposable incomes (the debt ratio) will increase more rapidly than in the case of shorter amortisation periods. The Swedish households also stand out in that a relatively large proportion of their mortgages are variable-rate mortgages. Mortgages at variable interest rates also mean that interest expenditure can rapidly increase for the households if the banks' funding costs rise and they compensate for this by raising mortgage rates. The households are thus exposed to an interest-rate risk. At the same time, lower mortgage rates also have a rapid effect on the households' interest expenditure.

Another aspect is that it appears that the banks base their credit assessments on standard values that underestimate the actual expenditure of the households.⁸⁴ If this leads to the households being allowed to borrow more it may mean the mortgage becoming a greater burden to the household than indicated by the

⁸⁴ See *Financial stability 2013:2*. Sveriges Riksbank.

credit assessment. This can affect the scope for consumption, particularly in a situation in which the household is hit by a loss of income.

A low level of housing construction in combination with increased funding opportunities has increased mortgages

The substantial growth in mortgages can partly be explained by the fact that housing prices have increased dramatically in Sweden over the last ten years. This in turn can be explained by the low level of housing construction since the mid-1990s. In this context, Sweden stands out in a European perspective as one of the countries with the lowest level of housing construction per inhabitant.

The more complex and global the financial system has become, the more liquidity it has been possible to create, which has enabled the banks to fund their operations cheaply and to increase their lending for housing purposes. In combination with the limited supply of housing this has meant that housing prices have been able to increase more than would have been the case if the financial markets were still regulated and domestic saving funded mortgages directly.

Several studies have analysed the supply of housing in Sweden and found that there are underlying, structural problems on the Swedish housing market.⁸⁵ The low level of new construction can partly be explained by high land and construction costs and partly by the fact that the current planning, construction and environmental legislation sets stringent demands for the housing that is built.⁸⁶ Similarly, the municipal land monopoly means that Sweden's municipalities govern the standard of new housing projects, which has increased the costs of new construction and reduced competition on the market. The Swedish Competition Authority has also highlighted the fact that the construction and civil engineering sector is dominated by a few large companies, which makes it difficult for new companies to establish operations on the market. Relatively strict rent regulations for apartments are another factor that may have had a negative effect on the supply of housing for rent.

A mortgage market with strengths and weaknesses

This report has shown that there are both strengths and weaknesses with the Swedish mortgage market and the Swedish financial system. For example, the supply of mortgages has increased on the mortgage market, which has enabled more households to take mortgages. This has generated major improvements in welfare. However, it has also led to a high level of indebtedness among Swedish households compared to households in many other countries.

85 See for example Caesar, C., Kalbo, T. and Lind, H. (2013), *Bäste herren på täppan? ESO report*, 2013:1. The Ministry of Finance.

86 See for example Lind, H. (2003), *Bostadsbyggandets hinderbana, ESO report*. Ministry of Finance.

The development of the mortgage market since the mid-1980s, as well as the structural changes that have taken place, have also in various ways led to the market becoming increasingly interlinked with, and important to, the rest of the Swedish financial system. The mortgage market is much larger than previously and involves many more participants. Consequently, the Swedish banking system is currently in many ways dependent on effective mortgage and housing markets. The Swedish financial system has therefore become more sensitive to disruptions on these markets than previously.

This report has not aimed to present a blueprint for the Swedish mortgage market. However, we hope that it has increased understanding of the structure of, and practice on, the market. Relevant issues for further consideration include an assessment which of the features described in the report are sustainable in the long term and which financial system and mortgage market that is desirable in the future.

■ Glossary

Amortisation: Repayment of all or part of a loan. Different types of amortisation exist: continuous repayment, graduated repayment and annuity repayment.

Amortisation period: This indicates the rate at which a mortgage is amortised or repaid. By the time a mortgage contract expires, usually after 30-50 years, the loan should have been repaid. The amortisation period is usually shorter for a second mortgage than for a first mortgage. A mortgage can also be interest-only, which means that the loan will be repaid when the loan contract expires or when the property is sold.

Asset-backed securities (ABS): Bonds that have underlying assets. Such bonds are used to fund so-called securitisation.

