Financial Stability Report 2014:1

SVERIGES RIKSBANK

Updated 2014-06-04, 15:45

Page 21, first paragraph:

- 5.7 should be 5.9
- 14,200 should be 15,500
- 21,800 should be 21,900

The Riksbank's Financial Stability Report

The Riksbank's Financial Stability Report is published twice a year. The Report describes the Riksbank's overall assessment of the risks and threats to the financial system and of the system's resilience to them. The stability analysis is therefore an instrument that is directly linked to the Riksbank's task of promoting a safe and efficient payment system. By publishing the results of its analysis, the Riksbank wishes to draw attention to, and warn of, risks and events that might pose a threat to the financial system, and to contribute to the debate on this subject.

The Executive Board of the Riksbank discussed the Report on three occasions – 14 May, 22 May and 4 June 2014. The Report takes into account data available as of 27 May 2014. The report is available on Sveriges Riksbank's website, www.riksbank.se. It is also possible to order a printed version of the report free of charge on the website, or to download the report as a PDF.

The Riksbank and financial stability

- The Riksbank has the Riksdag's (the Swedish parliament) mandate to promote a safe and efficient payment system. In practice, this task means that the Riksbank is responsible for promoting financial stability. The Riksbank defines financial stability as meaning that the financial system is able to maintain its three basic functions – the mediation of payments, the conversion of savings into funding and risk management – and is also resilient to disruptions that threaten these functions.
- The Riksbank is also the authority that has the capacity to grant emergency liquidity assistance to individual institutions if problems arise that threaten financial stability. To be able to do this in a good way the Riksbank needs to be well prepared for crises by having an efficient crisis organisation.
- The Riksbank shares responsibility for promoting financial stability with Finansinspektionen (the Swedish financial supervisory authority), the Ministry of Finance and the Swedish National Debt Office. The Ministry of Finance is responsible for the regulation of financial enterprises and Finansinspektionen is responsible for supervision. The Swedish National Debt Office is, in turn, a support authority. The interaction between the authorities is important both in the preventive work and in the event of crisis management. The same also applies internationally as financial enterprises increasingly operate across national borders.
- Since the financial crisis, a new policy area that focuses on analysing, identifying and counteracting systemic risks has emerged around the world, so-called macroprudential policy. In Sweden, Finansinspektionen has the main responsibility for the macroprudential-policy instruments, which should be used to increase the resilience of the financial system to shocks and to prevent the build-up of financial imbalances in the economy. The Riksbank is represented on a financial stability council that also includes the Government, Finansinspektionen and the National Debt Office. This council discusses risks in the financial system, appropriate measures to manage and counteract such risks and crisis-management measures in the event of a financial crisis.
- The financial system plays a vital role in the economy. It is necessary to have a stable and smoothly-running financial system for the economy to function and grow. A serious crisis in the financial system is liable to entail extensive economic and social costs.
- The financial system is sensitive. This is due to the vulnerability of central parts of the system, such as banks. Banks are vulnerable mainly because they fund their operations at short maturities but lend at longer maturities. This imbalance makes them dependent on the general public and the market having confidence in them. If the market participants' confidence in their counterparties or in financial instruments declines, trading may suddenly come to a halt. The various parts of the financial system are also closely interconnected, for instance in that financial institutions borrow from and trade with one another to such a large extent. This means that any problems that arise may quickly spread throughout the system.
- The combination of the sensitivity of the financial system and the potentially major costs of a financial crisis mean that the state has a particular interest in preventing threats to financial stability. Banks and other market participants do not have an incentive to give full consideration to the risks to financial stability to which they are contributing. This is because a large percentage of the costs of a financial crisis fall to others both within and outside the financial system. If a crisis occurs, the government also needs to be able to manage it at the lowest possible cost.
- The Riksbank analyses the financial system's stability on a continuous basis for the early detection of changes and vulnerabilities that could lead to a crisis. In some cases the Riksbank recommends specific measures to counteract risks. These recommendations may be based on the current economic situation, but they may also relate to more structural circumstances. The recommendations can be aimed at banks as well as at other market participants, or at legislators and other authorities.

Contents

Summary

The Riksbank's assessment is that the Swedish financial system is working well at present. However, vulnerabilities in the financial system mean that shocks in Sweden and abroad may have a negative impact on financial stability. The indebtedness of the Swedish households is currently the greatest domestic risk. In order to increase the resilience of the banks and to reduce the risks associated with indebtedness, the Riksbank therefore recommends that the countercyclical buffer be activated as soon as possible and set at 2.5 per cent, that a liquidity buffer requirement in Swedish kronor be introduced and that sound minimum levels be introduced in the discretionary income calculations used in the banks' credit assessments.

HIGH PROFITABILITY IN THE MAJOR SWEDISH BANKS

The Swedish financial system is working well at present. A period of calm on the financial markets and brighter economic prospects in both Sweden and abroad are contributing to this. The profitability of the Swedish banks is high, which has enabled them to increase their CET 1 capital ratios. In addition, the banks now have large liquidity buffers in foreign currencies, which make them highly resilient to short-term liquidity stress in these currencies.

STRUCTURAL VULNERABILITIES INCREASE SENSITIVITY TO SHOCKS

The Swedish financial system is vulnerable in several ways. The Swedish banks are closely interlinked, have a large proportion of market funding and a small proportion of equity capital in relation to their total assets. This means that the financial system may be negatively affected by shocks in Sweden or abroad. Given this, the long period with low interest rates, uncertainty about developments in Europe and the high level of household indebtedness in Sweden pose the main risks to financial stability.

HOUSEHOLD INDEBTEDNESS THE GREATEST DOMESTIC RISK

Household indebtedness in Sweden continues to increase from an already high level. This poses risks to the stability of the financial system and of the real economy. The Riksbank therefore considers that measures are needed to increase resilience in the financial system and reduce the risks associated with household indebtedness. A number of measures have already been taken, but more are needed. The Riksbank therefore recommends as a first step that sound minimum levels be introduced for the standard values in the banks' discretionary income calculations.

If it proves to be the case that the rate of increase in housing prices and household debt continues to pick up speed, it will become even more urgent to consider additional measures to slow down the build-up of risk.

THE RESILIENCE OF THE MAJOR BANKS NEEDS TO BE STRENGTHENED

Several measures have also been taken to manage the particular structural vulnerabilities in the Swedish financial system. However, the Riksbank's assessment is that here too additional measures are required to increase the resilience of the banks. The Riksbank therefore recommends that the countercyclical capital buffer be activated as soon as possible and that it be initially set at 2.5 per cent. This would increase resilience in the financial system.

The banks have low liquidity coverage ratios (LCR) in Swedish kronor. To reduce liquidity risks and thus the vulnerability of the financial system, the Riksbank also recommends the introduction of an LCR requirement in Swedish kronor of 60 per cent.

1. Stability assessment and recommendations

Calm financial market developments, brighter macroeconomic prospects and the continued profitability of the major banks all mean that the current situation for financial stability in Sweden is favourable and that there are good prospects in the main scenario. However, a number of vulnerabilities in the structure of the Swedish banking system mean that there are risks that could threaten financial stability. These include the consequences of the extended period of low interest rates and uncertainty over developments in Europe, together with risks connected to the Swedish households' indebtedness and the development of the Swedish housing market. Even if several measures have been adopted to counteract vulnerabilities and reduce the risks, the Riksbank deems that further measures are needed. In addition to previous recommendations, the Riksbank thus considers that a requirement for Swedish banks to have a certain liquidity coverage ratio in Swedish krona should be introduced, that the countercyclical capital buffer should be activated and that healthy minimum levels for the banks' discretionary income calculations should be introduced.

Assessment of the current situation and main scenario

CALM FINANCIAL MARKETS AND GLOBAL ECONOMIC RECOVERY ARE FAVOURABLE FOR STABILITY

Stress on the financial markets is on a low level, both internationally and in Sweden (see Chart 1:1 and Chart 1:2). Developments on the markets continue to be supported by the central banks' expansionary monetary policies, consisting of low interest rates and purchases of various types of financial asset.

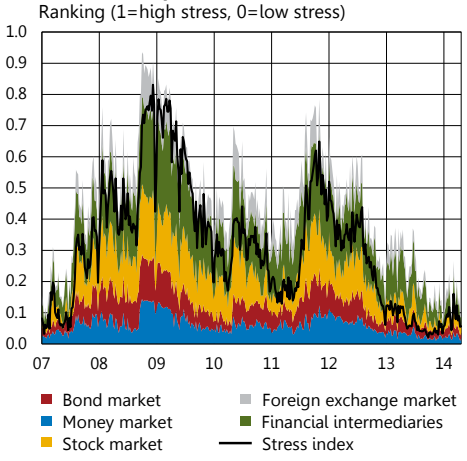
The low interest rates and the historically-low volatility on the bond and stock markets contribute to investors demanding higher-risk assets, such as corporate bonds, to attain a higher return.

As a consequence of the expansionary monetary policy and other circumstances, growth in the global economy as a whole will continue to strengthen in the period ahead.[1] In the euro area, economic activity is expected to increase, albeit at a slow rate. Growth is being supported by growing global demand and confidence indicators for companies and households also indicate stronger domestic demand in the period ahead.

While as real economic prospects have improved, the financial markets' confidence in the countries in southern Europe affected by the crisis has strengthened. This improved situation is reflected, for example, by the conclusion of the support programmes in Ireland, Portugal and Spain. In addition, Ireland, Spain and Greece have had their credit ratings raised. However, structural problems still remain in several countries, such as weak competitiveness and large public debts. In addition, there is still uncertainty over the quality of the European banks' assets (see the box Testing the banks in every EU country).

Even if the overall development of the financial markets in Europe has been good, there are exceptions. Developments in Ukraine and Russia have led to a weakening of their currencies,

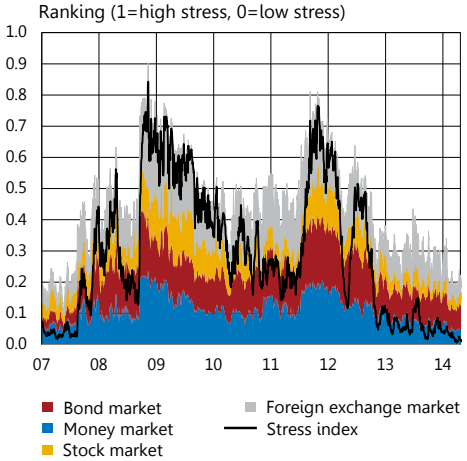
Chart 1:1 European stress index
Ranking (1=high stress, 0=low stress)



Note. The European stress index is produced by the ECB and has been published in the ESRB's Risk Dashboard and elsewhere. The stress level at a specific date is expressed as a value between zero and one, in which one signifies a historically high stress level and zero signifies a historically low stress level. See Holló et al, CISS – A composite indicator of systemic stress in the financial system, *Working Paper Series no. 1426*, March 2012, ECB.

Source: European Central Bank (ECB)

Chart 1:2 Swedish stress index
Ranking (1=high stress, 0=low stress)

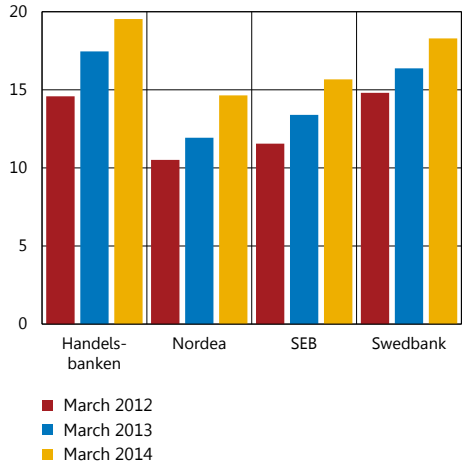


Note. The Swedish stress index is produced by the Riksbank according to a similar method to ECB's European stress index. See Johansson and Bonthron, Further development of the index for financial stress for Sweden, *Economic Review 2013:1*, March 2013, Sveriges Riksbank.

Sources: Bloomberg and the Riksbank

[1] *Monetary Policy Update*, April 2014, Sveriges Riksbank.

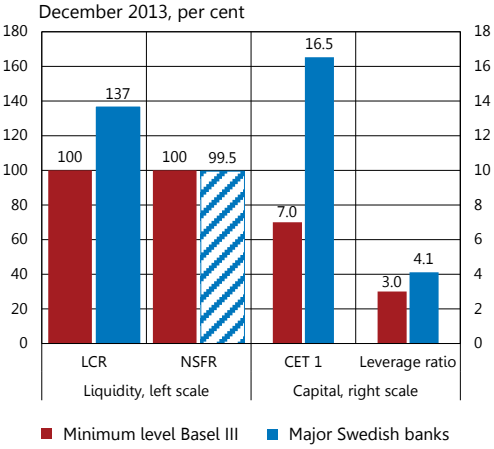
Chart 1:3 CET 1 capital ratios in accordance with Basel III
Per cent



Note. The CET 1 capital ratios for 2012 and 2013 are specified according to the Riksbank's own calculations, based on the Basel III Accord. As of 2014, the banks themselves report their CET 1 capital ratios in accordance with the CRR definition.

Sources: Bank reports and the Riksbank

Chart 1:4 The four Basel III measures
December 2013, per cent



Note. The figures refer to the major Swedish banks' unweighted average for each measure, with the exception of the NSFR, which only shows the average for Handelsbanken and Swedbank (only these two banks report the measure). The measures refer to the latest versions of each measure, without transitional regulations. The minimum level of the CET 1 capital ratio includes requirements for the capital conservation buffer. The NSFR figures are from March 2014.

Sources: Bank reports, BIS and the Riksbank

although these developments have so far had a limited effect on the financial markets outside these countries.

The situation in the US economy is also continuing to improve. As the economy recovers, US monetary policy will probably slowly become less expansionary. The US central bank, the Federal Reserve, has started the reduction of its monthly asset purchases of government bonds and mortgage bonds. Since this reduction started, the effect on the volatility and interest rate levels of the financial markets has been minor.

The economy is also expected to become stronger in Sweden in the period ahead. Both the positive development of domestic demand and increased demand from abroad are contributing towards bright prospects for the Swedish economy.

All in all, the improved situation on the financial markets and the brighter economic prospects are contributing towards favourable conditions for the stability of the Swedish financial system.

THE SWEDISH BANKS HAVE GOOD PROFITABILITY AND GOOD ACCESS TO FUNDING

The profitability of the four major Swedish banks (Handelsbanken, Nordea, SEB and Swedbank) is higher and loan losses are lower than in many other banks in Europe. They have access to inexpensive funding and their CET 1 capital ratios are high (see Chart 1:3). Resilience to short-term liquidity stresses is also good in the major banks, as can be seen from their liquidity coverage ratio (LCR) (see Chart 1:4 and Chart 1:12).[2] The high aggregate LCR levels are largely due to high LCR levels in US dollars and euros. These can partially be explained by the increased access to liquidity resulting from extraordinary measures taken by foreign central banks. This has made it both easy and inexpensive for the major Swedish banks to build up liquidity buffers by issuing certificates in foreign currencies and then depositing the money in central banks.

LENDING BY THE BANKS WILL INCREASE IN THE PERIOD AHEAD

The favourable macroeconomic prospects are expected to result in continued strong demand for credit. On average, lending to Swedish households over the period 2014–2016 is expected to increase by just under five per cent per year, while lending to Swedish companies is expected to increase by about four per cent. The annual growth rate of lending in the other Nordic countries is expected to amount to an average of just under four per cent per year (see Chart 1:5).

In 2014–2016, the major banks' revenues are expected to increase more than their expenses are. The major Swedish banks are thus expected to continue to demonstrate good results in the Riksbank's main scenario (see Chart 1:6).

[2] The LCR measures a bank's ability to manage a net outflow of liquidity in a stressed scenario covering 30 days. In January 2013, Finansinspektionen introduced the LCR as a binding requirement, based on the Basel Committee's definition in *Basel III: International framework for liquidity risk measurement, standards and monitoring*, December 2010, Bank for International Settlements (BIS).

THE BANKS' LOAN LOSSES WILL REMAIN LOW

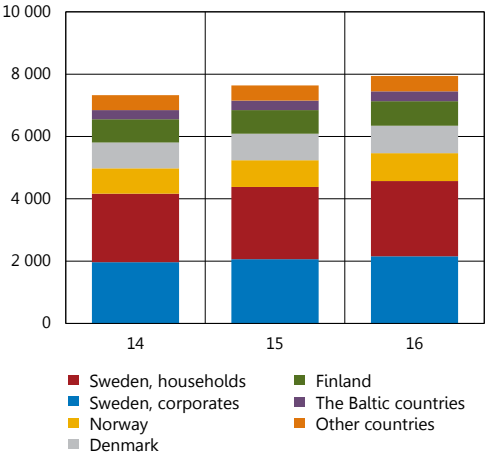
The brighter macroeconomic prospects in the period ahead indicate that loan losses on the banks' lending will be small in the main scenario (see Chart 1:6). Although indebtedness among Swedish households is increasing, the Riksbank expects debt-servicing ability in the household sector as a whole to remain good. This is due to the favourable development of household incomes and because interest rates, even though they are increasing, are expected to remain relatively low over the next three years. Loan losses from lending to Swedish households are therefore expected to remain small.

Loan losses from lending to Swedish companies are also expected to be small over the next three years. The low interest rate situation and the brighter economic situation are the main contributors to this.

Danish companies will continue to account for the largest share of the major banks' loan losses in 2014–2016, even though increased economic growth in Denmark and export markets important to Denmark has contributed to debt-servicing ability improving somewhat over the spring. However, many Danish companies are under pressure from weak domestic demand, which, to a certain extent, is due to households paying off their debts rather than consuming.

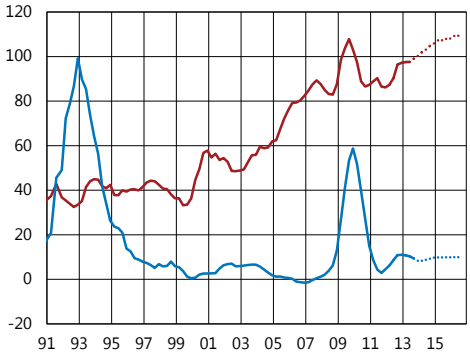
The overall picture of the present state of the Swedish financial system, and of developments in the main scenario, is that the financial markets are working well, the major banks are financially strong, and that the borrowers have a good debt-servicing ability.

Chart 1:5 Lending by the major Swedish banks in the Riksbank's main scenario
SEK billion



Source: The Riksbank

Chart 1:6 Profits before loan losses and loan losses in the major Swedish banks
Rolling four quarters, SEK billion, fixed prices March 2014



Note. The broken line represents the Riksbank's main scenario.
Sources: Bank reports and the Riksbank

Vulnerabilities in the Swedish financial system

Even if the Swedish financial system functions well at present, there are several vulnerabilities in its structure that may affect financial stability if the system is exposed to disruptions.

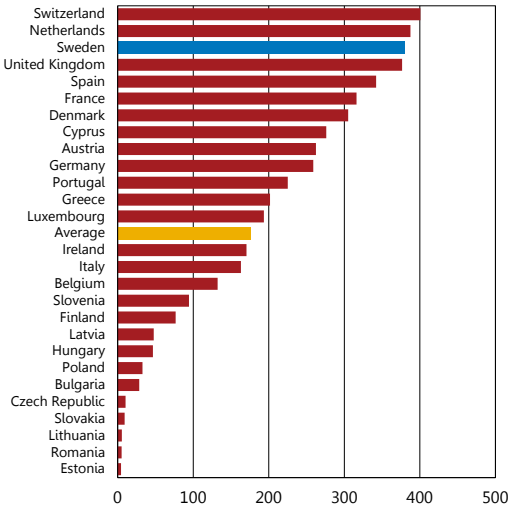
A LARGE BANKING SYSTEM CAN BRING ABOUT LARGE COSTS TO SOCIETY IF SUCH RISKS ARE REALISED.

The Swedish financial system is large in relation to the Swedish economy. For example, the banking sector's assets amount to slightly less than four times GDP, which is a lot from an international perspective (see Chart 1:7). As the real economy is dependent on a functioning financial system, serious problems in the banking sector may have major negative effects on it. And because the banking system is so large, mitigating any problems, should they arise, may also be very costly.

THE MAJOR BANKS ARE HIGHLY DEPENDENT ON WHOLESALE FUNDING

The major Swedish banks largely use wholesale funding to fund their operations. About half of this is made up of foreign funding (see

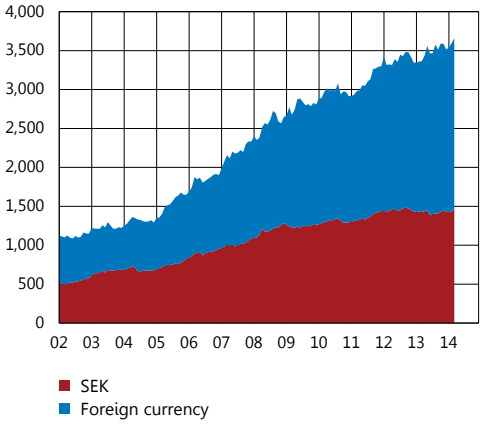
Chart 1:7 The banks' assets in relation to GDP
December 2013, per cent



Note. In banking assets are included all of the assets of the national banking groups, that is both foreign and domestic assets. The shadowed part of the blue bar shows the four major banks' assets abroad in relation to Sweden's GDP. The data for Switzerland is from December 2012.

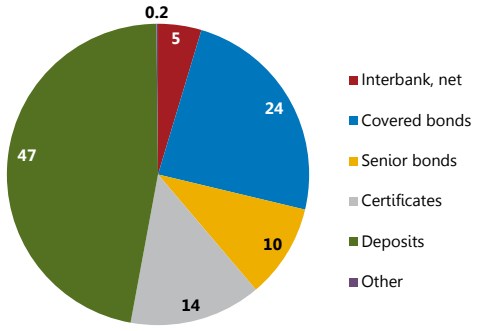
Sources: The ECB, the European Commission, the Swiss National Bank and the Riksbank

Chart 1:8 The major Swedish banks' wholesale funding via Swedish parent companies and subsidiaries
SEK billion



Sources: Statistics Sweden and the Riksbank

Chart 1:9 The major Swedish banks' funding
March 2014, per cent



Sources: Bank reports and the Riksbank

Chart 1:8).[3] The large proportion of wholesale funding means that it is absolutely essential, for both the individual banks and financial stability as a whole, that investors in the banks have confidence in the banks and their operations. If investors should lose confidence, access to funding could rapidly decline at the same time as the price of funding could increase (see the box Shadow banks and the Swedish financial system).

Covered bonds form an important part of the banks' wholesale funding. They make up about half of all wholesale funding (see Chart 1:9). The large proportion of wholesale funding made up of covered bonds means that problems in household indebtedness or the development of the Swedish housing market may directly affect the banks' funding. Consequently, the Swedish banks are not just dependent on strong confidence in general. Confidence is also needed in Swedish households' ability to meet their debt commitments and in the development of the Swedish housing market.

CLOSELY INTERLINKED BANKS ARE INCREASING THE VULNERABILITY OF THE FINANCIAL SYSTEM

The major Swedish banks' lending largely consists of lending to Swedish households (see Chart 1:10). As all major banks have a large proportion of lending to the Swedish household sector, they are closely interlinked in that they have similar exposures. This means that developments in the household sector and on the housing market in Sweden are not only important to individual banks but also to the banking sector as a whole.

The banks' funding is largely made up of covered bonds (see Chart 1:9). At the same time, other Swedish banks comprise one of the largest holders of covered bonds (see Chart 1:11). In the major banks, this cross holding of securities, mainly covered bonds, amounts to an average of 40 per cent of their equity. This means that the major Swedish banks are closely interlinked, not only through similar exposures to Swedish households and the Swedish housing market, but also through the cross holding of covered bonds. All in all, these tight interconnections mean that problems in one bank can rapidly impact confidence in the entire banking sector and consequently also in large parts of the financial system.

THE MAJOR SWEDISH BANKS ARE HIGHLY EXPOSED TO LIQUIDITY RISKS

The banks continually work on managing their liquidity risks in order to be able to cope with periods of stress on the financial markets. This work can consist of building liquidity buffers or managing maturities of assets and liabilities.

The major Swedish banks have large liquidity buffers in relation to the short-term outflows assumed by the LCR measure (see Chart

[3] From A to Z: the Swedish mortgage market and its role in the financial system, *Riksbank Studies*, April 2014.

1:12). The large liquidity reserves are largely held in foreign currencies, above all dollars and euros. In most situations, liquid assets in these currencies can be used to meet outflows in other currencies through conversion on the currency swap market. The large buffers in foreign currency have been built up in a period when funding conditions have been very favourable. This has at times led to very low liquidity buffers in Swedish krona. To avoid situations where large outflows in Swedish krona would lead to unnecessary liquidity risks, it is important to ensure that banks have a certain level of liquidity in Swedish krona.

It is important that the banks do not take excessive structural liquidity risks if resilience against longer periods of stress on the financial markets is also to be created. According to the Riksbank's structural liquidity measure, the major Swedish banks are in a worse position than European banks are, on average, and are thus also more exposed to structural liquidity risks than banks in the reference group (see Chapter 4).

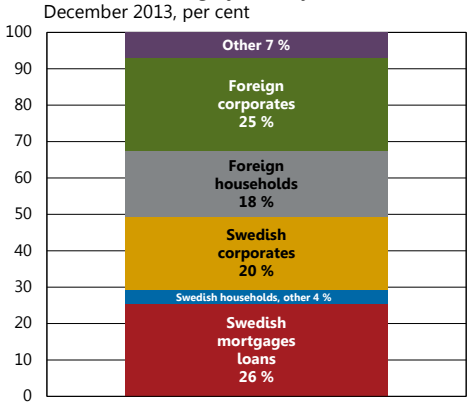
In addition to the major Swedish banks' exposure to excessive structural liquidity risks, there are other factors making the risks greater from a systemic perspective than they would appear to be when the risks are studied in individual banks. One such factor is the cross holding of covered bonds. This can result in long-term lending commitments in one bank being partly funded by securities that another bank purchases for its liquidity reserve and thereby funds by short-term borrowing. In such a case, liquidity risks can appear smaller when banks are examined one by one than would the case if a systemic perspective was to be adopted (see chapter 4).