Basel II: International regulatory framework for financial institutions that mainly regulates banks' capital adequacy, i.e. how much capital a bank must hold in relation to the risk it takes. The regulations also stipulate requirements concerning the banks' risk management and the disclosure of public information. Basel II was implemented in Sweden in 2007.

Basel III: International regulations for financial institutions that replace the Basel II regulations on the bank's capital adequacy. Compared to Basel II, Basel III entails increased capital requirements and regulations on capital buffers. Basel III also regulates the bank's liquidity management. The Basel III Accord will be progressively phased in by 2019.

Capital market: Generic term for the stock market, credit market and derivatives market.

Capital adequacy regulations: Regulations on the capital adequacy of banks. See Basel II and Basel III.

Collective savings: A household's collective savings in the premium pension system (PPM) and collective occupational pension schemes.

Continuous repayment: Under continuous repayment, the borrower pays the same amount at each payment date.

Covered bond: A bond whose holder has a special benefit right in the event of a bankruptcy. Covered bonds normally entail a lower credit risk than unsecured bonds, which means that the borrowing costs are lower.

Credit risk: The risk of a borrower failing to meet commitments.

Credit terms: The terms and conditions laid down in a loan agreement covering, for example, the interest rate and the repayment schedule. Credit terms can also include the maximum loan-to-value ratio allowed for a mortgage.

Currency swap: An agreement to buy or sell a currency at the daily rate and then sell or buy back the same currency on a later date at a pre-determined rate.

Debt ratio: Household indebtedness in relation to disposable income.

Deposit guarantee scheme: A deposit guarantee means that the government guarantees deposits in banks, credit institutions and securities companies licensed by Finansinspektionen to receive customers' money as deposits in accounts.

Disposable income: The total of a person's or a household's incomes less taxes and charges.

Financial intermediation: The conversion of savings into funding via a financial intermediary such as a bank, insurance company or securities company.

First mortgage: Part of a mortgage. A first mortgage is most frequently issued by a banking group's mortgage institution and often has housing as collateral or pledge for the loan. This means that a first mortgage is usually linked with lower risk and therefore has a lower interest rate than, for instance, a last mortgage without housing as collateral. A first and second mortgage together comprise 85 per cent of a mortgaged house's value.

Fixed-rate mortgage: A form of mortgage in which the total mortgage cost remains constant over the maturity of the loan. Interest expenditure is initially high but falls successively while amortisations increase.

Fixed-rate period: The fixed rate period is the period over which the interest on a loan is fixed. For Swedish households, the fixed-rate period normally varies from 1 to 10 years.

Government bond: Government bonds is a term used collectively for the bonds issued by the Swedish National Debt Office. The Swedish National Debt Office uses government bonds to finance the government's medium and long-term borrowing requirements.

Graduated payment: Under graduated payment, repayments are relatively low initially but then successively increase at each payment date.

Gross margin on mortgage: Difference between a credit institution's lending rate and the cost of borrowing for a mortgage in relation to the amount lent.

International Monetary Fund (IMF): International organisation whose tasks include working to ensure the stability of the global financial system and to prevent international financial crises.

Interbank rate: The interest rate on unsecured loans that the banks offer other banks. Stibor (Stockholm Interbank Offered Rate) is usually used to measure the Swedish interbank rate. Stibor is used as a reference for rate setting or pricing of derivative contracts.

Interest rate swap: A bilateral agreement to exchange a specific interest rate in return for another interest rate for a predetermined period according to specific conditions. For example, this may involve exchanging a variable interest rate for a fixed interest rate.

Issuer: A company issuing a security in the form of a share or bond.

Issuing: Creating a security such as a share or a bond for sale.

Key policy rate: Interest rate that a central bank sets for monetary policy purposes. In Sweden, they are the repo rate and the deposit and lending rates for overnight deposits/credits to the banking system. The repo rate is the Riksbank's most important policy rate.

Lines of credit: A line of credit means that the bank has committed to lending to a borrower should the need arise.

Liquidity reserve/liquidity buffer: Funds an institution holds to ensure its short-term debt-servicing ability.