THE BANKS HAVE LITTLE EQUITY IN RELATION TO ASSETS

Alongside deposits and wholesale funding, the banks fund their activities with equity. Even if the major Swedish banks have high core Tier 1 capital ratios, they have relatively little equity in relation to total assets, seen from both international and historical perspectives (see Chart 1:13 and Chart 1:14).

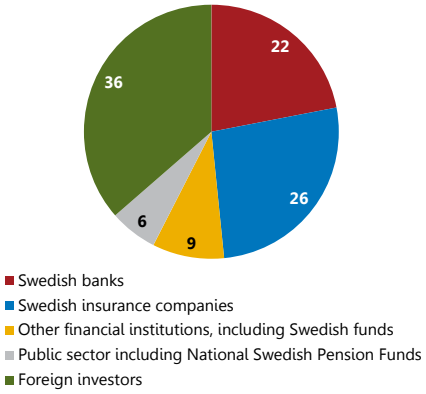
In addition, the difference between the two capital measures has increased in recent years as the banks' average risk weights have decreased and their core Tier 1 capital ratios have thus increased. Part of the risk weight decrease is due to the banks currently having a greater proportion of lending with lower credit risks than previously. However, this does not explain the entire decrease. The banks are applying what are known as internal rating-based approaches to an increasingly larger part of their portfolios, which tends to reduce the risk weights, even if the actual risk in the portfolio has not changed. Consequently, the part of the increase of the core Tier 1 capital ratios that is due to the increased use of internal rating-based approaches does not necessarily add greater resilience to the banking sector (see Chapter 4).

Chart 1:10 Lending by the major Swedish banks
December 2013, per cent



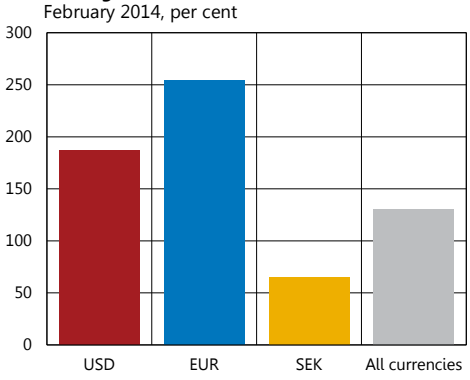
Sources: Bank reports, Statistics Sweden and the Riksbank

Chart 1:11 Owners of covered bonds
December 2013, per cent



Sources: Statistics Sweden and the Riksbank

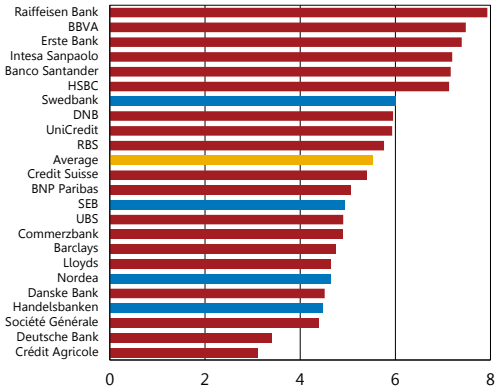
Chart 1:12 The major Swedish banks' liquidity coverage ratio (LCR)
February 2014, per cent



Note. According to Finansinspektionen's definition in FFFS 2012:6.

Sources: Finansinspektionen and the Riksbank

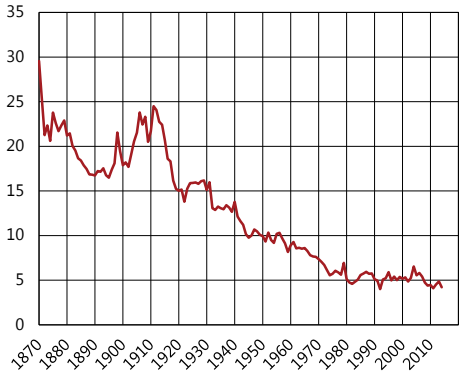
Chart 1:13 Equity in relation to total assets
December 2013, per cent



Note. The measure specifies the equity of the Swedish banks (blue bars) and of a sample of European banks (red bars) in relation to their total assets.

Source: SNL Financial

Chart 1:14 Equity in relation to total assets, Swedish banks
Per cent



Sources: Hortlund, Do Inflation and High Taxes Increase Bank Leverage?, SSE/EFI Working Paper Series in Economics and Finance, No 6122005, November 2005 and the Riksbank

To sum up, it can be noted that, despite the favourable position at present, there are a number of vulnerabilities in the Swedish banking system. These are related to the banks being closely interconnected and highly dependent on wholesale funding. In addition, there remain certain liquidity risks that are related to short-term risks in individual currencies and structural liquidity risks. And, even if the core Tier 1 capital ratios have improved in recent years, the major banks have little equity in relation to total assets, seen from an international perspective. All in all, these vulnerabilities mean that, in the long term, financial stability may be negatively affected by disruptions arising abroad or in Sweden.

Risks that may threaten financial stability

Despite the favourable main scenario, there are a number of risks that, considering the vulnerabilities of the Swedish financial system, may threaten financial stability.

EXTENDED PERIOD OF LOW INTEREST RATES MAY ENTAIL RISKS

As a consequence of the expansionary monetary policy conducted in many parts of the world, the financial markets are continuing to be characterised by low interest rates and continued high demand for high-risk assets. The measures taken have also resulted in rising equity prices, low risk premiums and historically low volatility on several financial markets. The central banks have therefore contributed supporting the development of the real economy in that low interest rates and increased risk-taking have led to lower funding costs for governments, companies and households, which have thereby been able to strengthen their balance sheets.[4]

However, even if the expansionary measures have been a support to the development of the real economy, an extended period of low interest rates could lead to excessive risk-taking among financial participants, companies and households, and to various types of asset becoming overvalued.[5] Any disruptions leading to a sudden and sharp decrease in demand for these assets could then bring about significant price adjustments, increased volatility and investors being forced to realise losses that they are unable to manage.[6] Such a development in the global financial system could also impact financial stability in Sweden. As the Swedish banks are dependent on wholesale funding in foreign currencies, both access to and the price of the Swedish banks' funding may be affected negatively in a situation of increased stress on the global financial system.

[4] *Global Financial Stability Report*, April 2014, International Monetary Fund.
[5] *Trends, Risks, Vulnerabilities*, No. 1, 2014, European Securities and Markets Authority.
[6] Johansson, Tor, *Search for yield in a low-interest rate environment*, Economic Commentary no. 4, 2013. Sveriges Riksbank.

WORSENED DEVELOPMENT IN EUROPE MAY IMPACT FINANCIAL STABILITY

In Europe, there are two main risks that could have an effect on financial stability in Sweden in the near future. The first of these is linked to developments in Ukraine and Russia. The second is related to the development of the real economy in Europe and uncertainty over how certain European countries will manage the structural problems that continue to remain in the wake of the financial and sovereign debt crises.

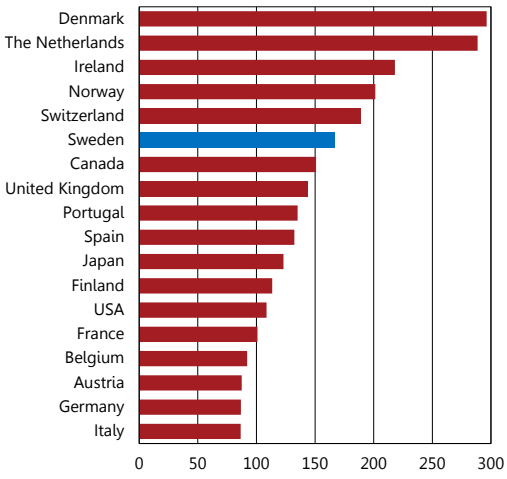
Developments in Ukraine and Russia may indirectly impact financial stability in Sweden through the development of the financial markets and through the development of the real economy in Europe. However, the effects observed so far have been limited.

The Swedish banks also have certain direct exposures of their own towards Russia and Ukraine. However, these are minor (see Table 4:1), which means that any direct effects on the Swedish banking system are also expected to be minor.

Several countries in the euro area still have high central government debts and significant deficits in their public finances. This means that the economic development of these countries may be sensitive to unforeseen disruptions. Furthermore, there are several structural problems, for example poor competitiveness, that must be managed in some of these countries. If the problems still remaining in the European economies cannot be dealt with satisfactorily, the risk will arise that the development of the financial markets and the real economy will be such that financial stability in Sweden will also be affected.

Furthermore, uncertainty remains regarding the quality of the European banks' assets, meaning that it is not known how solvent the banking sector actually is. However, the results of an analysis of the European banking sector will be published in October (see the box Testing the banks in every EU country). In conjunction with this, credible action plans will be needed for remedying the problems that may be uncovered. If these problems are not managed in a way that is seen satisfactorily, credit granting in Europe could be hindered and stress can occur on the financial markets. In a bad scenario the recovery of the European economies could be threatened. This, in turn, could affect certain countries possibilities of addressing their public finance problems.

Chart 1:15 Household debts in various countries
December 2012, percentage of disposable income



Note. Data for Japan and Switzerland is from 2010. Data for Canada is from 2011.

Source: The OECD

Chart 1:16 Swedish households' debts and the real property price index
Per cent, total debt as a proportion of disposable income, index, 2000 Q1 = 100

Sources: Statistics Sweden and the Riksbank

THE HIGH LEVEL OF INDEBTEDNESS AMONG SWEDISH HOUSEHOLDS IS THE GREATEST DOMESTIC RISK THAT COULD THREATEN FINANCIAL STABILITY

There are also domestic risks that could threaten financial stability in the long term. The greatest domestic risks concern the development of the housing market in Sweden and Swedish households' indebtedness.

Indebtedness is continuing to increase among Swedish households. The household sector's aggregate debt ratio, which is to say total liabilities compared with disposable incomes, amounts to 174 per cent, and this ratio is expected to continue to increase in the years ahead. The result of this development is that households' debt ratios are high from both historical and international perspectives (see Chart 1:15 and Chart 3:3).

One explanation for the increase in debt in the household sector is that housing prices have increased substantially in the last 15 years (see Chart 1:16). There are studies that show that the increase in housing prices often are explained by fundamental factors such as higher incomes, lower interest rates, changes in taxation and a limited supply of housing.[7] But even if these factors may explain why housing prices have increased, there is nothing to suggest that the development of these factors cannot reverse and thereby cause housing prices to fall.

In several countries, such a development has had major effects on household consumption and macroeconomic development. This has been because indebted households have then chosen to save, and repay their debts, rather than consume. This allows households to compensate for the decline in value of their homes and to restore their weakened balance sheets. One consequence of such a chain of events is that the decline in demand, in addition to having an impact on the stability of the real economy, can lead to larger loan losses from the banks' lending to companies. A fall in housing prices can thus have indirect consequences on financial stability.

A course of events in which housing prices fall and households reduce their debts can be triggered by several factors. One such factor could be that, in periods of low interest rates, households do not take account of higher interest rates in the future to the appropriate extent. When interest rates then rise, this has an effect on both housing prices and on households' willingness to enter into debt. One indication that households, at present, could be surprised by higher interest rates in the future can be seen by comparing households' mortgage-rate expectations with the interest rates that are in line with the Riksbank's repo rate path (see Chart 1:17).

But household indebtedness could, in principle, also have more direct effects on financial stability. The most direct channel is through loan losses on the banks' mortgage lending. If households are highly

[7] See, for example, Englund, Peter (2011), Swedish house prices in an international perspective. *The Riksbank's Commission of inquiry into risks on the Swedish housing market*, Sveriges Riksbank, and Hansen, Sten, Explanations of the development of household indebtedness since the mid-1990s, *Memo 1 of the analysis group of the Council for Cooperation on Macroprudential Policy*, Finansinspektionen, October 2013.

indebted and find themselves in a position in which it is difficult to pay interest rates and amortisations, at the same time as the value of their housing falls below the value of their debts, the banks may be impacted by loan losses. Historically, such loan losses on mortgage lending have been very small in Sweden and the Riksbank deems that this will also continue to be the case in future. But even if the high level of indebtedness in the household sector is not expected to lead to any significant loan losses from mortgage lending, it is important to ensure that the quality of credit in household lending in Sweden also continues to be good. Otherwise it may lead to problems in the household sector having a great impact on the capital situation of the major Swedish banks.

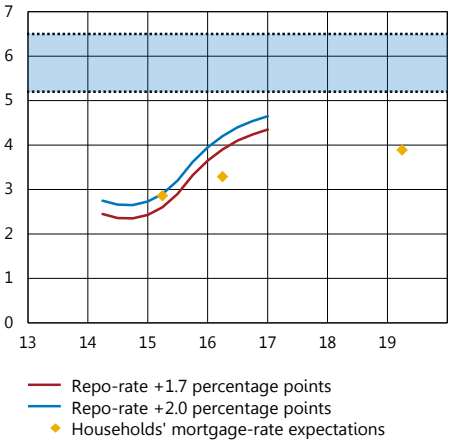
The financial stability can also be affected by other factors than loan losses. For example, if it should become more difficult or more expensive for the banks to obtain funding, this could have repercussions on financial stability. Several types of factor can lead to such a situation arising.

As mortgage lending is such an important part of the banks' operations and as the banks retain relatively little capital in relation to total assets, the banks' funding conditions can be affected as soon as concerns over possible loan losses on mortgage lending arise. Lack of confidence can therefore become an issue.

In addition, the fact that the banks largely obtain funding through covered bonds means that an important source of funding is directly dependent on the development of housing prices in Sweden. As this funding is based on investors having a high level of confidence in the underlying assets in the form of mortgages, a fall in housing prices could have direct consequences for the conditions under which the banks can obtain funding. If the banks do not meet a fall in housing prices by supporting the covered bonds with extra collateral, there will arise a risk that the bonds' credit rating will be affected.[8] But if the banks were instead to choose to provide extra collateral, the proportion of ecumbered assets in the banks would increase and funding through unsecured bonds could be negatively impacted. Channels from the housing market and household indebtedness with a direct impact on the banks' funding sources thus exist.

The risks judged to be linked with the development of the housing market and household indebtedness can thus affect financial stability both directly and indirectly through anticipated and realised loan losses. However, direct effects on the banks' funding can also arise. A summary of the channels through which the Swedish households' debts and the development of the Swedish housing market can affect the stability of the financial system is presented in Figure 1:1.

Chart 1:17 Household expectations of the variable mortgage rate one, two and five years ahead
Per cent

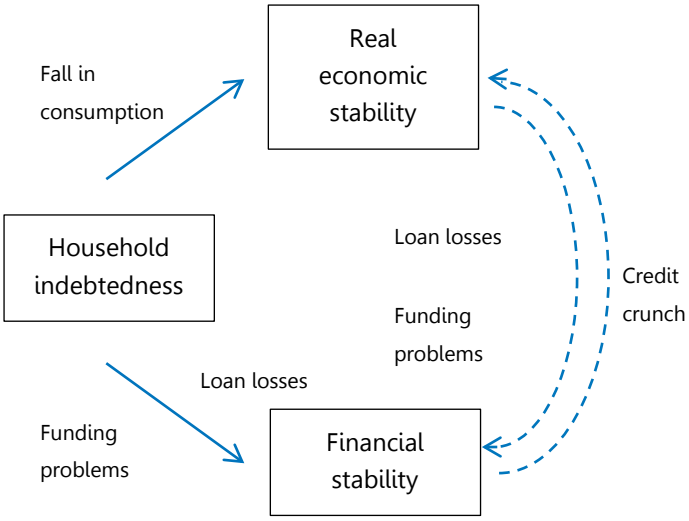


Note. The households' mortgage-rate expectations refer to expectations regarding the variable mortgage rate. The shaded area shows an interval for a conceivable normal interest rate level according to the Riksbank's forecast, based on a long-term repo rate of 3.5–4.5 per cent plus a typical supplement for the difference between a three-month mortgage rate and the repo rate of 1.7–2.0 percentage points.

Sources: The National Institute of Economic Research and the Riksbank

[8] *Memo 7 of the analysis group of the Council for Cooperation on Macroprudential Policy – Consequences of higher loan-to-value ratios on the funding of mortgages with covered bonds*, Sveriges Riksbank, January 2014.

Figure 1:1 Schematic diagram of how the risks linked with household indebtedness can affect both real economic and financial stability



The fact that both household debt and housing prices are continuing to increase makes it imperative that further measures to strengthen the resilience of the financial system and counteract the further accumulation of risks are adopted as soon as possible. Moreover, if the economic recovery in Sweden and abroad further boosts the rate of increase in debts and housing prices in the period ahead, it will be even more important to take additional measures. However, there is probably no single measure that can quickly eliminate the risks that can threaten stability. It is rather the case that a range of measures in several policy area and over a long period of time will need to be taken on an ongoing basis.

Recommendations

In recent years, several measures have been adopted to increase the resilience of the Swedish financial system and reduce the risks that may threaten financial stability.[9] In light of the vulnerabilities that still remain and considering the risks that exist, the Riksbank considers that further measures are needed. Consequently, the Riksbank makes a number of recommendations (see Table 1:1). These recommendations include measures aimed at household indebtedness and recommendations aimed at strengthening capital levels and reducing liquidity risks. This report presents three new recommendations that deals with the banks' discretionary income calculations, the countercyclical capital buffer and the banks' liquidity coverage ratios in Swedish krona.

Table 1:1 The Riksbank's current recommendations

Current recommendations	Introduced
Household indebtedness	
The risk weight floor for Swedish mortgages should be raised.	Financial Stability Report 2013:2
Finansinspektionen should ensure that sound minimum levels are introduced for the standard values the banks use in their discretionary income calculations, which form part of their credit assessments of households.	Financial Stability Report 2014:1 (NEW)
The banks' capital levels	
The major Swedish banks should report their leverage ratios at least once a quarter.	Financial Stability Report 2013:2
Finansinspektionen should apply the countercyclical capital buffer as soon as possible in order to increase the resilience of the banks and initially set the buffer level at 2.5 per cent.	Financial Stability Report 2014:1 (NEW)
The major banks' liquidity risks	
The major Swedish banks should continue to reduce their structural liquidity risks and approach the minimum level of 100 per cent in the Net Stable Funding Ratio (NSFR).	Financial Stability Report 2011:2
The major Swedish banks should report their Net Stable Funding Ratios (NSFR) at least once a quarter.	Financial Stability Report 2013:1
Finansinspektionen should extend requirements for Liquidity Coverage Ratios (LCR) to also cover Swedish krona. The requirement should be set at 60 per cent.	Financial Stability Report 2014:1 (NEW)
The major Swedish banks should report their Liquidity Coverage Ratios (LCR) in Swedish krona at least once a quarter.	Financial Stability Report 2013:2

[9] *Financial Stability Report 2013:2*, Sveriges Riksbank, A simpler planning process, Govt. Bill 2013/14:126, From A to Z: the Swedish mortgage market and its role in the financial system, Riksbank Studies April 2014, Sveriges Riksbank, The Swedish mortgage market 2014, Finansinspektionen 10 April 2014 and Capital requirements for Swedish banks, May 2014, Finansinspektionen.

RECOMMENDATIONS ON MEASURES TO REDUCE RISKS LINKED TO HOUSEHOLD INDEBTEDNESS

Recommendation:

The risk weight floor for Swedish mortgages should be raised.

The Riksbank makes the assessment that the risks associated with the high and still growing indebtedness in the household sector and the potential consequences of these debts, both for the real economy and for the stability of the financial system, justify raising the risk weight floor for Swedish mortgages. The Riksbank shares Finansinspektionen's assessment that raising the floor for risk weights for mortgages to 25 per cent would be appropriate. The Riksbank therefore welcomes Finansinspektionen's decision to raise the risk-weight floor for Swedish mortgages to 25 per cent in the autumn of 2014.[10]

Recommendation:

Finansinspektionen should ensure that sound minimum levels are introduced for the standard values the banks use in their discretionary income calculations, which form part of their credit assessments of households.

Swedish banks conduct extensive mortgage lending to Swedish households. Under the current legislation, the banks are obliged to conduct credit assessments to ensure, as far as possible, that borrowers are able to meet their commitments.[11] As part of this credit assessment, the banks usually prepare discretionary income calculations to assess borrowers' debt-servicing ability.[12] The discretionary income calculation is used to see how much of its disposable income a household will have left after interest expenses, housing costs and other living costs have been paid.[13]

At present, there are no requirements for the formulation of discretionary income calculations, although there are certain guidelines that the banks should take into account in credit assessment. For example, Finansinspektionens and the Swedish Consumer Agency's general guidelines states that a borrower's economic conditions for fulfilling his or her commitments should normally be assessed taking into account the household's incomes, assets, expenditure and debts.[14] In addition, the banks should take into account reasonable living costs in their credit assessments. To guarantee this in the discretionary income calculations, the banks usually use their customers' information on income, while a standard calculation is made of expenditure.[15]

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[10] *Capital requirements for Swedish banks*, promemoria 2014-05-08. Finansinspektionen.
[11] See Article 12, Consumer Credit Act and Chapter 8, Article 1 Banking and Financing Business Act.
[12] According to Article 6 of the Consumer Credit Act, the banks must also observe good advisory practice in their relationships with borrowers.
[13] In addition to the discretionary income calculation, credit assessment consists of a credit report, a statistical risk assessment based on the borrower's credit record and other data, and a qualitative assessment of the borrower's debt-servicing ability and the collateral object's situation and standard.
[14] Finansinspektionen's general guidelines (FFFS 2011:47) regarding consumer credit and Finansinspektionen's general guidelines (FFFS 2004:6) regarding credit risk management in credit institutions and investment firms and the Swedish Consumer Agency's general guidelines (KOVFS 2011:1) on consumer credit.
[15] The incomes specified by households are usually checked with the assistance of a credit-rating agency.

However, according to Finansinspektionen's annual mortgage survey, there are significant differences in the standard values the banks use in their discretionary income calculations (see Table 1:2). For example, the interest rate that the banks require borrowers to be able to pay varies between 5.9 and 8.0 per cent. Similarly, standard values for monthly living costs assumed for a family of two adults and two children vary between SEK 15,500 and SEK 21,900.[16] The Riksbank has also previously pointed out that these living costs seem low in comparison with what such households actually spend on living costs.[17]

Table 1:2 The banks' standard values in discretionary income calculations

	The banks' standard values
Required interest rate	5.9–8.0%
Amortisation	
First mortgage	40–100 years
Second mortgage	10–30 years
Unsecured loan	5–12 years
Operating costs	
Single-family house	SEK 3,500–4,700/month
Second home	SEK 1,200–1,750/month
Tenant-owned apartment	SEK 400–700/month
Fee, tenant-owned apartment	SEK 1,800–3,400/month
Living costs	
2 adults and 2 children	SEK 15,500–21,900/month

Note. The banks' standard values for the required interest rate and living costs are based on data from *The Swedish Mortgage Market*, 2014, Finansinspektionen. Standard values for amortisation and running costs are based on data from *The Swedish Mortgage Market*, 2013, Finansinspektionen.
Source: Finansinspektionen

These wide differences in discretionary income calculations mean that the assessment of a borrower's financial margins, and thus the borrower's ability to bear debt, can differ from bank to bank. Setting the standard values too low can lead to a mortgage being a greater burden for the household than the discretionary income calculation suggests, should macroeconomic conditions change. Even if the household is expected to be able to continue paying its mortgage in this situation, it may be forced to drastically adjust its consumption to be able to meet its commitments. Setting minimum levels for the standard values in the discretionary income calculations could act as a complement to other measures and, in the long term, contribute towards counteracting the risks related to high debts in the household sector.

Against this background, the Riksbank considers that Finansinspektionen should ensure that healthy minimum levels for the standard values that the banks use in their discretionary income calculations are introduced. In practice, this would mean that a borrower undergoing a credit assessment should at least be able to meet certain minimum levels regarding the required interest rate, amortisation rate for first and second mortgages, and operating and

[16] *The Swedish Mortgage Market* (2014), Finansinspektionen.
[17] *Financial Stability Report 2013:1*, and *Financial Stability Report 2013:2*, Sveriges Riksbank.

living costs, irrespective of which bank the borrower has applied to for a loan.[18] Furthermore, the Riksbank considers that transparency is needed regarding the minimum requirements used in the calculations. Together, these measures would act to improve the health of credit assessment and, in the long term, reduced risks in the financial system.

RECOMMENDATION REGARDING THE BANKS' CAPITAL LEVELS

Recommendation:

The major Swedish banks should report their leverage ratios at least once a quarter.

The banks are increasingly using risk-based assessments in their operations. This may have certain advantages but there is reason to question whether these assessments really capture the risks associated with high-risk assets well.[19] Among other conclusions, several international reports show that the differences between various banks' risk weights do not depend, to any significant degree, on differences between the risks they are designed to capture.[20] In Sweden, the discussions have primarily focused on the risk weights on mortgages. The discussion has highlighted the need to be able to measure a bank's capital strength in several different ways.

The Basel III Accord from 2010 included a measure of the leverage ratio as a complement to risk-weighted capital requirements. A final definition of the measure was published in January 2014. The EU's Capital Requirements Regulation defines a measure of the leverage ratio and the Regulation stipulates that the banks are to report their leverage ratio levels to Finansinspektionen in accordance with the CRR definition as of 30 June 2014.

The Riksbank recommends that the major Swedish banks publicly report the leverage ratio at least once a quarter in accordance with the CRR definition, starting no later than in the interim reports for the second quarter of 2014. By publishing this measure, the Swedish banks provide investors with information that can be compared both over time and between banks. At present, Nordea, SEB and Swedbank report their leverage ratios in accordance with the CRR definition (see Table 1:3).[21]

[18] An example of the introduction of minimum levels for standard values in discretionary income calculations is provided by Finland, where the Finnish financial supervisory authority recommended in 2010 that the Finnish banks use an amortisation rate of 25 years in their discretionary income calculations.
[19] As the banks use their own models, identical assets can be covered by differing amounts of capital, depending on which bank holds them. The banks may also adjust their models with Finansinspektionen's permission. This can lead to that the banks' capital requirements decrease over time, even though their risk taking has not changed.
[20] See, for example, *Regulatory Consistency Assessment Programme (RCAP) – Analysis of risk-weighted assets for credit risk in the banking book*, Bank for International Settlements, July 2013 and *Regulatory Consistency Assessment Programme (RCAP) – Analysis of risk-weighted assets for market risk*, Bank for International Settlements, January 2013 (revised February 2013).
[21] Nordea's leverage ratio amounts to 4.3 per cent, SEB's till 4.1 per cent and Swedbank's to 4.5 per cent.