Liquidity risk: The risk of not being able to meet payment commitments due to a lack of liquidity. Liquidity risk in a financial instrument means that an investment cannot be immediately liquidated at all or without falling sharply in value.

List prices: The mortgage rates the bank specifies as standard for the loan.

Loan-to-value ratio: A borrower's debt in relation to the market value of the collateral for the loan. For example, a household's loan-to-value ratio for its home corresponds to the household's debt collateralised by the home divided by the market value of the home.

MEW: Mortgage equity withdrawal, which means that a household increases its existing mortgage against collateral in the housing it already owns. This tends to be more common when housing prices are rising.

Monetary Financial Institution (MFI): Monetary Financial Institutions (MFIs) include banks, mortgage institutions, financial companies, municipal and corporate-financed institutions, monetary securities companies and monetary investment funds (money market funds).

Monetary policy transmission mechanism: The mechanism that explains how monetary policy affects the real economy is usually called the monetary policy mechanism.

Mortgage deed: The mortgage deed is the document used as collateral for the loan and is issued for a specific amount. The mortgage deed provides proof that the property has been mortgaged against a bank loan.

Mortgage market: The market on which households demanding mortgages meet the financial agents, often banks, supplying these loans.

Mortgage cap: Finansinspektionen's general guideline for a maximum loan-to-value ratio of 85 per cent of a property's value. The mortgage cap was introduced in 2010 and only applies to new loans.

Mortgage institution: Credit institution accounting for a large part of lending for housing purchases. However, in Sweden, mortgage institutions also carry out lending for other types of property, such as commercial and office premises, and lending to tenant-owner associations.

Mortgage bond: Unsecured bond issued by mortgage institutions until the middle of the last decade to finance mortgages. Between 2006 and 2008, the Swedish mortgage institutions' mortgage bonds were converted to covered bonds.

Net lending: Net lending shows how much has been saved in financial assets and is defined as total saving with a deduction for collective and real saving.

Net margin on mortgages: The gross margin with deductions for a bank's other costs, such as administrative expenses, costs for the liquidity reserve and taxes.

Organisation for Economic Cooperation and Development (OECD): International organisation for the exchange of ideas and experience within areas affecting economic development, primarily in the organisation's member states.

Pledge: A pledge is a special preferential right or preferential claim that gives the pledgee (the lender) the right to dividend payments before other lenders with lesser preferential rights if a property must be sold as the result of a borrower's inability to service a loan.

Purchase price: The sum (monetary amount) agreed on at purchase.

Real saving: Real saving is that which the households invest in housing, for example renovations.

Refinancing risk: the risk that a company is unable to obtain funding or that funding becomes more expensive when a loan is to be extended.

Repo rate: The Riksbank's most important policy rate by which the Riksbank can control the overnight rate with the intention of affecting inflation. The interest rate that the monetary policy counterparties receive when they invest money with the Riksbank by buying Riksbank certificates or pay when they borrow money from the Riksbank through monetary policy repos.

Risk premium: The additional return an investor requires as compensation for an additional risk.

Risk weight: In simplified terms, to calculate a bank's risk-weighted assets, the amount lent is multiplied by a risk weight. The risk weights are determined on the basis of how likely it is that the borrower will be unable to fulfil its loan commitment and thus varies from borrower to borrower – a high risk weight implies a greater risk than a low risk weight.

Risk weighted assets: Assets recorded in the balance sheet and off-balance sheet commitments valued by credit, market and operational risk in accordance with the capital adequacy regulations (see Basel II and Basel III).

Second mortgage: The part of a mortgage that is not covered by the first mortgage. Second mortgages are usually provided by banks and often have poorer collateral than the first mortgage. A last and first mortgage together must comprise 85 per cent of a mortgaged house's value.

Securitisation: A financing process whereby a number of loans (for example mortgages or credit card loans) are bundled together and sold on to a company created specifically for the purpose and financed by issuing securities in the market

Stibor: See interbank rate.

Unsecured loan: Loan without collateral.

Unsecured bonds: A bond whose holder does not have a special benefit right in the event of a bankruptcy. Unsecured bonds normally involve a higher credit risk than covered bonds. Bank bonds are an example of unsecured bonds.

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