Table 1:3 Public reporting of leverage ratio according to the EU Capital Requirements Regulation

	Handels-banken	Nordea	SEB	Swedbank
Report leverage ratio according to CRR at least once a quarter				

Reports

Does not report

Recommendation:

Finansinspektionen should apply the countercyclical capital buffer as soon as possible in order to increase the resilience of the banks and initially set the buffer rate at 2.5 per cent.

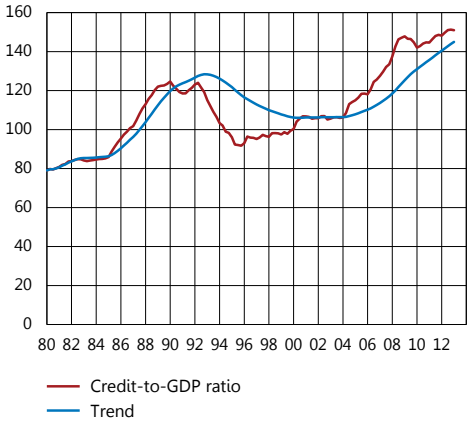
The development of the housing market in recent years and the increased and high level of indebtedness in the Swedish household sector are assessed to imply that household indebtedness can threaten the financial system's stability. This risk is particularly problematic in light of the vulnerabilities of the Swedish financial system.

The risk that the banks will incur severe loan losses on mortgages in Sweden is presently deemed to be small. But if, for example, housing prices were to decrease, households could start to compensate for this reduction in value by cutting back on consumption and instead saving and amortisising more. This could have large and long-lasting negative effects on the real economy, which in turn could lead to increased loan losses on corporate lending. Thus there is reason for the banks to retain more buffer capital to strengthen their resilience. The countercyclical buffer provides a suitable tool for achieving this as, unlike a raised risk-weight floor for mortgages, for example, it also increases the capital requirements for lending to companies. In this way, the buffer forms an important complement to the already proposed increase of the risk-weight floor for mortgages.

As credit increased substantially in Sweden over a longer period, which entails risks that could jeopardise financial stability, and at the same time banks' resilience did not increase to the same extent, activating the countercyclical capital buffer is justifiable (see the box The countercyclical capital buffer).

The Basel Committee's standard method provides a starting point for assessing an appropriate countercyclical buffer rate. The method is based on a credit gap, which is defined as the difference between the credit-to-GDP ratio and a statistical trend. According to the standard method, the buffer should have been activated in Sweden already in 2005 (see Chart 1:18 and Chart 1:19). The buffer rate should have been at least 2.5 per cent over a large part of the

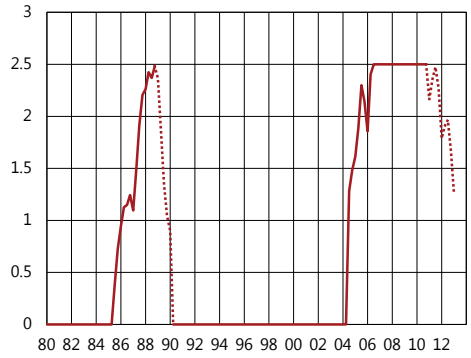
Chart 1:18 The credit to-GDP-ratio and statistical trend according to the Basel Committee's standard method
Per cent



Note. Credit is defined as monetary financial institutions' lending to the private non-financial sector and the outstanding stock of commercial paper and bonds issued by the Swedish private non-financial sector. GDP is in nominal terms and is defined as the sum of GDP for the four most recent quarters. The long-term trend is calculated using a one-sided HP filter with the help of an adjustment parameter set at 400,000.

Source: The Riksbank

Chart 1:19 The countercyclical buffer rate according to the Basel Committee's standard method
Per cent



Note. The countercyclical buffer rate for exposures in Sweden is based on a mechanical application of the credit gap according to the BIS standard method. The credit cap shows how much credit granting in relation to GDP deviates from its long-term trend. The reductions in the buffer rate according to the standard method are shown as broken lines in the chart.

Source: The Riksbank

period since then. The credit gap and the buffer rate given by the standard method have certainly decreased slightly recently. However, the Riksbank's assessment is that the credit gap, measured in this way, does not fully capture the risks that exist at present and that the risks that have been accumulated still remain.

However, the credit gap is not the only indicator of the accumulation of significant systemic risks in the Swedish financial system in recent years. Other quantitative indicators and an overall systemic risk assessment arrive at the same conclusion. The overall assessment is that setting the initial buffer rate at 2.5 per cent is justifiable. The countercyclical buffer rate can be raised further if cyclical systemic risks continue to increase.

The buffer rate should remain at 2.5 per cent until the risks in the financial system are deemed to have decreased significantly or until a crisis requiring the buffers to be used occurs.

RECOMMENDATIONS REGARDING THE MAJOR BANKS' LIQUIDITY RISKS

Recommendation:

The major Swedish banks should reduce their structural liquidity risks and approach the minimum level of 100 per cent in the Net Stable Funding Ratio (NSFR).

The Net Stable Funding Ratio (NSFR) is a measure of the structural liquidity risk and has been developed by the Basel Committee. This measurement places the banks' stable funding in relation to their illiquid assets. A low value in this measurement thus indicates that the banks are not funding their assets with a sufficient level of stable funding. This, in turn, may lead to the banks encountering problems in funding their assets over longer periods of stress.

Two of the major Swedish banks, Handelsbanken and Swedbank, report the NSFR in their public reports. These banks reported 97 per cent and 102 per cent respectively for the first quarter of 2014.

One reason that the banks have NSFR close to 100 per cent is that in January 2014 the Basel Committee presented a revised proposal for the formulation of the measurement. The new measurement means that the banks have higher NSFR levels than was the case in the original proposal from December 2010. However, according to the Riksbank's structural liquidity measurement which is similar to the original proposal of NSFR, the banks have not reduced their structural liquidity risks to any greater extent in recent years (see Chart 1:20).

The NSFR is influenced to a great degree by the banks' business models. Lending by the Swedish banks largely consists of mortgages with long maturities, at the same time as their funding largely consists of wholesale funding with remaining maturities of less than one year. This contributes towards the Swedish banks' structural liquidity risks being large from an international perspective.

Conditions are favourable for the Swedish banks to reduce their structural liquidity risks and improve their NSFRs. The major Swedish banks can obtain funding for long maturities and their funding costs are lower than for many other European banks. Furthermore, the revised proposed NSFR means that it will be easier for the major Swedish banks to attain 100 per cent in the NSFR. Consequently, the major banks should continue to reduce their structural liquidity risks in the period ahead and, as soon as possible, reach an NSFR of 100 per cent in line with recent Basel agreement.[22]

Recommendation:

The major Swedish banks should report their Net Stable Funding Ratios (NSFR) at least once a quarter.

The Riksbank's assessment is that the Swedish banks should report the NSFR. The NSFR is an internationally-accepted measure that makes it possible to monitor the development of structural liquidity risks over time and between banks in a harmonised way. At present, only Handelsbanken and Swedbank publish their NSFRs (see Table 1:4). In the event that the major banks deem that other measures better illuminate the structural liquidity risks they are taking, the Riksbank urges the banks to report these measures together with the NSFR.

Table 1:4 Public reporting of NSFR

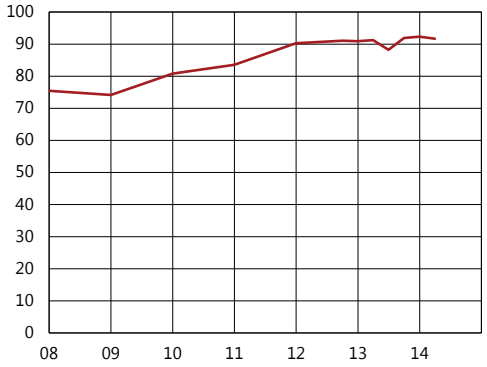
	Handels-banken	Nordea	SEB	Swedbank
Reports NSFR at least once a quarter				

Reports

Does not report

Chart 1:20 The major Swedish banks' results from the Riksbank's structural liquidity measure

Per cent



Note. Refers to an average for the major Swedish banks. For a more detailed description of the Riksbank's structural liquidity measure, see *Financial Stability Report 2010:2* Sveriges Riksbank.

Sources: Liquidatum and the Riksbank

Recommendation:

Finansinspektionen should extend requirements for Liquidity Coverage Ratios (LCR) to also cover Swedish krona. The requirement should be set at 60 per cent.

In recent years, the major Swedish banks have built up large liquidity buffers in foreign currency, which has led to high LCR levels in euro and US dollar and in all currencies combined (see the box Liquidity Coverage Ratio in Swedish krona). The liquidity buffers primarily consist of liquid asset classes such as deposits in central banks and government bonds. This is a positive development as it increases the banks' resilience to short-term liquidity stress. At the same time, the

[22] The Riksbank's recommendation has previously been based on the Basel Committee's definition of the NSFR from 2010 (see Basel III: International framework for liquidity risk measurement, standards and monitoring, Basel Committee, December 2010). The recommendation now refers to the most recent definition (see Basel III: the Net Stable Funding Ratio – consultative document, Basel Committee, January 2014).

liquidity buffers in Swedish krona have increased to a much lesser extent and have periodically been extremely low.

In the light of this, the Riksbank recommends Finansinspektionen to extend the current[23] requirements for LCR to also include Swedish krona. However, the LCR requirement should initially be set at a lower level than 100 per cent. This is because consideration must be taken of the limited supply of government bonds in Swedish krona and other possible side-effects. The Riksbank considers that it would be appropriate to introduce an LCR requirement in Swedish krona at a level of 60 per cent. It has been assessed that such a level could be introduced without the market for Swedish government bonds being negatively affected or that the banks meet the requirements by significantly decreasing their LCR levels in foreign currencies. The level prevents banks from returning to the very low LCR levels in Swedish krona previously observed and thus represents a minimum level of banks' self-insurance regarding liquidity in Swedish krona. In addition, the level means that the banks need to increase their current LCR levels in Swedish krona.

Recommendation:

The major Swedish banks should report their Liquidity Coverage Ratios (LCR) in Swedish krona at least once a quarter.

The Swedish banks already report the LCR of all currencies together and also separately in euros and US dollars. Supplementing the present reporting by also separately reporting the LCR in Swedish krona would provide a more complete view of the Swedish banks' liquidity risks in various currencies (see Chapter 4).

At present, no standardised measure is reported for short-term liquidity risks in Swedish krona making it possible to compare the risks between banks. As the LCR is a well-established measure in Sweden now, it is reasonable for the major Swedish banks to also report this measure separately in Swedish krona. In addition, the banks already report the LCR in Swedish krona to Finansinspektionen. The Riksbank considers that the major banks should also complement their public reports with this measure. Swedbank is the only bank that reports LCR in Swedish krona, which is at 55 per cent.

Table 1:5 Public reporting of the LCR in SEK

	Handels-banken	Nordea	SEB	Swedbank
Reports LCR publicly at least once a quarter				

Reports

Does not report

[23] Finansinspektionen's regulation FFFS 2012:6.

FULFILLED RECOMMENDATIONS

Since the autumn of 2010, the Riksbank has made recommendations in its Financial Stability Report. Many of these recommendations are fulfilled at present (see Table 1:6).

Table 1:6 Recommendations that have been fulfilled

Recommendations	Introduced	Observed
The major Swedish banks should ensure that they have a CET 1 capital ratio of at least 12 per cent on 1 January 2015.	Financial Stability Report 2012:1	Financial Stability Report 2013:2
The framework for the reference rate Stibor should be reformed through the establishment of clear responsibility, clear governance and control, better transparency, the possibility of verification and an obligation for the banks to conduct transactions at their stated bids on request.	Financial Stability Report 2012:2	Financial Stability Report 2013:2
The major Swedish banks should improve the transparency of their public reporting as regards information and asset encumbrance.	Financial Stability Report 2012:2	Financial Stability Report 2013:1
The major Swedish banks should report comparable key ratios in the form of the subcomponents of the Liquidity Coverage Ratio (LCR).	Financial Stability Report 2011:2	Financial Stability Report 2013:1
The major Swedish banks' Liquidity Coverage Ratios (LCR) should amount to at least 100 per cent.	Financial Stability Report 2011:2	Financial Stability Report 2012:2
The major Swedish banks' Liquidity Coverage Ratios (LCR) should amount to at least 100 per cent in euro and US dollars respectively.	Financial Stability Report 2011:2	Financial Stability Report 2012:2
The major Swedish banks should report their Liquidity Coverage Ratio (LCR) at least once a quarter beginning no later than the interim report published after 1 July 2012.	Financial Stability Report 2011:1	Financial Stability Report 2012:2
The major Swedish banks should improve the transparency of their public reporting by reporting maturity information per asset and liability type, broken down per currency.	Financial Stability Report 2011:1	Financial Stability Report 2012:2

The countercyclical capital buffer

This box describes the aim of and the international regulatory framework surrounding the countercyclical capital buffer. The box also discusses how an appropriate level for the value of the buffer is determined and the effects it may have on the Swedish banks' capital requirements and lending rates.

The implementation of the countercyclical buffer

The implementation of the Basel III Accord in Swedish legislation includes the introduction of a capital requirement for banks that varies over time above the static minimum capital requirement. This time-varying capital requirement is called the countercyclical capital buffer. The intention is for the buffer requirement to be set on a quarterly basis in accordance with how large the risks in the financial system are deemed to be at that point.

According to the Basel III Accord, the buffer will be introduced gradually between 2016 and 2019.[24] However, individual EU member states may choose to introduce it in advance. Sweden will have the opportunity to introduce the buffer in conjunction with the implementation into Swedish legislation of the new Capital Requirements Directive (CRD IV). Laws implementing CRD IV in Sweden are expected to enter into force in August 2014.

The countercyclical capital buffer strengthens the banks' resilience

Capital requirements are an important part of the regulation of the banking sector. If the banks have plenty of capital, this will reduce the risk of financial crises and, in addition, the effects of any crises will be milder. The current capital requirements for the banks are largely static and are thus well-suited to manage permanent systemic risks. However, the risks in the financial system tend to vary over time. In expansionary phases, financial systemic risks can accumulate, for example as a result of increases in credit granting and rises in property prices. During a downturn, when risks materialise, the banks' loan losses may increase and credit granting may be tightened to allow the banks to maintain their capital ratios. This may make it desirable to also have a time-varying capital requirement. This would allow resilience to be built up in the financial system and would reduce the risk of credit granting being tightened in a situation when the economy is already vulnerable.

[24] For a detailed description of the buffer, see Guidance for national authorities operating the countercyclical capital buffer, December 2010, Basel Committee on Banking Supervision. Juks, Reimo and Melander, Ola (2012), Countercyclical capital buffers as a macroprudential policy instrument, *Riksbank Studies*. Sveriges Riksbank.

In precisely this way, the countercyclical buffer is aimed at strengthening the banks' resilience by binding capital in the banking sector during periods in which systemic risks are accumulating. During periods in which the risks materialise, the buffer can then be dissolved to absorb losses and thus prevent or alleviate a credit crunch.

International regulations surrounding the countercyclical buffer

Failing to fulfil the capital requirements placed via the countercyclical buffer does not have the same consequences as infringing the minimum requirements of the capital adequacy regulations. According to the Basel III Accord, the countercyclical capital buffer is being introduced through a supplement on top of the capital conservation buffer.[25] If the banks do not comply with the overall buffer requirement, this may result in certain restrictions being placed on their capital dividends. Another consequence would be restrictions on the payment of bonuses by the banks to their employees. This contrasts with the consequences arising if the minimum requirement for capital adequacy is not fulfilled. A bank that violates the minimum requirement can lose its banking license.

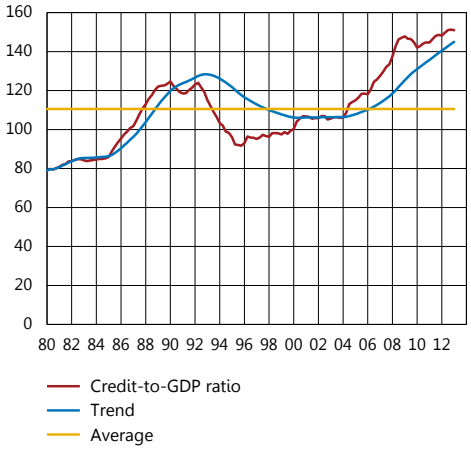
Under the European capital adequacy regulations, increases of the value of the countercyclical buffer are normally announced up to twelve months in advance so that the banks have time to adjust before the increase enters into force. However, advance notification can be issued less than twelve months in advance if the designated authority deems that exceptional reason exists. On the other hand, decreases of the buffer level enter into force immediately to reduce the risk of the credit supply being restricted.

Each country decides on the size of the buffer required for credit exposures within that country. Banks with national exposures are thus only affected by the buffer determined by the relevant national authority. However, banks with international credit exposures must retain a buffer reflecting the composition of their domestic and foreign exposures.

When a country's designated authority sets a buffer requirement below 2.5 per cent of the amount exposed to risk, this buffer requirement also applies to foreign banks' exposures in that country. This is called the principle of international reciprocity. The country's designated authority also has the opportunity of setting the buffer rate at over 2.5 per cent if it considers this would be appropriate in light of the national circumstances. This means that the buffer rate has no upper limit. However, foreign banks' home country authorities can choose not to recognise buffer rates above 2.5 per cent. This means that the requirement for mandatory international reciprocity does not apply to the part of the buffer exceeding 2.5 per cent.

[25] The capital conservation buffer is a static buffer introduced with the Basel III Accord.

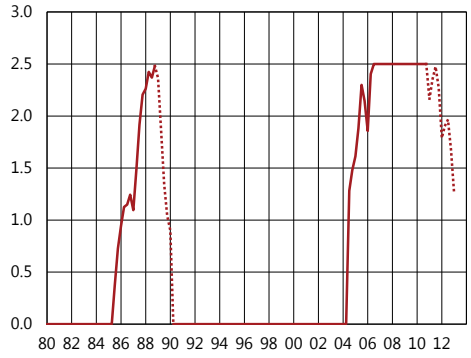
Chart B1:1 The credit-to-GDP ratio and statistical trend according to the Basel Committee's standard method
Per cent



Note. Credit is defined as monetary financial institutions' lending to the private non-financial sector and the outstanding stock of commercial paper and bonds issued by the Swedish private non-financial sector. GDP is in nominal terms and is defined as the sum of GDP for the four most recent quarters. The statistical trend is calculated using a one-sided HP filter with the smoothing parameter equal to 400,000.

Source: The Riksbank

Chart B1:2 The countercyclical buffer rate according to the Basel Committee's standard method
Per cent



Note. The countercyclical buffer rate for exposures in Sweden is based on a mechanical application of the credit gap according to the BIS standard method. The credit gap shows how much the credit-to-GDP ratio deviates from its statistical trend. The reductions in the buffer rate according to the standard method are shown as broken lines in the chart.

Source: The Riksbank

The buffer rate is determined according to quantitative indicators and an overall assessment of the risks

To determine an appropriate level for the countercyclical capital buffer, an overall assessment needs to be made of the level of systemic risks and the sustainability of credit growth. To create a joint international reference point for the assessments, the BIS and ESRB have developed a set of quantitative indicators that can be used as a starting point for the analysis.[26] These indicators may be of use in assessing the level of financial systemic risks, but they cannot be used mechanically. The quantitative indicators must instead be complemented with qualitative considerations to reach an overall assessment of systemic risk that can be used as a basis for the determination of an appropriate buffer level.

The credit gap shows that significant risks have accumulated

One indicator that has historically demonstrated a good ability to warn of financial crises is known as the credit gap.[27] Consequently, it forms a joint reference point when the value of the countercyclical buffer is to be determined. Whenever this gap has assumed a high value in the recent past, it has been discovered to have been an indication of heightened financial systemic risks. The credit gap is one of a few indicators that has demonstrated an ability to predict financial crises in a large number of countries.

The credit gap is defined as the difference between the actual credit-to-GDP ratio and its trend (see Chart B1:1). The trend is calculated using what is known as a Hodrick-Prescott filter and is thereby based on the actual development of the credits in relation to GDP. This is one of the reasons that the credit gap should only be used as a reference point. If the credit-to-GDP ratio has increased substantially over a long period, this will also lead to a higher trend and a narrower credit gap due to the method of calculation. This holds true even if the credit expansion has not been sustainable. Consequently, the method cannot be applied mechanically but only as an initial starting point in the assessment of the buffer's value.

In Sweden, the credit-to-GDP ratio has increased substantially over a longer period and the credit gap has been positive since 2005. This is an indication that significant financial systemic risks have accumulated in Sweden over the last decade.

Consequently, according to the Basel Committee's standard method for the countercyclical capital buffer, the buffer should already have been activated in Sweden in 2005.[28] The buffer rate would have been 2.5 per cent over a large part of the period since

[26] *Guidance for national authorities operating the countercyclical capital buffer*, December 2010, Basel Committee on Banking Supervision, and ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector (2014), European Systemic Risk Board.
[27] Drehmann et al. (2010), Countercyclical capital buffers: exploring options, *Working Papers* No. 317, Bank for International Settlements.
[28] Juks, Reimo (2013), An application of the Basel standard method for the calculation of the countercyclical capital buffer rate in Sweden, *Economic Commentary nr 2*. Sveriges Riksbank.

then (see Chart B1:2). However, in recent years, the credit gap has narrowed somewhat, meaning that a mechanical application of the standard method at present would suggest a buffer of 1.25 per cent. About two-thirds of the credit gap is linked to lending to households and one-third is linked to lending and wholesale funding to non-financial companies. Despite this, the reduction of the buffer rate from 2.5 per cent since 2011 is deemed to be misleading, as it is largely due to Sweden having had a high rate of credit growth for a longer period, with the result that the mechanical trend has continued to increase in recent years. Now that the credit-to-GDP ratio is increasing at a slower rate, the trend is catching up, meaning that the credit gap is narrowing. The development was the same at the start of the 1990s, when the trend continued to increase during the financial crisis after credit growth had been high in the second half of the 1980s. Consequently, the decrease from 2.5 per cent since 2011 in the buffer rate given by the standard method is not deemed to be a sign of decreased risks.

It is important to understand that the credit gap should not be used mechanically to determine the value of the countercyclical buffer. It seems reasonable that a decision on the buffer's value be based on the risks that have accumulated in the financial system over a longer period, not least when it is implemented in Sweden. This is particularly important as there is no empirical support for assuming that a narrowing of the credit gap should form the basis of a decrease of the buffer rate.[29] From the credit gap, it is therefore reasonable to conclude that the buffer rate should be at least 2.5 per cent.

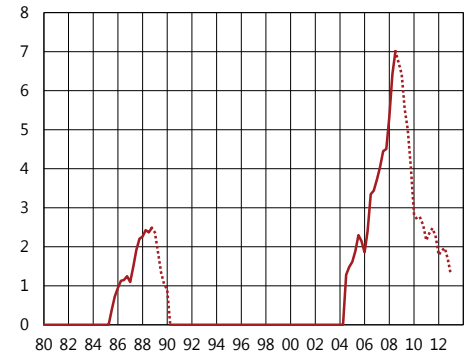
In conclusion, it is also important to note that 2.5 per cent does not form any upper limit for the buffer rate on the Swedish exposures. Both the Basel III Accord and the European capital adequacy regulations permit buffer rates above 2.5 per cent. This can be illustrated by applying the Basel Committee's standard method without using 2.5 per cent as an upper limit for the buffer rate (see Chart B1:3). The application shows that higher buffer rates could be justifiable in light of the risks that have accumulated.

The credit gap can be calculated in different ways

Other methods for calculating the credit gap can, to a certain extent, alleviate the problem of the trend catching up with actual credit-to-GDP ratio. Norges Bank uses such an alternative method. It involves including, in a series of observations, a forecast in which credit granting is constant in relation to GDP before the trend is calculated (see Chart B1:4).[30] The method prevents the trend from catching up with actual credit granting as quickly as it does when the standard method is used.

Chart B1:3 The countercyclical buffer rate according to the Basel Committee's standard method with no upper limit for the buffer rate

Per cent

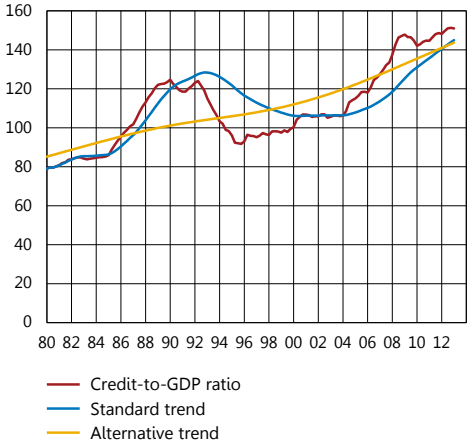


Note. The countercyclical buffer rate for exposures in Sweden is based on a mechanical application of the credit gap according to the BIS standard method with no upper limit for the buffer rate. The credit gap shows how much the credit-to-GDP ratio deviates from its statistical trend. The reductions in the buffer rate according to the standard method without an upper limit for the buffer rate are shown as broken lines in the chart.

Source: The Riksbank

Chart B1:4 The credit-to-GDP ratio and alternative trend using Norges Bank's method

Per cent

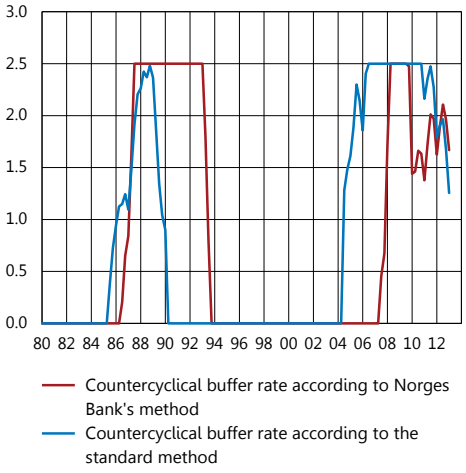


Note. Credit is defined as monetary financial institutions' lending to the private non-financial sector and the outstanding stock of certificates and bonds of the Swedish non-financial private sector. GDP is in nominal terms and is defined as the sum of GDP for the four last quarters. The alternative trend is calculated using a two-sided HP filter with the smoothing parameter equal to 400,000 and by including a forecast with a constant credit-to-GDP ratio in the series before the trend is calculated.

Source: The Riksbank

[29] Drehmann et al., Countercyclical capital buffers: exploring options, *Working Papers No. 317*, Bank for International Settlements, 2010.
[30] Norges Bank, *Monetary Policy Report with Financial Stability Assessment*, No. 4-2013 December, pp. 32-33.

Chart B1:5 The countercyclical buffer rate in Sweden according to Norges Bank's method
Per cent



Note. The countercyclical buffer rate for exposures in Sweden is based on a mechanical application of the credit gap according to Norges Bank's alternative method. The credit gap shows how much the credit-to-GDP ratio deviates from its statistical trend. The alternative trend is calculated using a two-sided HP filter with the smoothing parameter equal to 400,000 and by including a forecast with a constant credit-to-GDP ratio in the series before the trend is calculated.

Source: The Riksbank

In Norway, the standard method gives a buffer of 0 per cent, while the alternative method gives a buffer of 0.75 per cent. Similarly, the standard method gives a buffer of 1.25 per cent in Sweden, while the alternative method gives a buffer of 1.75 per cent (see Chart B1:5). At present, the alternative method is preferable, as it is not deemed to give as misleading a view of the risks as the standard method. On the other hand, none of the alternative methods for calculating the trend are able to solve the fundamental statistical problem that a long-term increase of the credit-to-GDP ratio risks resulting in the trend catching up with the latest outcome.

Other indicators also show significant cyclical systemic risks

As individual indicators, including the credit gap, can give a misleading view of the risks, it is important to use several different indicators to analyse cyclical systemic risks. Other quantitative indicators also confirm that the cyclical systemic risks are significant. For example, the increased lending from the banks has largely been funded by non-stable funding. The increase in credit granting funded by non-stable funding indicates that the vulnerability of the banking system has increased. The fact that property prices have increased over a longer period of time is another sign of cyclical systemic risks (see Chart B1:6).[31] The increase of property prices over a longer period is another sign of cyclical systemic risks (see Chart B1:7).[32]

In addition, an overall assessment of the risks linked with household indebtedness, not least in light of the vulnerabilities present in the Swedish financial system (see Chapter 1), leads to the conclusion that the countercyclical buffer should be activated and set at a relatively high value. However, even if 2.5 per cent is not the highest permitted value for the countercyclical buffer, there is reason not to initially choose a buffer rate above 2.5 per cent, particularly as other increases of the banks' capital requirements have recently been carried out or planned.

As regards the future deactivation of the buffer, assessments will play an even more important role than during activation. It is important to note that there is no empirical support to suggest that the credit gap could be an appropriate indicator for the deactivation of the buffer. So even if the credit gap continues to narrow, it would not be unreasonable to leave the buffer rate unchanged until the risks are deemed to have decreased significantly or until a crisis occurs.

Even if assessments will be important for deactivation, indicators will provide some help. While indicators for activation should warn of risks in good time before a crisis occurs, indicators for deactivation must instead reflect financial stress in conjunction with a crisis. The

[31] Hahm, Shin-ik, Shin, Hyun Song and Shin, Kwanho, 2013, Non-Core Bank Liabilities and Financial Vulnerability, *Journal of Money, Credit and Banking,* 45(S1), pp. 3–36.
[32] See, for example, Drehmann, Mathias, and Borio, Claudio, (2009), Assessing the Risk of Banking Crises – Revisited, *BIS Quarterly Review,* pp. 29-46.

purpose of deactivating the buffer in a financial crisis is to allow the banks to absorb losses without needing to tighten credit granting.

One example of an indicator that could be used as a starting point for assessments in conjunction with future deactivation is the Riksbank's index for financial stress.[33] A high level of financial stress would indicate that the buffer should be deactivated. Another indicator that could be used in deactivation is a systemic risk indicator that can indicate how likely it is that banks in the Swedish banking system will become distressed in the short term.[34] A high level of probability for problems in the banking sector would indicate that the buffer should be deactivated. According to both the Riksbank's index for financial stress and the systemic risk indicator, the Swedish buffer should have been been decreased or deactivated during the financial crisis of 2008–2009.[35]

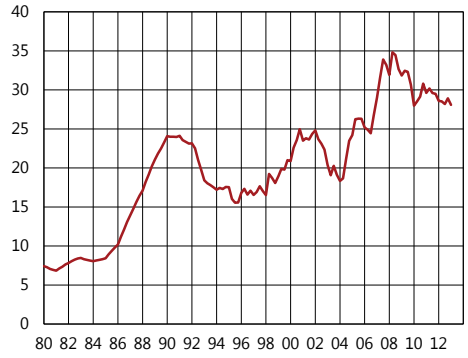
Effects on the banks' capital requirements, lending rates and GDP

The effect of a Swedish countercyclical capital buffer on the Swedish banks' capital requirements on the group level is limited as the Swedish buffer is only applied to the banks' exposures in Sweden. On average, the major Swedish banks have about one-third of their risk exposure amount in Sweden. Consequently, a Swedish buffer requirement of 2.5 per cent, for example, for exposures in Sweden should only entail an average buffer requirement of just less than one per cent of risk exposure amount for the major Swedish banks at the group level. This is of the same magnitude as the Norwegian countercyclical buffer requirement of one per cent that will be applied to the Norwegian banks' total exposures and not just on exposures in Norway.[36]

In addition, Finansinspektionen has announced that the countercyclical buffer rate will affect the capital requirement related to the risk-weight floor for Swedish mortgages.[37] For example, a countercyclical buffer rate of 2.5 per cent would entail an increase of the capital requirement for the major Swedish banks of about SEK 37 billion, of which SEK 26 billion are the countercyclical buffer requirement and SEK 11 billion are the extra Pillar 2 requirement associated with the risk-weight floor.

All in all, a countercyclical buffer rate of 2.5 per cent for exposures in Sweden would entail an average increase of the capital requirement of just over 1 per cent of risk-weighted exposure amounts for the major Swedish banks on the group level (see Table B1:1). However, it is important to note that the increase of the capital

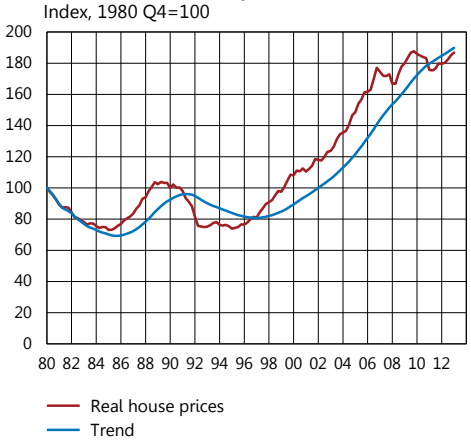
Chart B1:6 Credit funded by non-stable funding
Per cent of GDP



Note. Credit funded with non-stable funding is defined as the difference between total credit and credit funded with stable funding. Total credit is defined as monetary financial institutions' lending to the private non-financial sector. Credit funded with stable funding is calculated as credit funded by deposits from the public, long-term market funding from the private non-financial sector and equity. The series is shown in relation to GDP. GDP is in nominal terms and is defined as the sum of GDP for the four last quarters.

Source: The Riksbank

Chart B1:7 Real house prices and statistical trend
Index, 1980 Q4=100



Note. Real house prices are defined as Statistics Sweden's real estate price index deflated by the CPI. The statistical trend is calculated using a one-sided HP filter with the smoothing parameter equal to 400,000.

Source: The Riksbank

[33] Johansson, Tor and Bonthron, Fredrik, Further development of the index for financial stress in Sweden, *Sveriges Riksbank Economic Review 2013:1,* Sveriges Riksbank.
[34] Jönsson, Kristian, A systemic risk indicator for the Swedish banking system, *Economic Commentary no. 7,* 2011, Sveriges Riksbank.
[35] Juks, Reimo and Melander, Ola, (2012) Countercyclical capital buffers as a macroprudential policy instrument, *Riksbank Studies.* Sveriges Riksbank.
[36] According to the European capital adequacy regulations, Sweden cannot choose to apply the countercyclical buffer to exposures outside Sweden.
[37] Finansinspektionen's memorandum Capital requirements for Swedish banks, May 2014.

requirement in relation to the banks' total assets is very limited. A buffer rate of 2.5 per cent would only entail an increase of the capital requirement from 3.2 per cent to 3.4 per cent of total assets.

Table B1:1 Capital requirements under various countercyclical buffer rates

	Common Equity Tier 1 requirements for the major Swedish banks		
Countercyclical buffer rate, per cent	SEK billion	Per cent of risk exposure amount	Per cent of total assets
0.0	405	13.7	3.2
0.5	412	13.9	3.3
1.0	420	14.2	3.3
1.5	427	14.4	3.4
2.0	434	14.7	3.4
2.5	442	14.9	3.4

Note. The table shows how major Swedish banks' total Common Equity Tier 1 requirements, including Pillar 2 requirements linked to the risk-weight floor for mortgages, would vary under different rates for a Swedish countercyclical buffer requirement. This requirement is also placed in relation to the major banks' total risk exposure amount and total assets on the balance sheet. Calculations have assumed a Common Equity Tier 1 requirement in accordance with the agreement reached between the Riksbank, Finansinspektionen and the Ministry of Finance on 12 per cent of risk exposure amount and a risk-weight floor for Swedish mortgages of 25 per cent. Other Pillar 2 requirements have been omitted from the calculations.

The risk is also slight that small and medium-sized enterprises, which are dependent on funding from the banks, would be impacted by major negative effects should the buffer be activated. At present, the banks have good possibilities of meeting increased capital requirements without having to tighten credit granting. Questionnaire surveys report that access to credit does not form a major obstacle to the expansion of small companies either.[38]

Higher capital requirements could mean that lending would become less profitable for the banks and that lending rates would increase. As for the corporate sector as a whole, a countercyclical buffer of 2.5 per cent could entail an increase in lending rates of about 0.2 percentage points at most.[39] However, if risk for shareholders and other financiers decreases as capital adequacy improves, the banks' yield requirements and borrowing costs should decrease. In this case, the increase in lending rates should also be smaller.

The increase in lending rates could dampen GDP, which would be a negative side-effect of the countercyclical buffer.[40] However, the effects of increased capital requirements on lending rates and GDP are uncertain. This is largely due to how the banks choose to act. Empirical studies show that an activation of the capital buffer could have a certain dampening effect on economic activity, but that a deactivation, in times of stress, would seem to have a significant positive effect on economic activity.[41]

[38] Småföretagarbarometern, Swedbank, autumn 2013.
[39] The calculation is based on assumptions of unchanged yield requirements for the banks of 15 per cent, unchanged borrowing costs for the banks and the allocation of the banks' costs on the basis of risk weights.
[40] Jonsson, Magnus, and Moran, Kevin, The linkages between monetary and macroprudential policies, *Sveriges Riksbank Economic Review 2014:1,* Sveriges Riksbank, for an analysis of the effects on economic activity and a discussion of the trade-off between the objectives of macroprudential policy and those of monetary policy.
[41] Jiménez Gabriel et al., 2012, Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments, Barcelona GSE Working Paper No. 628.

Apart from building resilience in the banking sector, a positive side-effect of an activated countercyclical buffer could be a dampening of credit granting to households. However, this effect is deemed to be very minor at present

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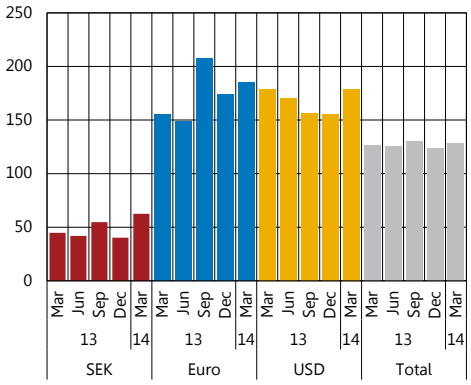
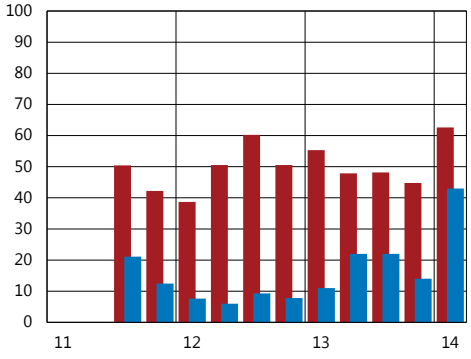
Liquidity coverage ratio in Swedish krona

Chart B1:8 The major Swedish banks LCRs
Per cent



Sources: Finansinspektionen and the Riksbank

Chart B1:9 The major Swedish banks average and lowest LCR levels in Swedish krona
Per cent



Note. Refers to the quarterly average of the major Swedish banks' reported LCR levels per month and the quarter's lowest reported LCR level for a single bank.

Sources: Finansinspektionen and the Riksbank

It is important that banks themselves are well able to cope with brief periods of financial stress in which access to funding in Swedish krona is temporarily limited. The Riksbank considers that a liquidity coverage ratio (LCR) requirement in Swedish krona should be introduced so that the Swedish banks are better equipped to deal with stress on the financial markets.

The ability of the banks themselves to cope well with brief periods of liquidity stress improves financial stability and confidence in the financial system. If their ability to do so is limited, there is instead a greater likelihood that the Riksbank will need to add liquidity to the financial system. Such an intervention is always possible in Swedish krona but carries the risk of moral hazard and thus potential social costs if the banks expect to receive such support to too great an extent. The costs can to some extent be internalised in the banking system by requiring the banks to self-insure against liquidity stress. An LCR requirement is one form of such insurance as the banks themselves will need to hold liquidity buffers.[42]

The LCR is a measure of the resilience to liquidity stress and sets a bank's liquidity buffer in relation to stressed net cash outflows over a short period of time. In recent years, Swedish banks have built up large liquidity buffers in foreign currencies and they now report relatively high LCRs in euros and US dollars and in all currencies together (see Chart B1:8). In the measure, the banks' liquidity buffers must be largely made up of central bank holdings and government bonds, so-called level 1 assets. In addition, a smaller part of the buffers may consist of level 2 assets. These include covered bonds.

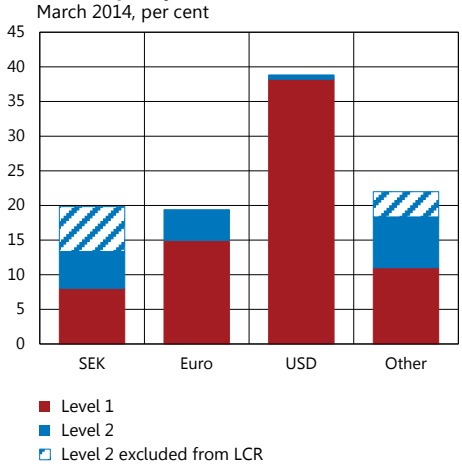
The Swedish banks' low, and sometimes extremely low, LCR levels in krona (see Chart B1:9) can be explained by the fact that their holdings of level 1 assets in Swedish krona are very small (see Chart B1:10). This makes the LCR levels sensitive to fluctuations in cash outflows. As there are no requirements regarding LCR in krona, the banks can choose to meet the total LCR requirement with liquid assets in euro and US dollars. The banks also do this partly because they currently have very favourable funding conditions in these currencies and can therefore hold large large liquidity buffers at low cost. In order to be able to cope with larger outflows in Swedish krona, the banks rely on assets that are not fully taken into account in the LCR, mainly covered bonds, or on converting foreign currencies into krona on the currency-swap market.

[42] See for example Solow, Robert M (1982), On the lender of last resort. In Goodhart, Charles and Illing, Gerhard. (eds), *Financial crises, contagion, and the lender of last resort.* Oxford University Press.

In normal cases these approaches work well, but relying on them almost entirely may make the banks vulnerable to situations in which the markets do not work well. The most recent financial crisis demonstrated that both the functionality of the currency-swap market and the liquidity for covered bonds can quickly deteriorate. Even if the currency-swap markets work relatively well, individual banks may be associated with a heightened level of counterparty risk and therefore have trouble finding currency swap counterparties.

To strengthen resilience to liquidity stress in Swedish krona, the Riksbank considers that an LCR requirement in Swedish krona should be introduced as a complement to the current LCR requirements.

Chart B1:10 Distribution of the major Swedish banks' liquidity buffers
March 2014, per cent



Note. Level 1 assets consist mainly of central bank investments and government bonds. Level 2 assets consist mainly of covered bonds. When the LCR is calculated, level 2 assets may comprise a maximum of 40 per cent of the total liquidity buffer, which means that around half of the blue column referring to SEK is excluded.

Sources: Finansinspektionen and the Riksbank

LCR in krona complements liquidity regulations

The Riksbank has previously argued for separate LCR requirements in euros and US dollars against the background of the Swedish banks' dependence on short-term market funding in foreign currencies. Market funding in Swedish krona is, on the other hand, usually long term. To a certain extent the outflows in LCR in krona arise when market funding falls due, but also due to the banks converting a substantial part of their dollar funding to krona in short-term currency swaps. When these fall due they lead to outflows in Swedish krona. When calculating the measure it is also assumed that part of a bank's deposits disappear during periods of stress. It is important that the banks are well able to cope with short-term liquidity stress in krona even though short-term market funding in krona is not extensive.

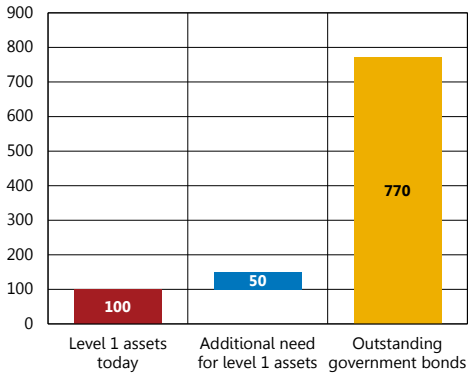
The banks' future funding conditions in euro and dollar are also a reason to introduce an LCR requirement in krona. In the long term, it will probably become less attractive for Swedish banks to hold liquidity buffers in the form of central bank holdings with the Federal Reserve and the European Central Bank. This is because funding conditions in foreign currencies will become less favourable as the central banks' liquidity support measures are phased out. Even if there will continue to be requirements that the LCR should not fall below 100 per cent in euros and dollars, it is not unlikely that the banks' LCR levels in these currencies will be significantly lower than today. The banks may then choose to hold larger liquidity buffers in Swedish krona. If the banks instead choose to own assets that are less liquid and more difficult to convert to krona than dollars and euros during periods of financial stress, their resilience to liquidity stress may weaken.

Government bonds are considered to be among the most liquid assets in Swedish krona,[43] which offers the banks good opportunities to acquire means of payment directly by selling these bonds on the market for Swedish krona. An LCR in krona would require

[43] Central bank holdings in terms of fine-tuning operations and Riksbank certificates are the most liquid assets in Swedish krona, but the supply is limited to the size of the banking system's structural liquidity surplus in relation to the Riksbank. This currently amounts to around SEK 55 billion.

Chart B1:11 The major Swedish banks' need for additional level 1 assets to reach an LCR in krona of 60 per cent, compared to outstanding government bonds

SEK billion



Note. Level 1 assets mainly comprise Swedish government bonds, but may also comprise central bank investments and other securities with public guarantees issued in krona. Outstanding government bonds refers to the market value of nominal government bonds and treasury bills in krona. The figures are rounded off to the nearest ten.

Sources: Finansinspektionen, the National Debt Office and the Riksbank

government bonds to be included in the banks' liquidity buffers, which would make the banks less dependent on a well functioning swap market and on covered bonds to manage periods of stress. An LCR requirement would also entail some incentives for the banks to prolong the maturity of their funding, as this is a way to reduce the net cash outflows calculated in the LCR. High net cash outflows weaken the LCR and it is therefore positive for the banks' LCRs if these outflows can be reduced.

The supply of Swedish government bonds is limited

The major Swedish banks' holdings of Swedish level 1 assets averaged approximately SEK 100 billion over the last 12 months. Most of these holdings are government bonds. Assuming that the banks were to meet an LCR requirement in krona of 100 per cent only by purchasing more government bonds, the Riksbank's estimate is that the major Swedish banks' would need Swedish government bonds to an amount totalling just over SEK 250 billion.[44] This should be compared to the total outstanding amount of government bonds and bills in krona of approximately SEK 770 billion. Such a large increase in demand in relation to the supply could reduce liquidity on the government bond market if too large a proportion of the outstanding amount of bonds becomes "locked into" the banking system.

It is therefore important that an LCR requirement in krona is introduced at such a level that the increased demand does not disrupt the functioning of the government bond market. The possibility that the banks choose to meet an LCR requirement in krona at the expense of the LCR requirements in foreign currencies should also be taken into account. Over the last 12 months, the major banks' average LCR in krona has fluctuated between 40 and 60 per cent, with an average of approximately 50 per cent – somewhat simplified, this means that the banks' resilience measured in terms of liquidity buffers in krona is sufficient to cope with approximately 15 days of stressed outflow in krona. An LCR requirement of 60 per cent would mean that the banks, assuming that they would meet the requirement only by purchasing more government bonds, would need to increase their holdings by a further SEK 50 billion[45] to a total of approximately SEK 150 billion (see Chart B1:11). The Riksbank's assessment is that this increase will not affect the functioning of the government bond market. In addition, the Riksbank assesses that the effects on the banks' LCRs in foreign currencies will be limited, even if the increase in Swedish krona takes place entirely at the expense of the LCRs in foreign currencies.

[44] It is probable that the introduction of an LCR requirement in krona would also lead to the banks reducing their outflows over a period of 30 days. The banks would then not need to hold as high an amount of government securities for a given LCR level.

[45] This assessment is based on monthly data from and including January 2013 and relates to an average of the aggregate need for additional level 1 assets to reach an LCR of 60 per cent in krona. The estimated need for additional government bonds may vary from time to time. The figure should thus be regarded as a guideline.

Apart from preventing the banks from returning to the very low LCR levels in krona that have previously been observed, a level of 60 per cent would also mean that the banks would need to increase their LCR levels in krona from the levels they are at today.

2. Financial markets

Developments in the financial markets continue to be supported by the expansionary monetary policy conducted in several countries. The low interest rates and the historically-low volatility on the bond and equity markets are contributing to investors still seeking higher-risk investments, such as corporate bonds, to obtain higher returns. Government bond yields have fallen in the euro area countries with sovereign debt problems, which indicates that investors are taking a positive view of developments there even though structural problems remain. Funding costs for the banks in the euro area countries with sovereign debt problems have fallen in relation to banks in countries such as Sweden and Germany. At the same time, the yields on Swedish banks' bonds remain low and stable. The developments in Ukraine and Russia have so far had only a limited impact on the Swedish financial markets.

Swedish banks and firms are active on global financial markets and are dependent on these for their funding and risk management. Developments on these markets are thus important for assessing the stability of the Swedish financial system. In this chapter, we therefore describe both general developments on the financial markets and developments on markets of particular importance for the funding of Swedish banks and firms.

Developments on the financial markets

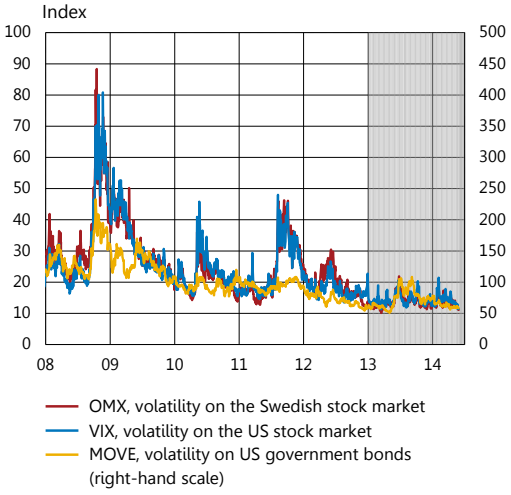
CENTRAL BANK OPERATIONS ARE STILL AFFECTING DEVELOPMENTS ON THE FINANCIAL MARKETS

Financial stress in the euro area is on the same level as last autumn, according to the European stress index. However, the index rose temporarily at the beginning of the year in connection with a severe currency depreciation in several emerging market economies and the situation in Russia and Ukraine intensifying (see Chart 1:1). The Riksbank's Swedish stress index has fallen since last autumn, which indicates that the stress on the Swedish financial markets has declined further (see Chart 1:2).

The global economic recovery continues. This is noticeable in the United States, the euro area and the United Kingdom, where growth is continuing to strengthen. The economic recovery is making it possible for some central banks to conduct a somewhat less expansionary monetary policy. At the same time, there are signs of emerging market economies contributing to global growth to a somewhat lesser extent than before. For instance, the Chinese economy is showing signs of slowing down. All in all, however, global growth is expected to strengthen in the coming years.

The Federal Reserve has reduced its monthly asset purchases of US government and mortgage bonds without this having any greater impact on the financial markets. The decisions to reduce asset purchases from USD 85 billion per month to USD 45 billion were taken because a lasting improvement in the US labour market had been discerned. Reactions to this have been much more subdued than was the case in May 2013, when expectations of

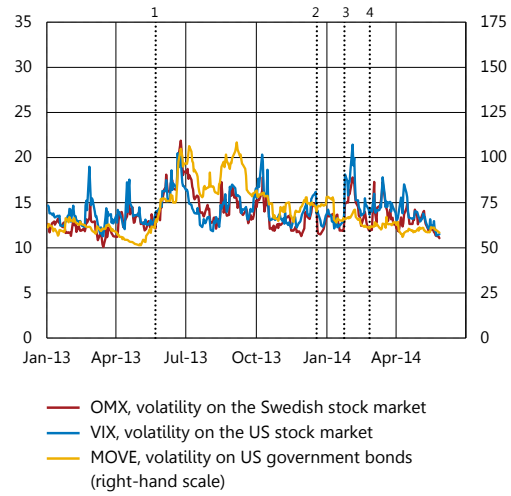
Chart 2:1 Expected volatility on the bond and stock markets



Note. The chart shows the expected volatility during the coming 30 days that can be derived from the pricing on the options market.

Sources: Reuters EcoWin and the Riksbank

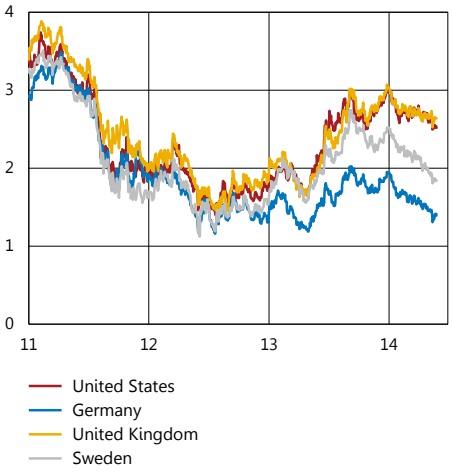
Chart 2:2 Expected volatility on the bond and stock markets



Note. The chart shows the grey area in Chart 2:1. Figures 1–4 in the chart refer to the dates of the following events: 1. Federal Reserve talks about tapering asset purchases. 2. Federal Reserve decides to reduce asset purchases 3. The central banks in Argentina and Turkey intervene on the foreign exchange market. 4. Russia initiates a military exercise on the Ukrainian border.

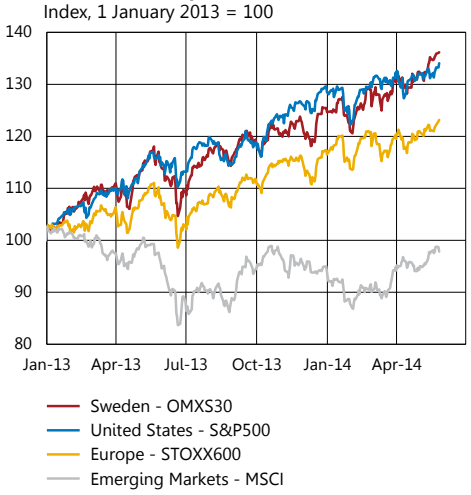
Sources: Reuters EcoWin and the Riksbank

Chart 2:3 Ten-year government bond yields
Per cent



Source: Reuters EcoWin

Chart 2:4 Developments on the stock market
Index, 1 January 2013 = 100



Sources: Bloomberg and the Riksbank

Chart 2:5 The difference between the yield on European corporate bonds and German government bonds.
Percentage points

Note. The chart shows the difference between the yields for ten year corporate bonds with a certain credit rating and a German government bond with a corresponding maturity.

Sources: Reuters EcoWin and the Riksbank

reduced asset purchases led to increased volatility on both the equity and bond markets (see Chart 2:1 and Chart 2:2).[46] Long-term government bond yields initially rose for example in the United States and in Sweden after the announcement of reduced asset purchases, but have since then fallen again (see Chart 2:3). If the Federal Reserve continues to reduce asset purchases at the present pace, they will be wound up in the autumn of 2014.

The continued low-interest rate environment is contributing to investors' demand for higher-risk assets in order to obtain higher return. The historically low volatility on the bond and stock markets also contributes to this development (see Chart 2:1). Among other effects, this behaviour has resulted in rising equity prices and lower yields on for instance corporate bonds, for example (see Chart 2:4 and Chart 2:5). In Europe, issue volumes of corporate bonds with lower credit worthiness have increased markedly as demand has increased.[47] Furthermore, companies in the United States are continuing to issue these types of bonds. There has also been an increase in demand in the United States for other types of debt instrument, such as securitised loans.[48] The measures adopted by the central banks in several countries have thus had the intended effect.[49] This is because low interest rates and increased risk-taking make it easier for governments, firms and households to strengthen their balance sheets, among other ways by contributing to lower funding costs.[50,51] An extended period of low interest rates could, however, lead to excessive risk-taking among financial participants, firms and households, and to various types of assets becoming overvalued, which increases the vulnerability of the financial system.[52]

Swedish companies also benefit from investors' increased demand for higher-risk assets. For example, investments in corporate bond funds have continued to increase and during 2012 and 2013 the net inflow to these funds totalled close to SEK 40 billion.[53] Indicative prices on the secondary market show that the risk premiums has continued to fall as a result of this (see Chart 2:6). Participants in the Swedish fixed-income market state in the Riksbank's most recent risk survey that interest in corporate bonds has increased among both investors and issuers.[54] Although issue

[46] One explanation for the subdued reactions could be that the Federal Reserve made it clear that its policy rate would remain unchanged at its current low level for a long time to come. Given that they continue to taper the asset purchases at the same pace at each coming meeting, they will also buy bonds for a further USD 300 billion during 2014.
[47] Lower credit ratings, which are often referred to as High-Yield, refer to bonds issued by companies with a credit rating lower than BBB- (S&P and Fitch), Baa3 (Moody's) or a corresponding credit assessment from banks.
[48] *Global Financial Stability Report*, April 2014, International Monetary Fund (IMF).
[49] Expected tapering off of the Federal Reserve's asset purchases, *Monetary Policy Report*, October 2013, Sveriges Riksbank.
[50] The central banks in developed economies in particular are keeping their policy rates low. In several countries, the central banks are also making use of extraordinary measures, such as asset purchases.
[51] *Global Financial Stability Report*, April 2014, International Monetary Fund (IMF).
[52] See, for example, Johansson, Tor, Search for yield in a low-interest rate environment, *Economic commentary no. 4*, 2013, Sveriges Riksbank or *Trends, Risks, Vulnerabilities*, No. 1, 2014, European Securities and Markets Authority.
[53] Statistics from Morningstar show that both the number of funds and their wealth have increased steadily in recent years.
[54] *Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets, spring 2014*, Sveriges Riksbank.

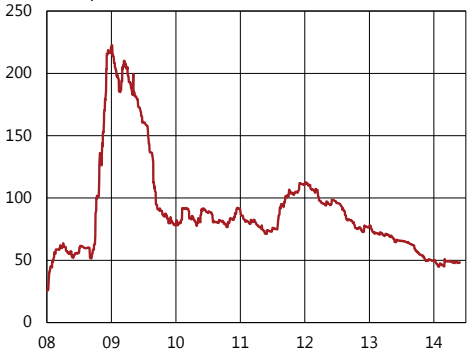
volumes were somewhat lower in 2013 than in 2012 (see Chart 2:7), they are high from a longer-term perspective and firms are increasingly using corporate bonds for funding (see Chart 3:13). Large Swedish firms with higher credit ratings still account for the major part of the issued volumes.[55] However, the number of companies choosing to issue bonds has grown substantially in recent years (see Chart 2:7). As in Europe, issuance of corporate bonds with lower credit ratings has also increased in Sweden. There are also more firms without credit ratings issuing bonds.[56]

Developments on the foreign exchange market have been turbulent in several emerging market economies. For the affected economies, the currencies began to gradually weaken as early as 2013 (see Chart 2:8), partly because capital inflows decreased when investors started to expect a less expansionary monetary policy in the United States. In January this year, capital inflows declined further and currencies again weakened substantially. However, developments this year can largely be explained by the fact that several of these countries are facing political and structural economic problems that have led investors to sell of their investments.[57] Investors' demand for higher-risk investments has previously contributed to capital inflows to these countries, but as these investments have been divested, the currencies have weakened. Measures by the central banks in several of these countries have now contributed to stabilising developments on the foreign exchange market.[58] The Ukrainian currency, on the other hand, has continued to weaken as the geopolitical conflict with Russia has worsened. However, this development has so far had limited effects on the financial markets outside of these countries (see Chart 2:2), even though the stress index for Europe rose temporarily (see Chart 1:1).

THE RECOVERY IN THE EURO AREA IS CONTINUING

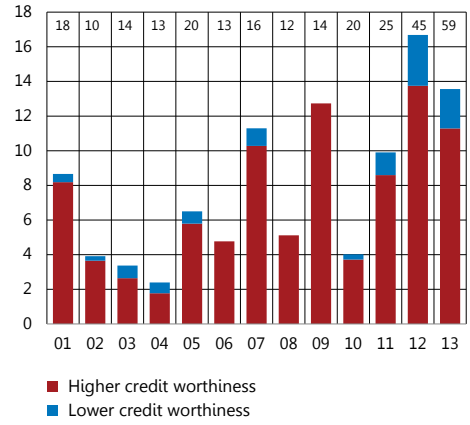
Investors' willingness to invest in the euro area countries with sovereign debt problems has increased.[59] This is reflected by borrowing costs for these countries, which have fallen since last autumn and are now on low levels seen from a longer perspective (see Chart 2:9). A further effect is that imbalances in the ECB's payment system, Target 2, have decreased (see Chart 2:10).[60] The fact that both Ireland and Portugal have concluded their economic

Chart 2:6 Risk premiums for Swedish corporate bonds
Basis points



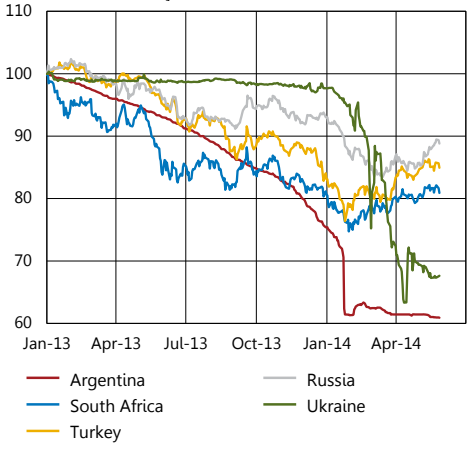
Note. The index is based on indicative prices on the secondary market and reflects the difference between the average yield on a selection of Swedish corporate bonds and an interest rate swap with a corresponding maturity.
Source: NASDAQ OMX

Chart 2:7 Issued volumes for Swedish corporates, regardless of currency and number of issuers
EUR billion and number



Note. The figures at the upper edge of the chart show the number of unique issuers during the respective year.
Sources: Dealogic and the Riksbank

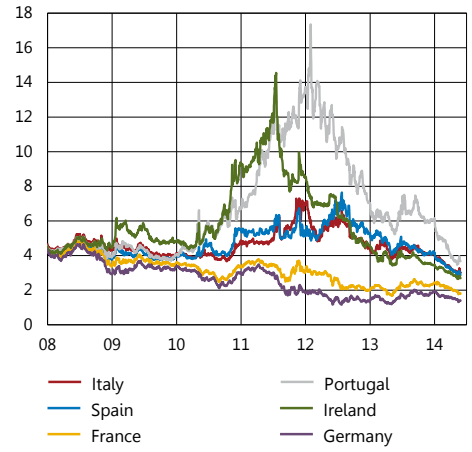
Chart 2:8 Emerging market economies' exchange rate against US dollar
Index, 1 January 2013 = 100



Sources: Bloomberg and the Riksbank

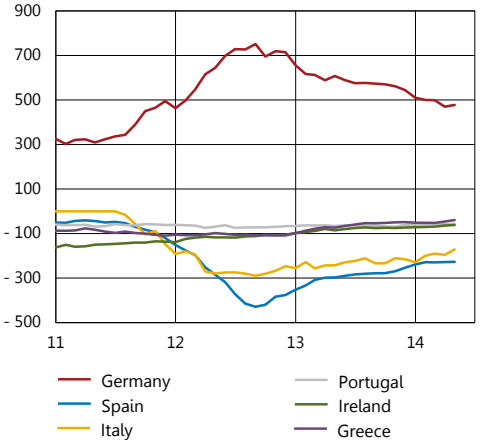
[55] Statistics from Dealogic show that the ten largest issuers in 2013 accounted for just over 55 per cent of the total issue volumes. The ten smallest issuers accounted for almost two per cent of the volumes.
[56] During 2012 and 2013, companies without credit ratings accounted for almost half of the issue volumes. Between 2007 and 2011, these companies accounted for between 0 and 20 per cent of the volumes.
[57] The countries show different weaknesses, such as large current account deficits, large public sector deficits, domestic capital markets that function poorly and political instability. See *Monetary Policy Report*, February 2014, Sveriges Riksbank.
[58] In India, South Africa and Turkey the central banks raised their policy rates. The most tangible increase was from 4.5 per cent to 10 per cent by the Turkish central bank, which also intervened on the foreign exchange market. In Argentina, they relaxed the capital controls and the central bank intervened by purchasing currency. At the same time as measures such as higher policy rates from the central banks can have the desired effect on capital flows, they can, however, also dampen domestic consumption and thus have a tightening effect the domestic economy.
[59] Euro area countries with sovereign debt problems here means Greece, Ireland, Italy, Portugal and Spain.
[60] Target 2 is the ECB's system for payments between banks and central banks in the euro area. If a country's net position shows a deficit, this means that the its liabilities towards other countries exceed its claims in the payment system.

Chart 2:9 Ten-year government bond yields
Per cent



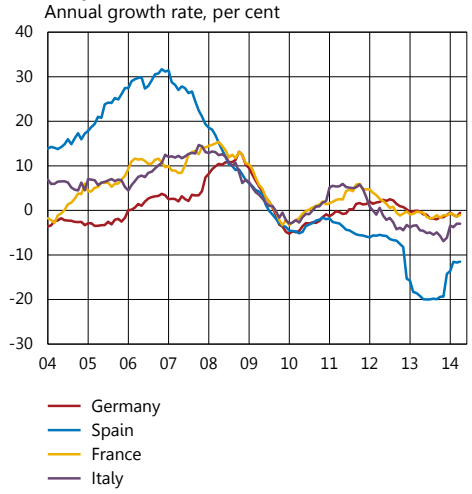
Source: Reuters EcoWin

Chart 2:10 Balances in Target 2
EUR billion



Sources: Bloomberg and the Riksbank

Chart 2:11 The banks' lending to non-financial companies
Annual growth rate, per cent



Source: ECB

support programmes with the troika and have returned to the bond market has contributed to demand among investors.[61] Spain has concluded the economic support programme with the other euro area countries that was aimed at the country's banking system. Both Ireland and Spain have since had their credit ratings upgraded.[62] Greece has also been given a higher credit rating and during the spring has issued government bonds for the first time since 2010.

Although developments in the euro area have been positive on the whole, and competitiveness between the countries has evened out somewhat, certain structural problems remain. Several countries are still weighed down by large and growing public debts.[63] There are also a number of questions remaining with regard to the reform work in some countries. In Portugal, for example there is uncertainty regarding whether the government can implement the necessary reforms. In Greece, the most recent economic support payment from the troika was delayed due to a failure between the parties to reach an agreement over the country's funding and reform requirements. Although the prospects for the euro area have improved, it is not possible to rule out the possibility that remaining structural problems and failure to implement the necessary reforms could lead to renewed financial stress.

The banks in the euro area are continuing to strengthen their core Tier 1 capital ratios. The banks have achieved this by reducing their lending and by retaining more core Tier 1 capital, among other measures.[64] At the same time, there remains uncertainty over the quality of their assets. The percentage of impaired loans is continuing to increase in the Spanish, Italian and Portuguese banks.[65] One explanation for this is that the terms for how the banks may classify their loans ahead of the ECB's coming evaluation of the quality of European banks' assets, which is to be completed in October, have been tightened.[66]

The banks' credit issuance to companies differs between countries in the euro area. Although the differences have declined, lending to non-financial companies in euro area countries with sovereign debt problems is still lower than in, for instance, Germany and France (see Chart 2:11). Companies in the countries with sovereign debt problems also face higher interest rates.[67] At the same time, the banks in Europe, on the whole, state that companies'

[61] The so-called troika of international lenders comprises representatives of the European Commission, the ECB and the International Monetary Fund (IMF).
[62] Portugal and Italy have been given improved prospects for their ratings.
[63] See also the article Adjustments in the euro area: an update. *Monetary Policy Report*, February 2014, Sveriges Riksbank.
[64] *Global Financial Stability Report*, April 2014, International Monetary Fund (IMF).
[65] This is indicated by data from the national central banks.
[66] For further information on the ECB's review, see the box Testing the banks in every EU country.
[67] Statistics from the ECB show that the interest rates on bank loans to non-financial companies are much higher in Italy and Spain than in France and Germany. This could, to some extent, be explained by the banks' funding costs differing from one country to another. However, the lending rates have not fallen in the same way as the funding costs.

demand for loans is relatively weak.[68] One explanation could be that large companies are using market funding to an increasing extent. However, small and medium-sized enterprises that do not have access to this type of funding are still dependent on bank loans. This category of company states that their demand for loans has increased, but that the banks' willingness to lend has declined somewhat. This development risks leading to a lack of new investments and the economic recovery being more prolonged, which in turn could lead to increased unease on the financial markets.[69]

Markets that are important for the banks' funding

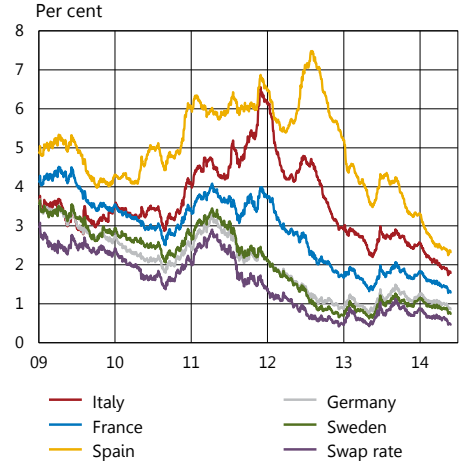
BETTER FUNDING CONDITIONS FOR BANKS IN THE EURO AREA

The cost of funding through covered bonds has declined for banks in the euro area countries with sovereign debt problems. The cost of funding has declined more for these banks than for banks in the core countries.[70] But banks in the core countries still face much lower interest rates (see Chart 2:12). The cost of hedging credit losses through CDS contracts has also fallen for the banks in the euro area countries with sovereign debt problems (see Chart 2:13). This could be due to investors assessing that the risk associated with investing in them has declined. But it could also be due to investors demanding less compensation for the risk, for instance due to demand for higher return. So far in 2014, the European banks have taken advantage of the lower funding costs by issuing larger volumes of bonds than in 2012 and 2013.[71]

Many banks in the euro area are still dependent on loans from the ECB, however. They are still repaying the three-year loans totalling EUR 1,020 billion (LTRO) given by the ECB around the turn of the year 2011.[72] But although the rate of repayment has increased somewhat while the cost of wholesale funding has declined, the banks – particularly those in the euro area countries with sovereign debt problems – are still using funding from the ECB.[73]

Swedish banks continue to obtain funding at low costs. This is evident from the yields on the major Swedish banks' covered bonds issued in Swedish krona, which have fallen somewhat since last autumn. At the same time, the difference between the yield on these bonds and the swap yield, the yield often used to estimate the risk-

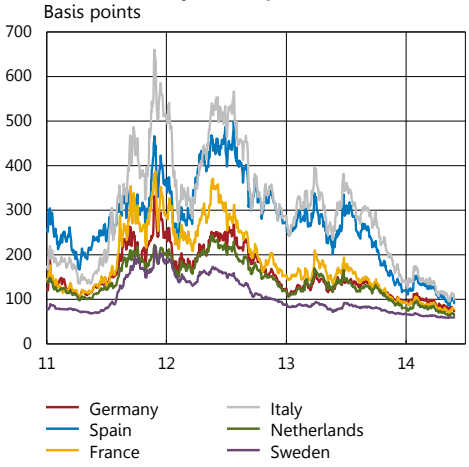
Chart 2:12 Covered bond yields and the swap rate
Per cent



Note. The chart shows the yield on covered bonds and the four year interest rate swap corresponding most closely with the maturity of the covered bonds.

Sources: Barclays Research and Bloomberg

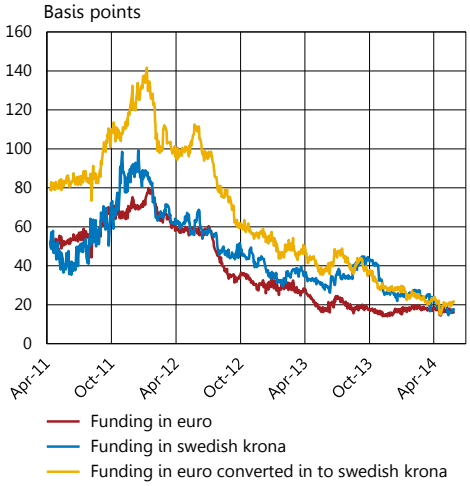
Chart 2:13 Five-year CDS premiums for banks
Basis points



Note. The chart refers to a selection of major banks in the respective country.

Sources: Bloomberg, Reuters EcoWin and the Riksbank

Chart 2:14 Swedish banks' funding cost via covered bonds
Basis points

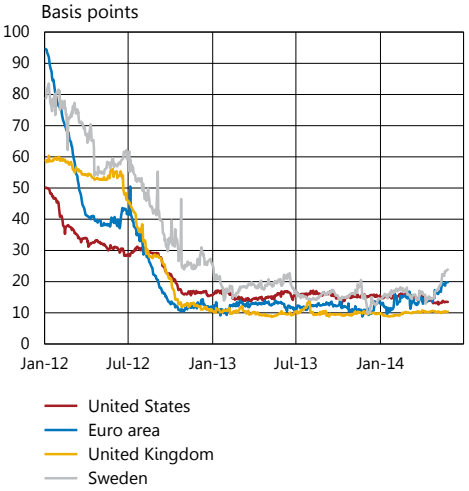


Note. The chart shows the banks' cost for issuing covered bonds in SEK, in EUR and in EUR that is then converted into SEK.

Sources: Bloomberg and the Riksbank

[68] *The Euro Area Bank Lending Survey 4th quarter of 2013* and *the Euro Area Bank Lending Survey 1st quarter of 2014*. ECB.
[69] The European Commission estimates in the report *Finance for Growth* December 2013, that small and medium-sized enterprises employ a good two-thirds of the labour force and account for around half of corporate sector investment in Europe.
[70] Core countries here refers to Germany, France, Sweden and Norway.
[71] Data from Dealogic indicates that average issue volumes per month in 2014 have been higher than in 2012 and 2013.
[72] The European banks have repaid approximately EUR 535 billion.
[73] In addition to the three-year LTRO loans, the funding from the ECB includes loans with one week's maturity (Main Refinancing Operations) and LTRO loans with three-month maturities.

Chart 2:15 The risk premium on the interbank market
Basis points



Note. The risk premium for Sweden is calculated as the difference between the three-month Stibor and the overnight index swap (STINA).

Sources: Bloomberg and the Riksbank

free interest rate, is still largely unchanged.[74] This is a sign that investors are demanding the same compensation for investing in these bonds as previously and that the lower yields on covered bonds instead reflect a lower general interest rate environment. At the same time, it costs roughly the same for the banks to issue bonds in euro and convert them into Swedish krona as it does to issue directly in krona (see Chart 2:14).

Risk premiums on the interbank markets are still low. One explanation for this is that the continued expansionary monetary policy increases the liquidity in the banking systems. In the euro area, the liquidity in the banking system has varied, partly because of how much of the LTRO loans the banks are repaying. As a consequence, pricing on the interbank market has also varied (see Chart 2:15). Although the risk premiums in the euro area have risen somewhat, they are still at low levels seen from a long-term perspective. In Sweden, issuances of the Riksbank's weekly certificates have been fully subscribed on a couple of occasions. As the liquidity in the banking system varies depending on the investments in these certificates, the volatility and interest rate level of the short-term interbank rate Stibor T/N has occasionally risen.[75] Swedish interbank rates with longer maturities have only risen to a limited extent on a few occasions in connection with this, which indicates that the overall effect on the banks' funding costs has been limited.

[74] The fixed rate in an interest rate swap is often used by market participants to estimate the risk-free rate. An interest-rate swap is an agreement between two parties to exchange interest payments over a certain period of time. Usually, one party pays a fixed rate and receives a variable rate in exchange. As the parties in an interest-rate swap are exposed to each other, interest-rate swaps are associated with a certain amount of counterparty risk. However, interest-rate swaps are associated with low risk as the parties entering the swap contract make frequent settlements and pledge collateral, meaning that they do not have such large exposures to one another.
[75] Stibor T/N (Tomorrow/Next) is the shortest Swedish interbank rate and refers to loans from tomorrow until the following day.

Stibor revisited

The Riksbank has long monitored the Swedish reference rate Stibor.[76] Since 2012, when the Riksbank published recommendations on Stibor, the Swedish Bankers' Association has published a new framework for this reference rate. Among other things, this framework has improved the possibility to verify Stibor. As part of the follow-up of its recommendations, the Riksbank has now examined whether Stibor on average corresponds to the rates in actual transactions. In those cases where the comparison can be made, the conclusion is that the rates do correspond, which indicates that Stibor has been set at accurate levels. However, there is often a lack of transactions to compare Stibor with.

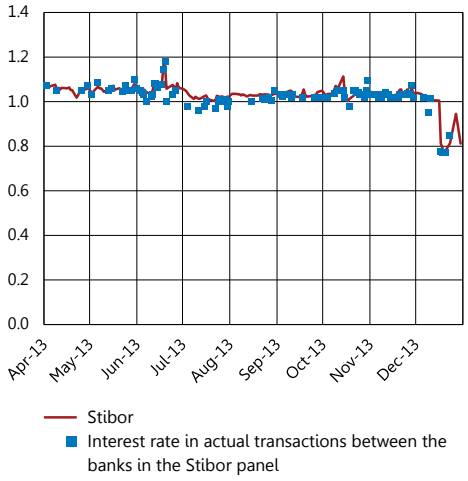
Reference rates on the interbank market are the interest rates that banks offer, or are offered, for unsecured loans between each other. They are used as references when pricing financial instruments on the fixed income market and are of great importance in the financial system.[77]

In 2012, the Riksbank conducted a review of Stibor which revealed that the framework for the Swedish reference rate had a number of shortcomings that needed to be dealt with.[78] The Riksbank therefore recommended participants in the Swedish banking system to reform the framework for Stibor and to address the identified shortcomings.[79] In March 2013, the Swedish Bankers' Association assumed responsibility for Stibor and published a new framework for it. This new framework makes it easier to compare Stibor with actual transactions. This means that the framework now requires the banks in the Stibor panel[80] to document the values that form the basis for their Stibor submissions. As the Swedish banks fund their operations in both Swedish krona and foreign currencies they document interest rates for unsecured loans in both Swedish krona and foreign currencies, as well as prices for derivatives that they use to convert foreign currencies to Swedish krona.[81]

On the basis of this data, the Riksbank has studied Stibor for the period April-December 2013 and has published a report with the results.[82] Stibor has on average corresponded to the interest rates in actual transactions (see for example Chart B2:1). However, the banks do not conduct transactions to the same extent for all maturities, which means that there is often a lack of transactions to compare Stibor with. In the case of transactions with a maturity of six months it has been impossible to make the comparison as there have been too few transactions. All in all, however, the study indicates that on

Chart B2:1 Stibor and interest rate for unsecured loans and deposits from tomorrow until the day after tomorrow between the banks in the Stibor panel

Per cent



Note. The interest rate in actual transactions is calculated as a volume-weighted average of the interest rates at which the banks in the Stibor panel have made unsecured loans and deposits in Swedish krona to each other.

Source: The Riksbank

[76] Stockholm Interbank Offered Rate.
[77] The reference rate Stibor is used, for example, in different ways in the pricing of financial contracts in Swedish krona amounting to around SEK 50,000 billion.
[78] The Riksbank's review of Stibor, *Riksbank Studies*, November 2012.
[79] *Financial Stability Report 2012:2* and *Financial Stability Report 2013:1*. Sveriges Riksbank.
[80] The Stibor panel consists of the banks that determine Stibor on a daily basis. At present these are Danske Bank, Handelsbanken, Länsförsäkringar Bank, Nordea, SEB and Swedbank.
[81] The types of contract are interbank loans and deposits, issued certificates and foreign exchange swaps. The Riksbank has collected this data since August 2013.
[82] Stibor revisited – a follow-up, *Riksbank Studies*, May 2014. Sveriges riksbank.

average Stibor has been set at accurate levels under the new Stibor framework.

The Riksbank examines reference exchange rates

Reference exchange rates are exchange rates calculated in accordance with a predetermined method at a predetermined point in time. They are used on the financial markets and within the economy as a whole as a reference to value financial transactions and balances for various purposes. They are therefore an important component of a secure and efficient payment mechanism. It happens, for example, that participants in the foreign exchange markets exchange currencies at reference exchange rates. Suspicions that this has not been done in accordance with laws and regulations are now being investigated by authorities around the world and risk damaging confidence in reference exchange rates. Against this background, and on the basis of its task to promote financial stability, the Riksbank has initiated a study of reference exchange rates and their importance to the Swedish financial system.

Reference exchange rates contribute to increased price transparency

The foreign exchange market is worldwide and is open around the clock. Currency is not traded on a regulated marketplace but usually through market makers, that is banks that undertake to quote bid and ask prices and guarantee that it is possible to buy and sell a minimum volume in one or several currency pairs. Reference exchange rates are calculated on the basis of the banks' current bid and ask prices in accordance with a predetermined method at a predetermined point in time.[83] They aim to provide a correct estimate of market pricing and to contribute to increased price transparency on the foreign exchange market. They are used on the financial markets and in the economy as a whole to value financial transactions and balances for various purposes. For example, they are used to calculate benchmark indexes, to value investment funds and to settle financial derivatives. As a result, institutions and companies also sometimes choose to exchange currency at reference exchange rates.[84] There is also a demand for this because they want to be certain that they are trading at a market price.

[83] Reference exchange rates are calculated in different ways and by many different participants. The reference exchange rates taken up in this box are generally calculated as an average of the bid and ask prices that the banks offer and/or trade at a certain point in time or during a limited period of time.
[84] This takes place to a limited extent in the trade in Swedish krona. On the basis of data from the major Swedish banks and Danske Bank on trading in Swedish krona in 2013, the Riksbank estimates that less than two per cent of their aggregate spot and forward trading was conducted at reference exchange rates.

Reference exchange rates are under investigation around the world

Investigations are underway in several countries into two types of alleged misconductlinked to primarily currency trading using reference exchange rates.[85] WM/Reuters'[86] reference exchange rates play a central role in these investigations as they are often used around the world.

First, the authorities are investigating suspicions that banks have manipulated reference exchange rates. If, for example, a bank has purchased currency that is to be sold to a customer at a reference exchange rate, there is in theory a risk that the bank has employed various types of trading strategies to try to change the market price when the reference exchange rate was set in order to be able to sell the currency at a more favourable price.

Second, the authorities are examining whether the banks have made improper use of information on impending client orders for currency at an exchange rate determined on the basis of a reference exchange rate. For example, by sharing such information with each other banks may have found it easier to predict market movements and to take positions in order to earn money from this.

The Riksbank is examining reference exchange rates

There is a risk that the suspicions under international investigation will damage confidence in reference exchange rates and lead to them no longer being regarded as fit for the purposes for which they are used today. This in turn may make the valuation of financial transactions and balances less efficient. As one of the tasks of the Riksbank is to promote a safe and efficient payment mechanism, there are good reasons for the Riksbank to promote a high level of confidence in the reference exchange rates that are important to the Swedish financial system. The Riksbank has therefore initiated a study of reference exchange rates that it expects to conclude in the autumn of 2014 and publish thereafter. The background to this study is thus similar in some ways to the Riksbank's work on the Stibor reference rate.[87] The initial work has revealed that the reference exchange rates set by WM/Reuters, the European Central Bank (ECB) and NASDAQ OMX Stockholm are among the most frequently used in the Swedish financial system and they will therefore be central to the Riksbank's study.

[85] National supervisory authorities in, for example, Hong Kong, Singapore, Switzerland, the United Kingdom and the United States, and are investigating this. The text is based on information in the media.
[86] A cooperation between The World Markets Company Plc, part of State Street Bank and Trust Company, and Thomson Reuters Plc.
[87] The Riksbank's review of Stibor, *Riksbank studies*, 2012, Sveriges Riksbank.

3. The Swedish banking groups' borrowers

At present, the Swedish banking groups' borrowers have a good ability to service their loans. Interest rates are low at the same time as economic prospects have improved in several of the countries where the banks operate. Household debt has continued to increase in Sweden. The households' debts are also expected to increase somewhat faster than their incomes in the years ahead. The increasing level of indebtedness makes the economy more sensitive to shocks. A rapid rise in interest rates or an unexpected fall in, for example, incomes or asset prices may lead to a weaker development of demand in the household sector. This may affect the profitability of Swedish companies and ultimately lead to higher loan losses for the Swedish banks.

The risk that the banks' borrowers will be unable to service or repay their loans, the banks' credit risk, is one of the greatest risks the banks are exposed to. A bank's earnings are also directly affected by its loan volume. The borrowers thus play an important role for the stability of the financial system. This chapter therefore describes borrowing, indebtedness and the debt-servicing ability of the largest groups of borrowers that the Swedish banking groups are exposed to. A particular focus is on the financial situation in the Swedish household and corporate sectors, as these have a great and more direct impact on the real economy and financial stability in Sweden.

The Swedish household sector

HOUSEHOLD DEBT CONTINUES TO RISE

Household debt has continued to increase during the spring. This is closely related to the development of prices on the housing market as the purchase of a house or flat is usually financed with a mortgage.

Housing prices have also increased recently. Prices have risen in nearly all parts of the country (see Table 3:1) and increases have been particularly high for tenant-owned apartments, where the price level has more than doubled since 2005 (see Chart 3:1). The development of prices for tenant-owned apartments has meant that it is above all the rate of borrowing for loans with such apartments as collateral that has increased the most. However, these loans make up only just over a quarter of the total loan stock, and total loan growth has therefore been relatively stable in recent years (see Chart 3:2).

Table 3:1 Housing prices in Sweden

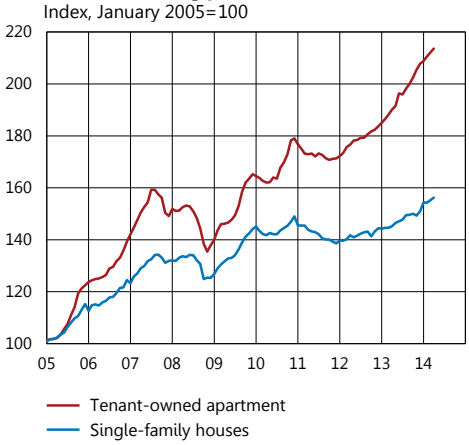
Annual percentage change, April 2013–April 2014

	Tenant-owned apartments	Single-family houses
Stockholm	13.4	9.2
Göteborg	10.3	5.9
Malmö	3.3	2.6
Medium-sized cities	13.1	8.3
Sweden	12.5	7.7

Source: Valueguard

Chart 3:1 Housing prices in Sweden

Index, January 2005=100

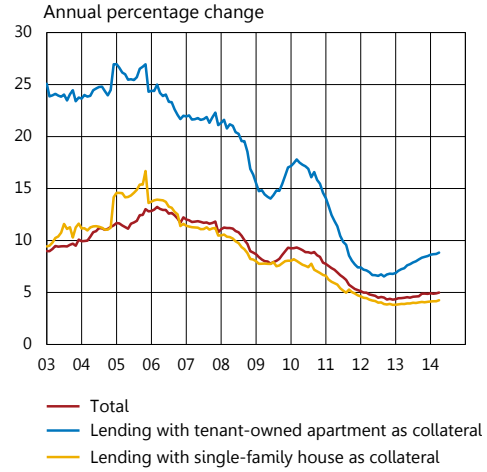


Note. Housing prices are seasonally adjusted.

Sources: Valueguard and the Riksbank

Chart 3:2 The Swedish households' debts

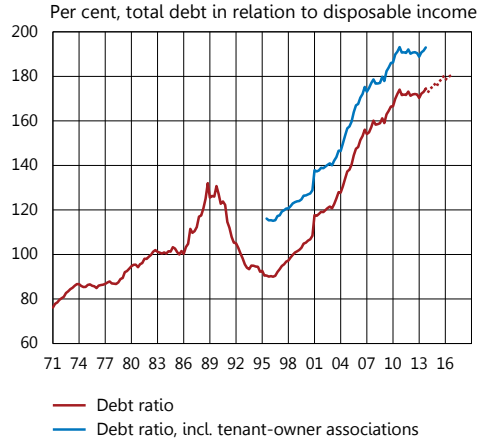
Annual percentage change



Note. Total lending comprises all loans from monetary financial institutions (MFI) to households, including households' non-profit organisations.

Sources: Statistics Sweden and the Riksbank

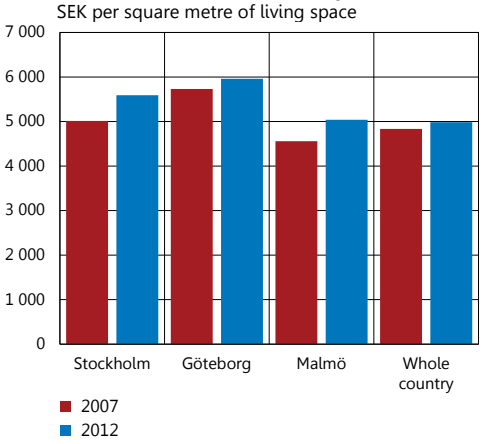
Chart 3:3 The Swedish households' debt ratio
Per cent, total debt in relation to disposable income



Note. Prior to 2010, the debts of tenant-owner associations were estimated on the basis of loans from mortgage institutions.

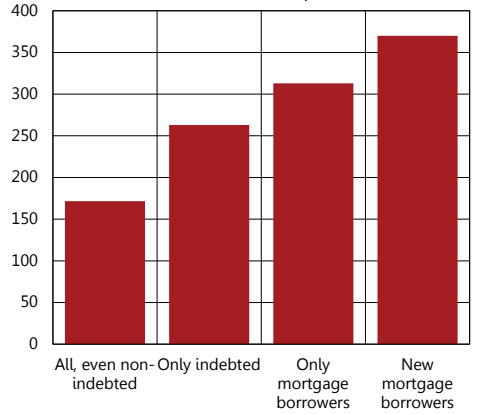
Sources: Statistics Sweden and the Riksbank

Chart 3:4 Average debts of Swedish tenant-owner associations in different municipalities
SEK per square metre of living space



Source: Värderingsdata

Chart 3:5 Debt ratios for different groups, 2013
Per cent, debt in relation to disposable income



Note. The aggregate debt ratio also includes student-loan debts and tax debts, which are not included in the other groups' debts. The measure is also calculated as total debts divided by total incomes. The other measures are averages of debt ratios for different households. The income definitions also differ between the debt ratio calculations.The debt ratio for new mortgage borrowers is based on the income data reported to the Riksbank by the banks, while the debt ratios from the Riksbank's credit data are calculated on income data from the Swedish Tax Agency which does not include tax-exempt contributions.

Sources: Statistics Sweden, Finansinspektionen and the Riksbank

The price increases on the housing market in recent decades are due to several factors. Rising household incomes, changes in taxes and in credit terms and conditions, falling real interest rates and increased population growth and urbanisation can account for a large part of the price increases.[88] Housing construction has also been at a low level in Sweden for some time. High construction costs, strict building regulations, the municipal land monopoly and an inefficient rental market have all contributed to this.[89] The structural problems on the housing market have thus contributed to a substantial increase in both housing prices and household debt since the mid-1990s (see Chart 1:16).[90]

Household debt is at a historically high level and is expected to increase going forward. At the aggregate level, the household debt ratio (total debt as a percentage of disposable income) is over 174 per cent. In the years ahead, debts are expected to increase somewhat faster than incomes, which means that the debt ratio is expected to rise to approximately 180 per cent by the end of 2016 (see Chart 3:3). This measure also includes households that do not have any debts at all nor does the debt ratio take into account the households' debts in tenant-owner associations. If these debts are included in the calculation of the debt ratio it reaches just over 193 per cent. Average debts in tenant-owner associations have also increased in recent years (see Chart 3:4). If the higher debts lead to higher costs for an association, for example as a result of increased interest costs, this may affect the debt-servicing ability of the tenant-owners in that they will be required to pay higher charges to the association.

The debt ratio for only those households that have debts was 263 per cent in 2013. This is revealed by the Riksbank's credit data, which contains information at the individual and household levels. Based only on households that have a mortgage the debt ratio is even higher, at over 313 per cent.[91] This level can be compared with the figure of 370 per cent, which is the debt ratio in Finansinspektionen's mortgage survey which only includes new mortgage borrowers (see Chart 3:5). The Riksbank's credit data also shows that for households with mortgages the debt ratio averages over 400 per cent in the three metropolitan municipalities and over 300 per cent in the rest of the country.[92] These comparisons show

[88] The Riksbank's commission of inquiry into risks on the Swedish housing market, *Riksbank Studies*, April 2011, Sveriges Riksbank, and From A to Z: the Swedish mortgage market and its role in the financial system, *Riksbank Studies*, April 2014. Sveriges Riksbank.
[89] See for example *Deadlock on the housing market?*, 2014, Swedish National Board of Housing Building and Planning, *What's happening on the housing market?*, 2013, SNS Analys and *Land, housing construction and competition*, 2012, Swedish Agency for Public Management.
[90] A number of measures have been taken in an attempt to deal with the problems on the housing market. Several inquiries have been initiated and there are proposals to amend the Planning and Building Act in order to make the planning and building-permit process simpler and more efficient. Similarly, proposals for a completely new act on municipal land allocations have been presented. See *En enklare planprocess (A simpler planning process)* Bill 2013/14:126, Ministry of Health and Social Affairs.
[91] The difference is due to the fact that many households with small credit card debts and consumption loans are excluded from the statistics.
[92] See Winstrand, Jakob and Ölcer, Dilan (2014), How indebted are the Swedish households?, *Economic Commentary* no. 1 2014. Sveriges Riksbank.

how much the level of the debt ratio varies depending on which households are included in the measurements, and also make clear the extent to which the aggregate debt ratio is below the actual debt ratio for indebted individuals.

For households with mortgages, the debt ratios are highest among low-income earners. This becomes clear if one divides the mortgage borrowers into ten equally large groups on the basis of their annual incomes (see Chart 3:6). The average debt ratio is higher than 200 per cent in all of the income groups, but the level of the debt ratio rises the lower the annual income of the household. As it is conceivable that households with a low income also have fewer assets to fall back on in difficult situations, this could indicate that these households are most sensitive to, for example, higher interest rates or a loss of income.

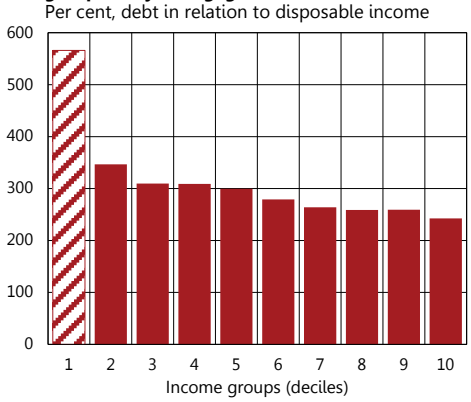
Many households choose not to repay their mortgages. This is revealed, for example, in Finansinspektionen's mortgage survey, which shows that approximately 40 per cent of the households do not amortise any of their mortgages. Approximately 60 per cent of the households with a loan-to-value ratio below 75 per cent do not amortise.[93] The Riksbank's credit data also shows that approximately 40 per cent of the households in the mortgage stock did not reduce their debts between 2012 and 2013 (see Chart 3:7). Many of those who do reduce their debts do so at a slow rate. The relatively large percentage of households that do not reduce their debts, the long repayment periods and the tendency for more households to take out higher loans than they repay indicate that it is not only households that purchase new homes that contribute to the development of debt in the household sector.

THE HOUSEHOLDS HAVE SUBSTANTIAL ASSETS

The households' aggregate balance sheets show that they have substantial assets. Total assets (excluding collective insurance saving) have increased in value in pace with rising share and housing prices. Assets amounted to almost 600 per cent of disposable income at the end of 2013 (see Chart 3:8). This means that the net wealth of the households (total assets minus total debts) is more than four times higher than their disposable income. However, both assets and debts are unevenly distributed between different households. The Riksbank's credit data shows how the debts are distributed (see Chart 3:9), but there is a lack of up-to-date statistics on the distribution of assets at the individual and household levels. Statistics from 2007 show, however, that the indebted households with the highest incomes owned the majority of the real and financial assets (see Chart 3:10). Given that the distribution has not changed too much over the last seven years, this indicates that above all low-income

[93] *The Swedish Mortgage Market*, 2014, Finansinspektionen.

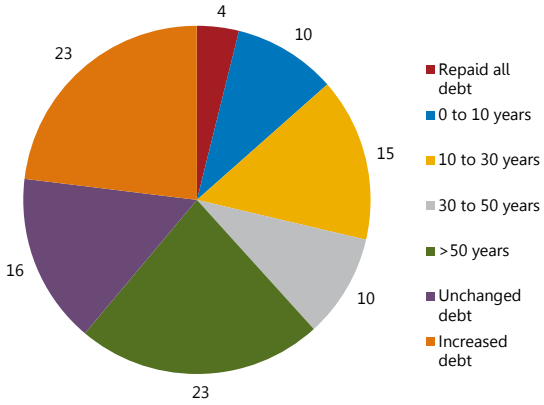
Chart 3:6 Household debt ratios in different income groups, only mortgage borrowers
Per cent, debt in relation to disposable income



Note. The high debt ratio in the lowest income group should be interpreted with a certain amount of caution, as this group includes households with very varying of incomes.

Source: The Riksbank

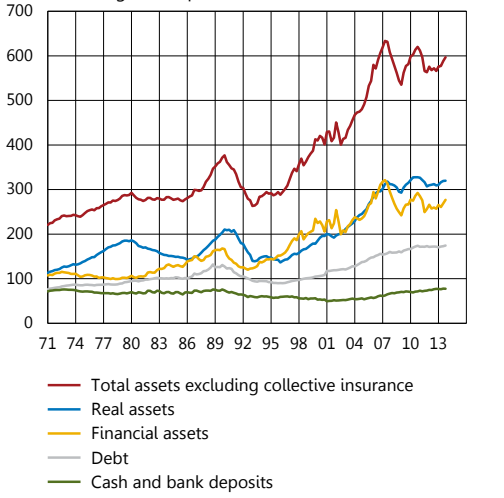
Chart 3:7 Proportion of mortgage borrowers that have increased, decreased or kept their debts unchanged between 2012 and 2013, and calculated repayment rate
Percentage



Note. The chart shows how the deficit balance of mortgage holders changed between 2012 and 2013 and the average repayment period if those who reduce their debts do so at the same rate as during the period. The repayment period is divided into different time intervals.

Source: The Riksbank

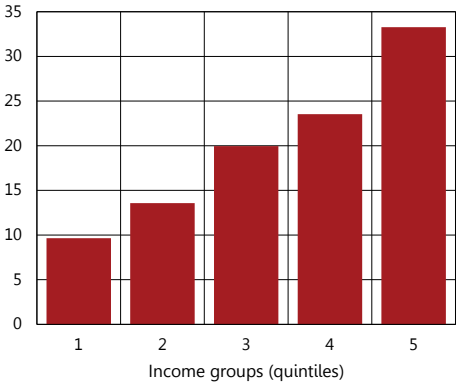
Chart 3:8 The Swedish households' assets and debts
Percentage of disposable income



Note. Financial assets refer mainly to cash, bank deposits, bonds, funds and shares. Real assets refer to houses, second homes and tenant-owned apartments.

Sources: Statistics Sweden and the Riksbank

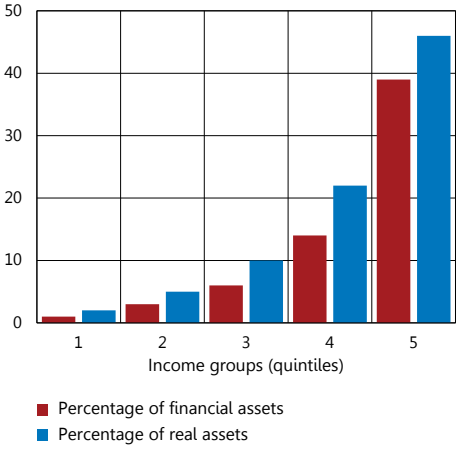
Chart 3:9 The share of debt held by indebted households in different income groups, 2013
Per cent



Note. The debts are based on the Riksbank's credit data, which covers 80 per cent of household loans from monetary financial institutions (MFIs) and 94 per cent of all mortgages.

Source: The Riksbank

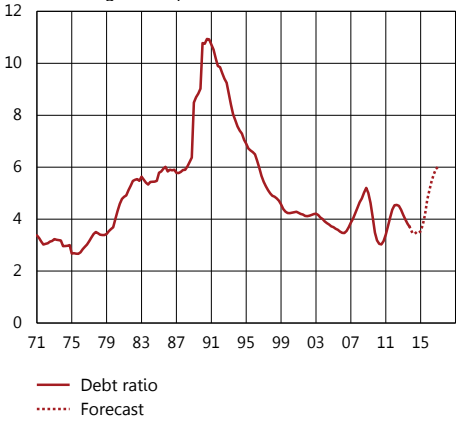
Chart 3:10 The share of financial assets and real assets held by indebted households in different income groups, 2007
Per cent



Note. Statistics on assets at the individual and household levels are only available up to the end of 2007.

Sources: Statistics Sweden and the Riksbank

Chart 3:11 The Swedish households' interest expenditure
Percentage of disposable income



Sources: Statistics Sweden and the Riksbank

earners own only a small proportion of total assets. This uneven distribution of financial assets is also apparent in Statistics Sweden's shareholder statistics from the end of 2013, which show that a few individuals hold a large proportion of the value. For example, the five per cent of Swedish private individuals with the largest shareholdings owned approximately 77 per cent of total share wealth.[94]

A large proportion of the assets may also be difficult to sell quickly. One example is the households' pension savings, which the households can only use in connection with retirement. Moreover, almost half of the total assets consist of housing that can take time to sell a house or apartment, particularly in periods of financial turmoil. Moreover, a household that sells its house or apartment to free-up capital will need to find a new home. If this entails having to purchase a new home, some of the income from the sale will have to be used to finance the new home.[95] This means that the proportion of the households' real assets that can quickly be converted into liquid funds is much less than the value of the real assets.

Most of the households' assets can also vary in value. More than half of the households' financial assets consist of shares and mutual funds, for which prices can vary substantially. There can also be rapid downturns in housing prices. This means that the value of the households' assets may fall, making it difficult for the households to use these assets to manage their loan costs. International experience has also shown that the countries that have suffered problems in recent years, for example as a result of price falls on the housing market, include countries where, at the aggregate level, households have had both less and more wealth than households in Sweden. All in all, the assessment is that substantial assets in the household sector at the aggregate level do not guarantee that problems resulting from excessive indebtedness in the household sector will be avoided.

THE DEBT-SERVICING ABILITY OF THE HOUSEHOLDS IS GOOD

The assessment at present is that the debt-servicing ability of the households is good. Despite the increase in the burden of debt in recent years, the aggregate interest ratio (household interest expenditure after tax as a percentage of disposable income) has decreased as interest rates have fallen. The interest ratio was approximately four per cent at the end of 2013, which is a low level in historical terms. However, increased borrowing and gradually rising interest rates are expected to lead to an increase in the interest ratio in the years ahead to a level that has not been seen since the crisis of the 1990s (see Chart 3:11). At the same time, the households are borrowing at variable rates of interest to an increasing extent.[96]

[94] *Shareholder statistics,* December 2013, Statistics Sweden.
[95] In addition, certain tax costs arise in connection with a move, such as capital gains tax and stamp duty.
[96] In March 2014, 53 per cent of the borrowers had a variable interest rate, compared to 46 per cent in March 2013.

Combined with the high level of indebtedness, this means that changes in the general level of interest rates will have an increasingly rapid and increasingly dramatic effect on the financial situation of the households – particularly as more than half of the adult population have some form of loan.[97] Simple calculations show that rather modest increases in mortgage rates can have a relatively significant impact on the financial scope of the households (see Table 3:2). However, although the households have become more sensitive to changes in interest rates, it is still deemed unlikely that the increase in expenditure arising from, for example, rising interest rates will lead to debt-servicing difficulties for the household sector as a whole. Finansinspektionen's stress tests of new mortgage holders show, for example, that most households are expected to be able to service their loans even in stressed macroeconomic scenarios. The assessment is therefore that the risk of loan losses from the household sector is still low.

Table 3:2 Increase in interest expenditure given different debt-ratio levels

Interest-rate increase (percentage points)	**Expenditure increase** (percentage of disposable income)				**Expenditure increase per borrowed million** (SEK per month)
	Debt ratio				
	174	**313**	**628**	**830**	
1	1.2	2.2	4.4	5.8	583
2	2.4	4.4	8.8	11.6	1,167
5	6.1	11.0	22.0	29.1	2,917

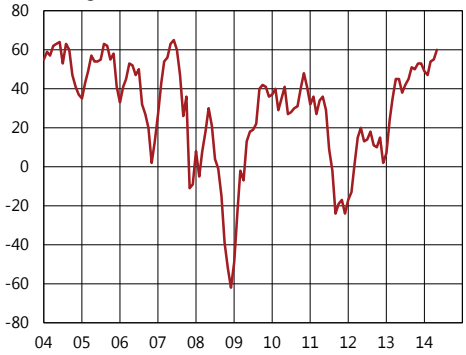
Note. The table shows how much interest expenditure after tax increases as a percentage of disposable income given different interest rate increases and debt ratios. 174 per cent corresponds to the level of the current aggregate debt ratio, 313 per cent corresponds to the level of the average debt ratio for mortgage holders from the Riksbank's credit data, 628 per cent corresponds to the level of the debt ratio in the nineteenth percentile and 830 per cent corresponds to the level of the debt ratio in the ninety-fifth percentile of the Riksbank's credit data.

Source: The Riksbank

A high level of indebtedness may affect the households' consumption.[98] This is particularly the case if the households adapt their consumption to the prevailing level of interest rates and expect the current increase in housing prices to continue.[99] Surveys show that a growing number of households expect housing prices to increase in the period ahead (see Chart 3:12) at the same time as they expect mortgage rates to be lower in the long term than is compatible with the Riksbank's repo-rate forecast (see Chart 1:17).[100]

Chart 3:12 The Swedish households' expectations of housing prices

Net figures

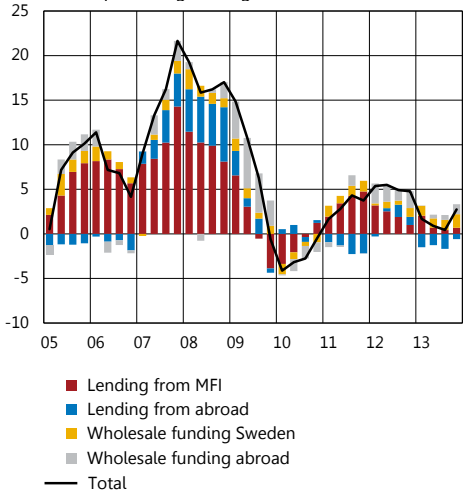


Note. Net total is defined as the difference between the percentage of households who believe that housing prices will rise and the percentage who believe housing prices will fall.

Source: SEB

Chart 3:13 Swedish corporate debt

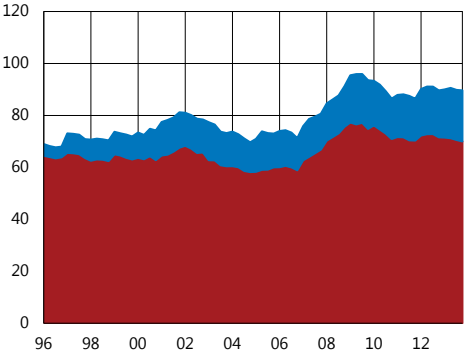
Annual percentage change



Sources: Statistics Sweden and the Riksbank

Chart 3:14 Swedish corporate debt

Total debt as a share of GDP



Sources: Statistics Sweden and the Riksbank

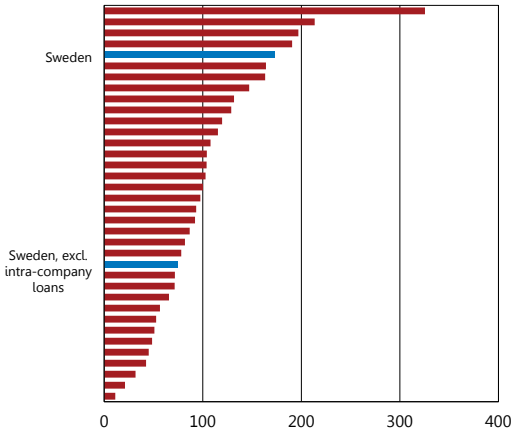
[97] For further information, see Winstrand, Jakob and Ölcer, Dilan (2014), How indebted are the Swedish households?, *Economic Commentary* no. 1 2014. Sveriges Riksbank.

[98] Studies have found that a highly-indebted household adjusts its consumption more in a crisis than a lowly indebted household. See, for example, Andersen, Asger Lau, Duus, Charlotte and Jensen, Thais Lærkholm, (2014), Household debt and consumption during the financial crisis: Evidence from Danish micro data, Working Paper, Danmarks Nationalbank, Mian, Atif, Rao, Kamalesh and Sufi, Amir, (2013), Household balance sheets, consumption, and the economic slump, *Quarterly Journal of Economics 128(4)*, pp. 1687-1726 and Dynan, Karen, (2012), Is a household debt overhang holding back consumption, *Brooking Papers on Economic Activity*, spring issue.

[99] When housing prices rise, household wealth also increases. When households become richer in this way, they feel that their scope for consumption increases. If housing prices fall, the mechanism works in the opposite way. If housing prices fall, the households may also strive to restore their balance sheets, which will also reduce the scope for consumption. For a more detailed theoretical and empirical description of these factors see Alsterlind et al. (2013), Risks to the macroeconomy and financial stability arising from the development of household debts and housing prices, *Memo 6 of the analysis group of the Macroprudential Policy Council*. Sveriges Riksbank.

[100] Studies indicate that expectations of housing prices are also dictated by recent price movements. See Case, Karl, E, Shiller, Robert, J and Thompson (2012), What have they been thinking? Home buyer behavior in hot and cold markets, *NBER Working Paper No. 18400*.

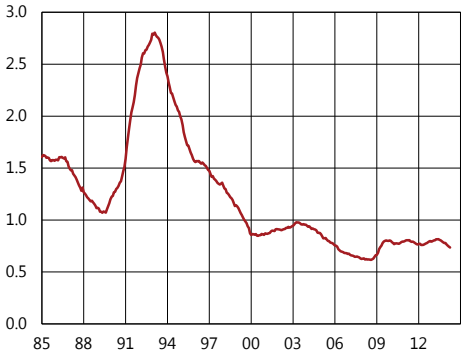
Chart 3:15 Non-financial companies' debt in different countries, 2013
Per cent of GDP



Note. For all countries except Sweden statistics are based on data from the Bank for International Settlements (BIS). However, BIS also includes intra-company loans in the definition of corporate debt. There is thus a risk that countries with companies that have a large percentage of intra-company loans will be perceived as more indebted than they actually are.

Sources: Bank for International Settlements, Statistics Sweden and the Riksbank

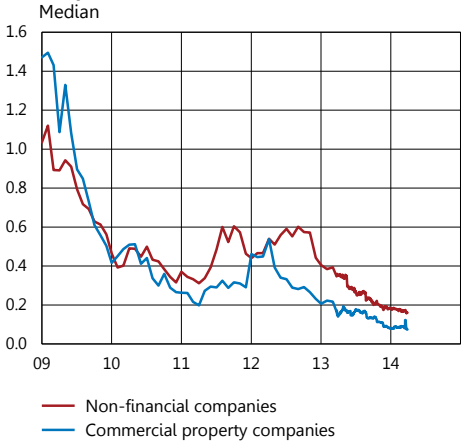
Chart 3:16 Default rate for Swedish companies
Per cent



Note. Default rate is defined as the number of defaults divided by the number of companies.

Sources: Swedish Companies Registration Office, Statistics Sweden and the Riksbank

Chart 3:17 Expected default frequencies for Swedish companies
Median



Note. Expected default frequencies are calculated on the basis of a representative portfolio of non-financial companies.

Source: Moody's KMV

If these expectations prove to be very different to actual outcomes, mortgages could become a greater burden to the households than they expected. This could lead to shocks that affect incomes, asset prices or interest rates triggering major reductions in household consumption. Waning consumption may in turn reduce the profitability of Swedish companies and ultimately lead to increased loan losses for the banks. Confidence in the banks could weaken in such a situation, which could also affect both access to and the cost of the banks' funding. The risk of such a scenario occurring in Sweden may also have increased given the increases in total indebtedness in recent years.[101] It is therefore important to avoid a situation in which excessive price increases on the housing market drive up indebtedness to unsustainable levels. Several policy areas need to cooperate and several measures need to be taken to achieve this. One step may be to ensure that the banks' credit assessments also provide leeway for changed macroeconomic conditions. This could help to reduce the risk of debt-related consumption adjustments arising if the household sector is subjected to shocks (see Chapter 1).

The Swedish corporate sector

Corporate debts with the banks are increasing slowly. This can partly be explained by the weak economic situation in Sweden and the euro area which has meant that the companies' have had a limited need to invest. On the other hand, the companies' borrowing in the form of market funding is increasing at a higher rate than their borrowing from the banks (see Chart 3:13 and Chapter 2). This is partly due to an increased desire on the part of the companies to diversify their borrowing. All in all, total corporate debt as a percentage of GDP has been stable in recent years (see Chart 3:14). Compared to other countries, corporate debts, excluding intra-company loans, are relatively low (see Chart 3:15). However, according to Almi's loan indicator for the first quarter of 2014, a majority of bank managers expect lending to companies to increase during the year as economic activity improves.[102] The Economic Tendency Survey of the National Institute of Economic Research and the Riksbank's Business Survey also show that the companies have good access to funding.[103]

The companies' debt-servicing ability has improved. This gradual improvement is above all due to the low level of interest rates and the brighter economic prospects. This in turn has contributed to a slight fall in the default rate in recent months (see Chart 3:16). The

[101] International studies have shown that a substantial build-up of debt can increase the probability of financial crises and of falls in housing prices, as well as exacerbating the effects if a crisis does occur. See for example Dealing with household debt, Chapter 3 in *World Economic Outlook*, April, International Monetary fund, Borio, Claudio and Drehmann, Mathias (2009): "Assessing the risk of banking crisis – revisited", *BIS quarterly review*, March and Schularick, Morits, and Taylor, Alan.M, (2012), Credit booms gone bust: Monetary policy, leverage cycles, and financial crisis, 1870-2008, *American Economic Review no. 102*.
[102] *Almi's loan indicator*, March 2014.
[103] *Economic Tendency Survey*, April 2014, National Institute of Economic Research and *The Riksbank's Business Survey*, January 2014. Sveriges Riksbank.

expected default frequency for listed Swedish companies has also fallen, which indicates that the default rate will continue to decline somewhat in the period ahead (see Chart 3:17). In the longer term, it is expected that Swedish export companies will benefit from the recovery in the euro area and domestic demand is expected to increase in Sweden, which indicates that debt-servicing ability will improve going forward.

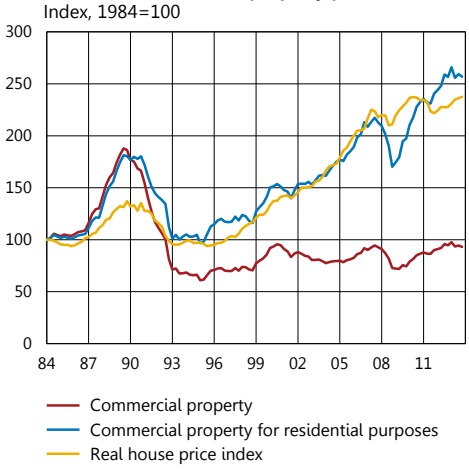
There is a link between the corporate sector and the Swedish housing market. This is partly because Swedish companies are dependent on the households maintaining their consumption in times of crisis and partly because the development of the value of commercial properties tends to covary with the development of prices on the Swedish housing market (see Chart 3:18). As approximately 50 per cent of the non-financial companies' loans have some type of property as collateral, there is thus a risk of a negative development of the Swedish housing market spreading to the Swedish corporate sector.[104] This could lead to increased loan losses for the Swedish banks.

The Swedish banking groups' borrowers abroad

Somewhat stronger economic activity has contributed to an improvement in the creditworthiness of Danish borrowers. This is reflected, for example, in a fall in the number of bankruptcies in the corporate sector recently (see Chart 3:19). Nevertheless, Danish companies are expected to continue to account for the largest share of the loan losses of the Swedish banks (see chapter 4). One of the reasons for this is that many companies are still under pressure from weak domestic demand. To a certain extent this is because the Danish households, which are also highly indebted in international terms, have striven to reduce their indebtedness in recent years following the substantial fall in prices on the Danish housing market. This has, among other things, led to decreased borrowing and increased saving, which has reduced the households' scope for consumption (see Chart 3:20) and contributed to loan losses in the corporate sector.

Weak economic development in Finland has undermined the debt-servicing ability of the borrowers. This is partly because activity in the forestry and paper industry continues to be sluggish at the same time as domestic demand has been subdued, which has led to lower profitability for Finnish companies and an increasing number of bankruptcies (see Chart 3:19). Higher unemployment and weak income growth have also undermined the debt-servicing ability of the Finnish households, although the assessment still is that the risk of loan losses from the Finnish household sector is limited. In the period ahead, brighter economic prospects for important trading

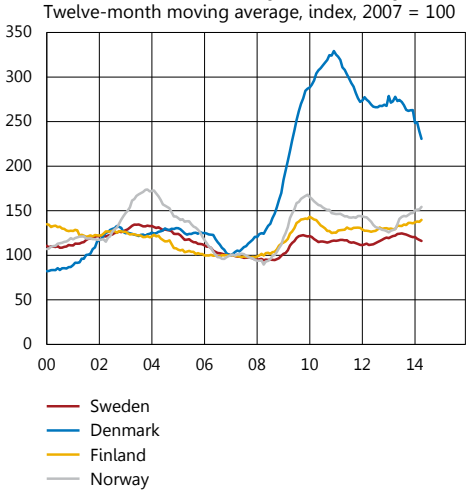
Chart 3:18 Commercial property prices in Sweden
Index, 1984=100



Note. The property price index relates to the development of prices for privately-owned single-family houses. The index for commercial properties is calculated on the basis of changes in the value of the property stock.

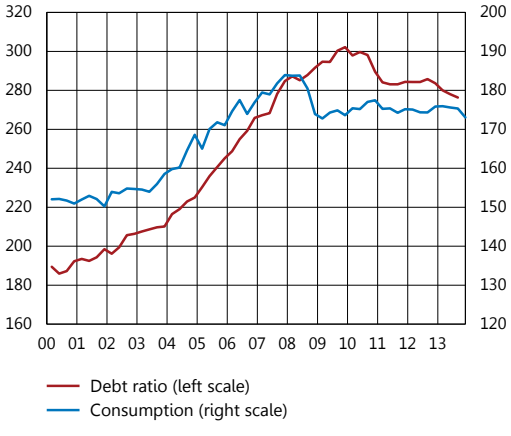
Sources: IPD and the Riksbank

Chart 3:19 Number of corporate bankruptcies
Twelve-month moving average, index, 2007 = 100



Sources: Reuters EcoWin and the Riksbank

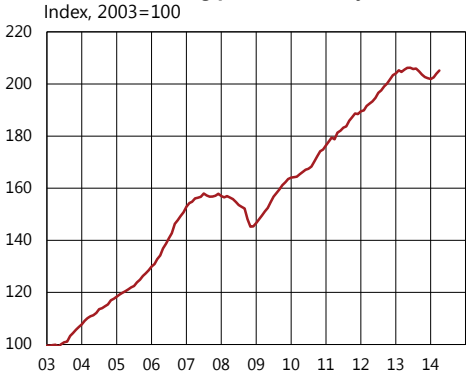
Chart 3:20 Households' debt ratio and consumption in Denmark
Debts as percentage of disposable income and DKK billion



Source: Macrobond

[104] This percentage includes MFI's debts to tenant-owner associations.

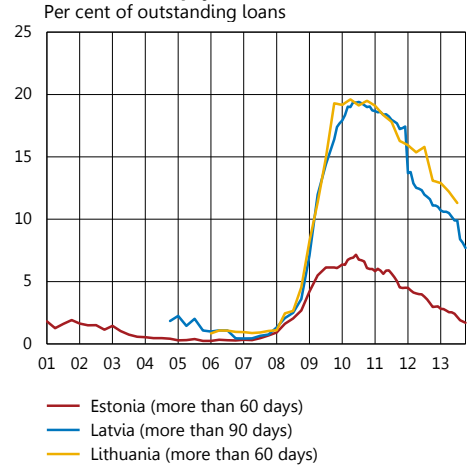
Chart 3:21 Housing prices in Norway
Index, 2003=100



Note. Housing prices are seasonally adjusted

Sources: Norwegian Association of Real Estate Agents and the Riksbank

Chart 3:22 Late payments
Per cent of outstanding loans



Note. The definition of late payments differs from country to country. The breaks in the series for Latvia and Lithuania in 2012 can be explained by the fact that data from Parex Bank and Ukio Bankas has been excluded from the statistics.

Sources: Eesti Pank, Financial and Capital Market Commission and Lietuvos Bankas

partners such as Sweden and Germany are expected to boost the recovery of Finnish exports. However, the situation in Russia and Ukraine poses a risk as the Finnish economy is affected by developments in Russia, for example through imports of Russian oil and natural gas.

In Norway, the housing market has recovered somewhat during the spring. Norwegian housing prices fell during the second half of 2013 and the downturn occurred more or less throughout the country and for all types of housing. A situation in which supply increased faster than demand contributed to the negative development of prices as well as to longer times to sale and a lower turnover. Although prices have now risen, they are still at a lower level than a year ago (see Chart 3:21). Norges Bank sees a soft landing for housing prices in the years ahead, but highlights the risk that falling housing prices may reduce the consumption propensity of the highly-indebted Norwegian households.[105] If so, the profitability of Norwegian companies may also be affected. However, the Norwegian households continue to benefit from low interest rates and a high employment rate. The assessment is therefore that debt-servicing ability in the Norwegian household sector will remain good.

Growth in Norway has slowed down and the creditworthiness of Norwegian companies has weakened somewhat. The lower rate of growth can partly be explained by the fact that household consumption has increased somewhat more slowly than previously, at the same time as productivity growth in the petroleum-related export industry has been lower than expected. The construction industry has also reported weaker growth as a result of fewer production starts, which to some extent reflects the development of the Norwegian housing market. The number of corporate bankruptcies has increased in recent months (see Chart 3:19) and the Swedish banks' loan losses from Norwegian companies are expected to increase somewhat in the period ahead although from a low level.

The creditworthiness of Baltic borrowers has improved. This is reflected, for example by the fact that late payments have continued to fall (see Chart 3:22). However, the geopolitical turbulence in Russia and Ukraine may affect economic developments in the Baltic countries, which in the long term may also have consequences for creditworthiness in the corporate sector.

[105] *Monetary Policy Report with financial stability assessment 1/14.* Norges Bank.

4. Developments in the Swedish banking groups

The profitability of the major Swedish banks is good from a European perspective. This is largely due to the fact that both their costs and their loan losses are low. The major banks also have access to inexpensive funding and their CET 1 capital ratios are high. On the other hand, their leverage ratios are slightly below the average for comparable European banks. With regard to liquidity risks the major banks have substantial liquidity buffers in euros, dollars and in all currencies together. However, their liquidity buffers in Swedish krona are small. Moreover, there is a significant difference between the maturities of their assets and liabilities, which means that the major banks are exposed to considerable structural liquidity risks. The Riksbank's forecast is that that the major banks' lending will increase in the years ahead. Profitability is also expected to increase as profits before loan losses rise at a faster rate than loan losses.

The four major Swedish banks,[106] Handelsbanken, Nordea, SEB and Swedbank, together account for approximately 80 per cent of lending and receive 75 per cent of the deposits in Sweden. These banks are thus of decisive importance to the workings of the Swedish financial system. This chapter describes recent financial developments in the major banks. It also presents an assessment of developments in a main scenario and the results of a stress test of the banks.

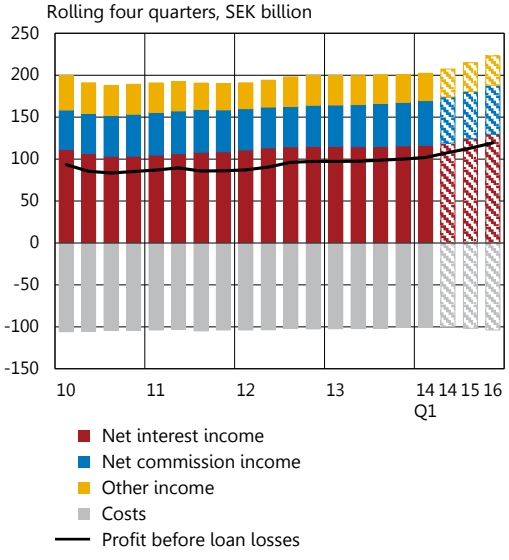
Profitability and earnings

The major Swedish banks continue to report good profitability before loan losses (see Chart 4:1). Both net interest income and net commission income have risen over the last six months thanks to increased lending volumes and increased demand for those banking services that generate commission.[107] At the same time their costs are low, which means that the banks' costs in relation to incomes are lower than for many other European banks (see Chart 4:2).[108,109]

The major banks also have low loan losses compared to the European banks (see Chart 4:3). While the average loan-loss level for the European banks is 0.8 per cent, the corresponding figure for the major Swedish banks is around 0.1 per cent. An important reason for this difference is that the countries in which the major Swedish banks have operations have not been as hard hit by the financial crisis as many other countries.

All in all, the low level of costs in relation to incomes and the the low level of loan losses mean that the profitability of the major banks is comparatively high. In the first quarter of 2014, the major banks' average return on equity was approximately 13 per cent, which can be compared to around three per cent for the group of comparable European banks (see Chart 4:4).

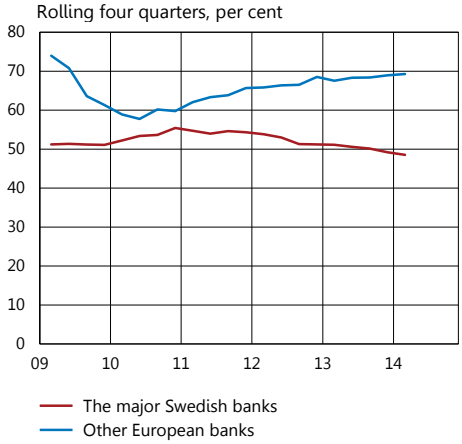
Chart 4:1 The major Swedish banks' income and costs
Rolling four quarters, SEK billion



Note. The shadowed bars show the forecast according to the Riksbank's main scenario.

Sources: Bank reports and the Riksbank

Chart 4:2 Costs in relation to income
Rolling four quarters, per cent

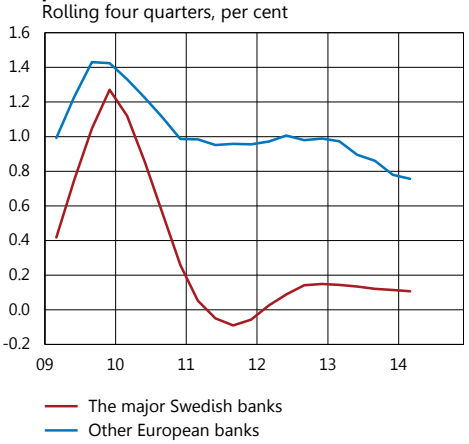


Note. Unweighted average. The blue line represents a sample of European banks, see footnote 109.

Sources: SNL Financial and the Riksbank

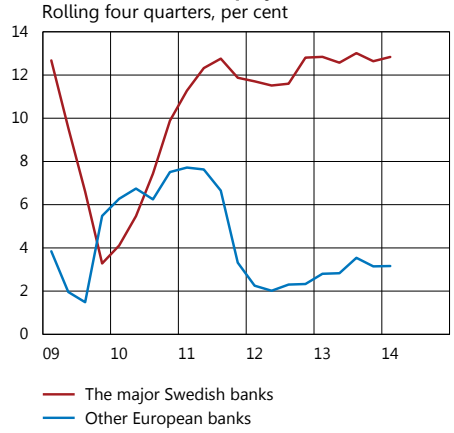
[106] The term the major Swedish banks refers hereinafter to the the major banking groups, including both domestic and foreign operations.
[107] Commission is income from services such as providing financial advice, payment transactions, credit cards and cash management.
[108] The fact that the low cost/income ratio is explained by low costs rather than high incomes can be seen from that both costs and incomes are low in relation to assets in a European perspective.
[109] The banks used for comparison are Banco Bilbao Vizcaya Argentaria, Banco Santander, Barclays, BNP Paribas, Commerzbank, Crédit Agricole, Credit Suisse Group, Danske Bank, Deutsche Bank, DNB, Erste Bank, HSBC, Lloyds, Raiffeisen Bank, Société Générale and UBS.

Chart 4:3 Loan losses in relation to lending to the public
Rolling four quarters, per cent



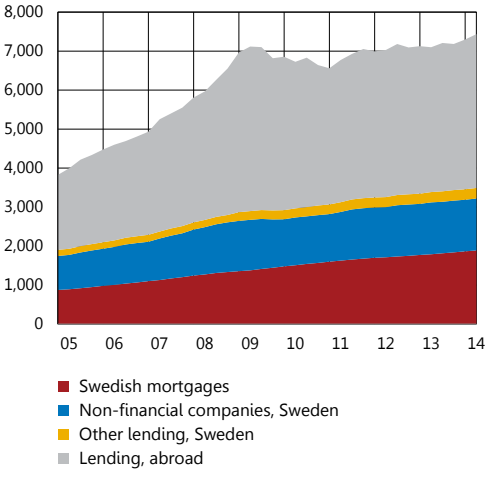
Note. Unweighted average. The blue line represents a sample of European banks, see footnote 109.
Sources: SNL Financial and the Riksbank

Chart 4:4 Return on equity
Rolling four quarters, per cent



Note. Unweighted average. The blue line represents a sample of European banks, see footnote 109.
Sources: SNL Financial and the Riksbank

Chart 4:5 Lending to the public of the major Swedish banks
SEK billion



Sources: Statistics Sweden, bank reports and the Riksbank

The Riksbank's assessment is that the profits before loan losses of the major banks will increase in the years ahead (see Chart 4:1). Net interest income is expected to rise as the economy improves, partly because lending volumes will increase and partly because interest rates will normalise. The improvement in economic activity is also expected to lead to increased demand for the banking services that generate a commission, thus giving rise to higher net commission income. At the same time it is assumed that cost increases will be limited by the banks' cost-cutting programmes.

Lending and credit risk

LENDING

Growth in the major Swedish banks' lending is lower than before the crisis (see Chart 4:5). Lending increased by just over two per cent in 2013, compared with an average rate of increase of 16 per cent per year in the period 2005-2009. The most important factor behind this decrease is that lending growth abroad is now at much lower levels than before the financial crisis.

Over the last 12 months, the major banks have continued to reduce their exposures to eastern Europe. Swedbank has sold its operations in Ukraine and wound up its operations in Russia. Nordea has also sold its operations in Poland. Since 2009, the major banks' lending to Eastern Europe has fallen from eight per cent of total lending to less than five per cent today (see Table 4:1). Three of the major major banks still have some lending activities in Russia and Ukraine. This mainly concerns lending to Nordic companies with operations in these countries and to large domestic companies. Nordea's exposures in Russia amount to 1.8 per cent of the bank's total lending, while Swedbank's and SEB's exposures to Ukraine and Russia amount to less than 0.2 percentage points of the respective banks' lending.

Table 4:1 Geographical distribution of the major Swedish banks' lending

March 2014, per cent

	Handelsbanken	Nordea	SEB	Swedbank	Total
Sweden	66	25	72	86	53
Norway	12	16	2	3	10
Denmark	4	24	1	0	11
Finland	6	28	1	1	14
The Baltic countries	0	2	8	10	4
United Kingdom	8	0	0	0	2
Germany	0	0	13	0	2
Russia	0	2	0	0	1
Ukraine	0	0	0	0	0
Other countries	4	3	3	0	3

Sources: Bank reports and the Riksbank

In Sweden, lending for housing purposes continues to increase at a faster rate than lending to non-financial companies. Since the beginning of 2009, mortgages have increased by an average of 6.5 per cent per year, while lending to non-financial companies has only increased by 0.6 per cent per year. The reason for this is that mortgages have increased in pace with the increase in housing prices, at the same time as limited GDP growth has meant that corporate demand for loans has been low. In addition, the companies are funding their operations by issuing corporate bonds to a greater extent than previously (see Chapter 2).

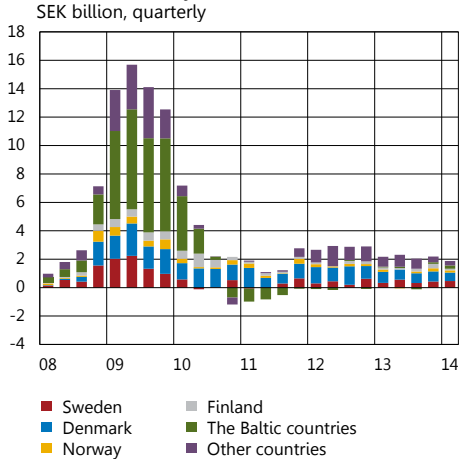
The Riksbank's assessment is that the major banks' lending will increase somewhat in the years ahead. This is largely because economic activity is expected to strengthen in the countries where the banks do business, although to varying degrees. The assessment is that the largest increase will be in Sweden, while lending growth in Finland and Norway is expected to be somewhat more subdued. In the case of Finland and the Baltic countries, however, the geopolitical risks in Ukraine and Russia give rise to a certain degree of uncertainty. Large parts of the exports of these countries go to Russia, which means that their economies could be hit hard if the conflict escalated.

CREDIT RISK

The loan losses of the major Swedish banks are low (see Chart 4:6). During the first quarter of 2014, loan losses as a percentage of the major banks' total lending amounted to just over 0.1 per cent. This is largely because the low interest rates mean that the bank customers' interest burden is light, and because the Swedish economy has proved to be relatively resilient to the recession that has hit the euro area. Loan losses have also been kept low because some of the banks have still been able to reverse some of the provisions that were made for anticipated loan losses in, above all, the Baltic countries during the financial crisis.[110]

Loan losses are still low in Finland and Norway (see Chart 4:6). This is despite the fact that economic activity has been weak in Finland and has declined in Norway. The loan losses suffered by the banks primarily stem from the corporate sector, which has been hit hard by falling domestic demand and, to a certain extent, declining exports (see Chapter 3).

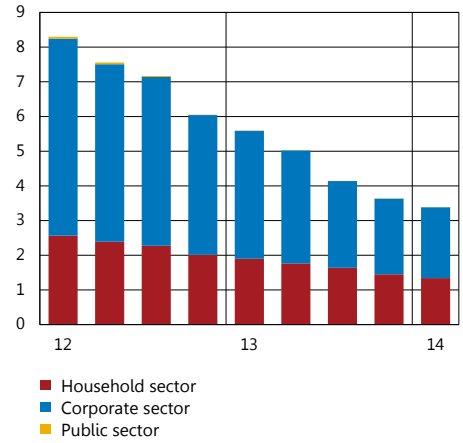
Chart 4:6 The major Swedish banks' loan losses
SEK billion, quarterly



Note. The category "Other countries" refers to loan losses in the other countries in which the banks have operations as well as loan losses that are not allocated to a specific country in the banks' public reporting.

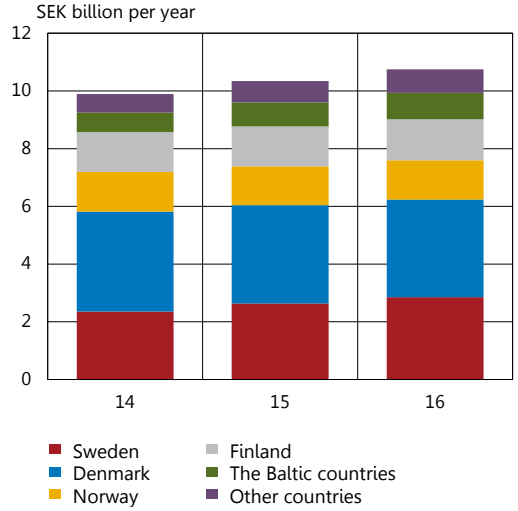
Sources: Bank reports and the Riksbank

Chart 4:7 The major Swedish banks' impaired loans as a percentage of total lending, the Baltic countries
Per cent



Sources: Bank reports and the Riksbank

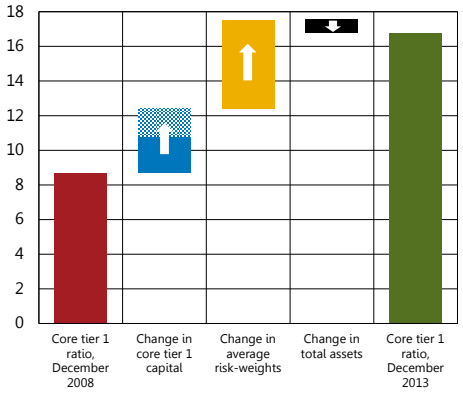
Chart 4:8 Forecast of the major Swedish banks' loan losses in the Riksbank's main scenario
SEK billion per year



Source: The Riksbank

[110] Loan losses refers to the cost item on the banks' income statements that in accounting terms is referred to as net credit loss. This item consists, firstly, of realised loan losses and provisions for anticipated loan losses, which both increase loan losses and thus have a negative impact on the banks' profits. Secondly, the item consists of recoveries of previous realised losses and reversals of earlier provisions, which reduce net loan losses and thus have a positive effect on profits.

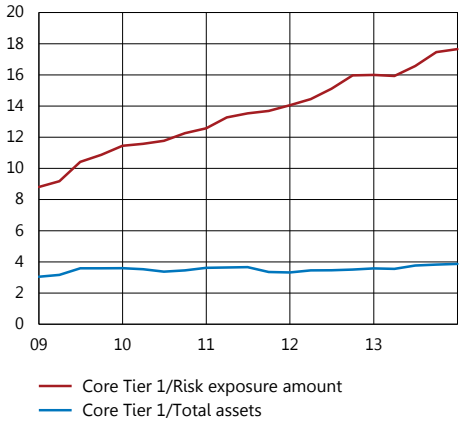
Chart 4:9 Development of the major Swedish banks' core Tier 1 capital ratios, Basel II
Per cent



Note. Weighted average of the major banks' core Tier 1 capital ratios for December 2008 as a red column and for December 2013 as a green column. The intermediate columns show how different factors have affected the change. The dotted part of the blue block shows the part of the increase of the core Tier 1 capital ratio that is due to issues of share capital.

Sources: Bank reports and the Riksbank

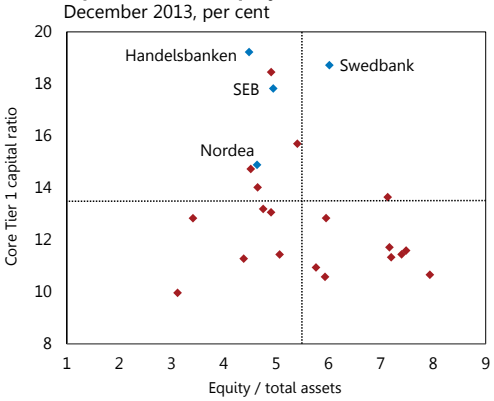
Chart 4:10 The major Swedish banks' core Tier 1 capital ratios and Tier 1 capital in relation to total assets
Per cent



Note. Core Tier 1 capital ratios in accordance with Basel II without transitional regulations. Unweighted average.

Sources: SNL Financial and the Riksbank

Chart 4:11 Swedish and European banks' core Tier 1 capital ratios and equity in relation to total assets
December 2013, per cent



Note. Core Tier 1 capital ratios in accordance with Basel II without transitional regulations. The broken lines represent mean values, the red dots show a sample of European banks.

Sources: SNL Financial and the Riksbank

Loan losses are decreasing in Denmark and in the shipping sector. Lending in Denmark still accounts for the largest part of the major banks' total loan losses. As in Finland and Norway, the losses stem above all from lending to companies. Previously, the shipping sector also accounted for a large part of the major banks' loan losses, especially in the case of Nordea, but due to reversals of earlier provisions these losses are now close to zero.

Credit quality has improved in the major banks' lending in the Baltic countries. In the first quarter of 2014, impaired loans made up 3.3 per cent of the major banks' total lending in the region. This can be compared to 8.3 per cent at the beginning of 2012 (see Chart 4:7). This is still a high percentage in comparison with the corresponding figure for the major banks' total lending, which is 1.1 per cent, but despite this the loan losses in the Baltic countries are small. The reason for this is that the banks made substantial provisions for anticipated loan losses in the Baltic countries during the financial crisis. However, it has been possible to reverse a large part of these provisions as the economic situation has improved and the number of impaired loans has fallen. 60 per cent of total impaired loans in the Baltic countries stem from lending to companies and the remainder from lending to households.

The Riksbank's assessment is that the major banks' loan losses will increase somewhat in the coming years but nevertheless remain at low levels (see Chart 4:8). Loan losses are expected to increase in Finland as the weak economic climate leads to payment difficulties for, above all, small and medium-sized companies. The credit quality in Sweden is assumed to remain rather unchanged but as lending increases, loan losses will also rise. In the Baltic countries, reversals for previously made provisions are expected to decrease, which implies that loan losses will increase. In Denmark, on the other hand, loan losses are expected to decrease as the economic activity improves.

Capital

The major Swedish banks have continued to increase their core Tier 1 capital ratios. Since December 2008, the average core Tier 1 capital ratio of the major banks, as defined in Basel II, has improved by over eight percentage points. Almost four percentage points of this improvement are due to an increase in the banks' core Tier 1 capital. Some 1.6 percentage points of this stem from the new issues of share capital that three of the major banks conducted in 2009, while the rest comes from the profits the banks chose not to pay out to their shareholders during the period.[111] As a counteracting effect

[111] Swedbank, SEB and Nordea conducted rights issues in 2009. Swedbank's rights issue amounted to SEK 15.1 billion, SEB's to SEK 15.0 billion and Nordea's to SEK 24.5 billion (EUR 2.5 billion). Swedbank also conducted a rights issue of SEK 12.4 billion during the fourth quarter of 2008 which, however, lies outside the period used here.

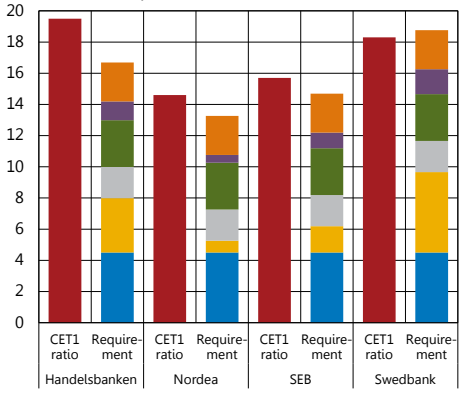
to the increase in capital, assets also increased and thus had a negative impact on core Tier 1 capital ratios. However, the major part of the change has been driven by the fact that average risk weights have fallen. This has improved the ratio by over five percentage points (see Chart 4:9).

The fall in risk weights is partly due to a shift in the the major banks' loan portfolios towards lending with less risk. In recent years, the major banks have increased their lending in, above all, the Nordic countries and reduced their lending in eastern Europe. As loan losses have historically been lower in the Nordic countries than in eastern Europe, this shift has led to lower risk weights. In addition, a larger part of the major banks' lending in Sweden goes to mortgages and a smaller part to the corporate sector (see Chart 4:5). This has also led to a fall in risk weights.

Another important explanation of the fall in risk weights is that the major banks apply internal risk based (IRB) approach to an increasing part of their portfolios. This option was introduced in 2007 and means, among other things, that the banks themselves are permitted to calculate certain risk parameters when determining their risk weights. Before a bank can use the IRB method it must first gain approval from Finansinspektionen. The introduction of IRB strengthened the banks' incentives to develop and improve their risk-management systems. The banks' capital requirements also became more sensitive to risk, so that the difference between capital requirements relating to exposures with different levels of risk increased. This is essentially positive. However, the transition to IRB often leads to a decrease in the banks' risk weights, and thus also in their capital requirements. This means that a bank's CET 1 capital ratio may improve even though neither the amount of capital nor the actual risk in the bank's portfolio have changed. That part of the major Swedish banks' improvement in CET 1 capital ratios that is due to this effect has thus not led to any increase in resilience in the banking sector. In addition, the banks often lack long time series of representative loan-loss data, which means that there is uncertainty about how well the banks' internal estimates reflect potential losses in the future.

The fact that risk weights have fallen has contributed to an increase in the difference between the major banks' risk-adjusted and non-risk-adjusted capital ratios (see Chart 4:10). This is because the non-risk-adjusted capital ratio is not affected by a fall in risk weights. For this ratio to strengthen, capital must instead increase more rapidly in percentage terms than assets.[112] Since the end of 2008, this has only occurred to a marginal extent, so the ratio has remained relatively constant. This has also meant that the major

Chart 4:12 The major Swedish banks' CET 1 capital ratios and suggested requirements
March 2014, per cent

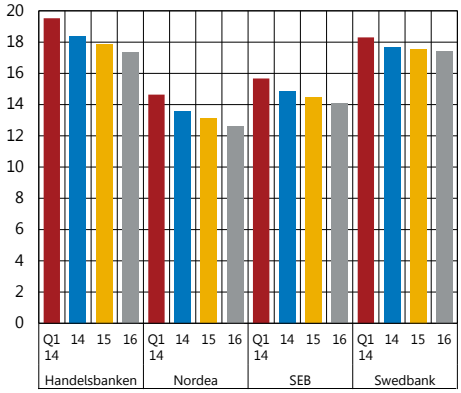


- CET1 ratio
- Minimum requirement
- 25 per cent risk weight floor on Swedish mortgages (Pillar 2)
- Systemic risk (Pillar 2)
- Systemic risk buffer
- Countercyclical buffer, Swedish exposure (2.5 per cent)
- Capital conservation buffer

Note. Note that the other Pillar 2 requirement is not given as neither Finansinspektionen nor the banks publish it. The countercyclical capital buffer for Swedish exposures is here set at 2.5 per cent in accordance with the Riksbank's recommendation.

Sources: Bank reports and the Riksbank

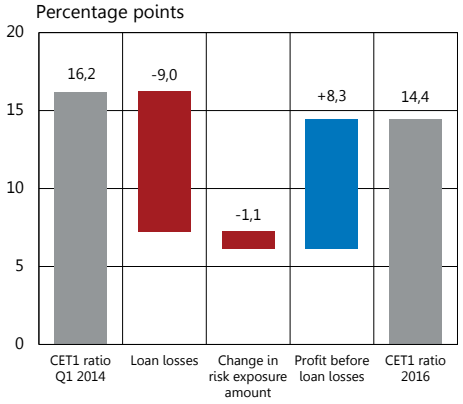
Chart 4:13 CET 1 capital ratios according to Basel III, initially and in the stress test
Per cent



Sources: Bank reports and the Riksbank

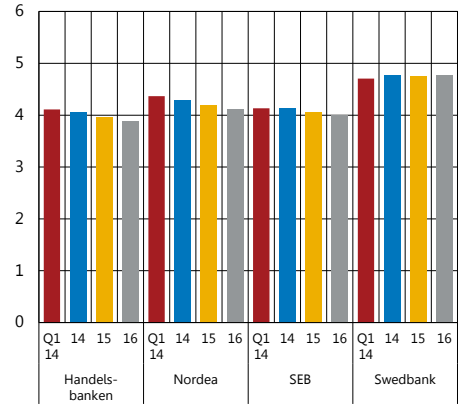
[112] Alternatively decrease more slowly in percentage terms.

Chart 4:14 The major Swedish banks' CET 1 capital ratios in the stress test and changes in them over time
Percentage points



Sources: Bank reports and the Riksbank

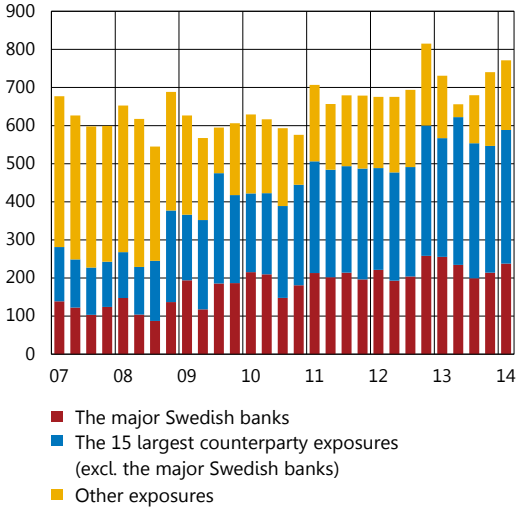
Chart 4:15 Leverage ratios, initially and in the stress test
Per cent



Note. This relates to SNL Financial's definition of the leverage ratio, which differs from the definition used by the Basel Committee.

Sources: SNL Financial and the Riksbank

Chart 4:16 The major Swedish banks' counterparty exposures through holdings of securities
SEK billion



Note. The chart shows a breakdown of the major banks' total securities holdings on the basis of which group of counterparties has issued the securities.

Source: The Riksbank

banks' non-risk-adjusted capital ratios are below the average for the comparable European banks, despite the fact that their risk-adjusted ratios are among the highest in the group (see Chart 4:11).

At the same time as the major banks' CET 1 capital ratios have increased, capital requirements have also increased. In November 2011, the Ministry of Finance, the Riksbank and Finansinspektionen stipulated that the CET 1 capital ratios of the major banks must be at least 12 per cent from 1 January 2015.[113] In addition, the banks must hold capital for the 25 per cent risk-weight floor that Finansinspektionen intends to introduce for Swedish mortgages within the framework of Pillar 2. The Pillar 2 requirement also comprises another component for risks specific to particular institutions, such as concentration risks. The size of this requirement has not been made public as yet. Moreover, the European member states also have the option of introducing a countercyclical capital buffer for lending within the respective jurisdictions (see Chart 4:12). Finansinspektionen has not yet made a final decision on how large the buffer will be for Swedish exposures.[114]

Stress test of the major banks' resilience to loan losses

The Riksbank regularly conducts a stress test of the major banks to assess their resilience to a much weaker economic scenario in which GDP falls at the same time as unemployment and interbank rates rise (see Table 4:2).[115]

In the Riksbank's stress test, the major banks' CET 1 capital ratios fall by an average of two per cent and their leverage ratios by an average of 0.1 percentage points (Chart 4:14 and Chart 4:15).[116] The major banks' total loan losses during the three-year period amount to SEK 265 billion, which is equivalent to 46 per cent of their total equity. However, the loan losses are largely counteracted by the fact that the banks profits before loan losses are assumed to remain high during the stressed period (see Chart 4:14). All of the banks' CET 1 capital ratios are over 12 per cent at the end of the stressed period (see Chart 4:13), which is the lowest level the banks should comply with in 2015 according to the agreement

[113] In Finansinspektionen's implementation of the accord, two percentage points of the five per cent systemic-risk add-on have been introduced through Pillar 2.
[114] In connection with the meeting of the Financial Stability Council on 23 May, Finansinspektionen communicated that it considers one per cent to be an appropriate level for the buffer. See Chapter 1 for the Riksbank's recommendation on the introduction and level of the countercyclical capital buffer and the box The countercyclical capital buffer.
[115] In order to calculate the banks' capital ratios in the stress test, the Riksbank makes the following assumptions: (1) Profits before loan losses are assumed to be 20 per cent lower than the banks' reported profits per the first quarter of 2014 (most recent four quarters). It is assumed that this result will remain constant during the stressed period. (2) The sum total of the banks' risk exposures increases by five per cent per year, (3) the banks pay no dividends and conduct no share repurchases; (4) the banks do not try to reduce their risk-weighted exposures, bring in new capital or change their operations in any other way; (5) the respective banks' largest counterparty, measured in terms of the amount loaned without collateral, suspends payments. For more information on the assumed stress scenario and the method used see the Appendix in *Financial Stability Report 2013:1,* Sveriges Riksbank.
[116] Note that this relates to SNL Financial's definition of the leverage ratio, which differs from the definition used by the Basel Committee.

reached between the Riksbank, the Ministry of Finance and Finansinspektionen in November 2011.

Table 4:2 GDP change and three-month interbank rates in the stress test

Annual percentage change in GDP/three-month interbank rates (per cent)

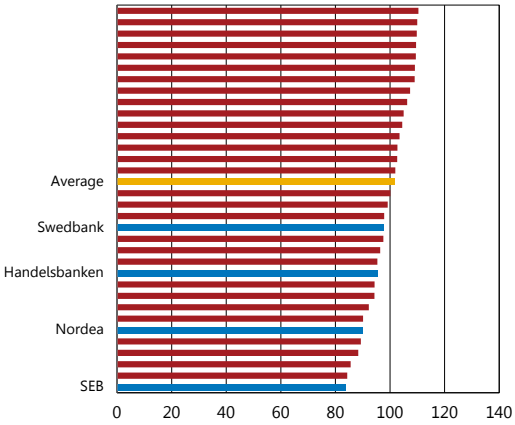
	2014	2015	2016
Sweden	0.0/3.3	–2.5/5.8	–2.7/3.7
Other Nordic countries	–3.7/2.7	–3.9/4.4	–1.9/2.8
The Baltic countries	–0.1/2.6	–6.6/5.5	–6.2/3.6
Other countries	–5.2/1.5	–5.5/2.7	–2.7/1.1

Note. Other countries refers to Germany and the United Kingdom.
Source: The Riksbank

However, the stress test does not fully capture the negative consequences that may arise from a significant deterioration in the economy. For example, it does not take into account the fact that the major banks' credit ratings could be lowered if they make substantial losses. A lowered credit rating could in turn lead to higher funding costs and thus to further losses. Nor does the stress test capture the concentration and contagion risks that exist in the Swedish banking system. For example, the major banks own a large proportion of each others' covered bonds. As the value of these bonds would probably fall if a major bank reported losses, the other major banks would suffer losses on their holdings of these bonds.

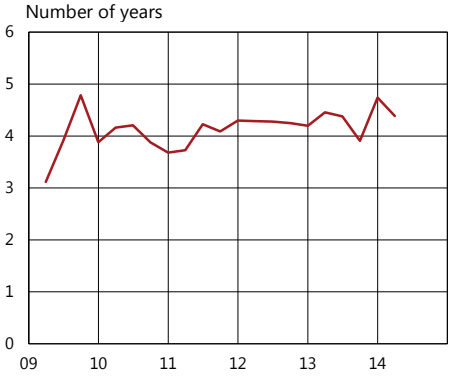
The risk of contagion in the banking system has increased in recent years in that the major banks hold an increasing proportion of each others' securities (see Chart 4:16). The banks' holdings of each others' securities have almost doubled since 2007 and now amount to a sum equivalent to approximately 40 per cent of their total equity. One reason why the major banks own each others' securities is that they act as market makers for Swedish covered bonds. To be able to perform this role, they hold both their own bonds and those of other banks. Moreover, their liquidity buffers are partly made up of covered bonds that are largely issued by the major Swedish banks. In addition to this, a significant part of the liquidity buffers is made up of covered bonds issued by other large Nordic banks. These banks are usually among the major banks' other 15 largest counterparties with regard to securities exposures. The major banks' holdings of securities from this category of counterparties have almost tripled since 2007 (see Chart 4:16). This extended holding of such securities increases the vulnerability of the financial system as problems at one bank can thus more easily spread to other banks.

Chart 4:17 The Riksbank's structural liquidity measure
December 2013, per cent



Note. The red bars show a sample of European banks.
Sources: Liquidatum and the Riksbank

Chart 4:18 Average maturity of issued Swedish covered bonds
Number of years



Source: The Association of Swedish Covered Bond Issuers

Funding and liquidity risks

The major Swedish banks' funding costs are lower than those of many other banks in Europe. This applies to both short and long term funding and to funding in Swedish krona as well as in foreign currencies. An important reason for the low funding costs is that the major Swedish banks have relatively high credit ratings. The major banks also benefit from the fact that the Swedish economy is relatively stable and that Sweden's sovereign debt is low.

The major Swedish banks have substantial liquidity buffers in euros and dollars. An important explanation of this is that the funding situation is particularly favourable in these currencies. At short maturities, in US dollars, the major Swedish banks fund their operations at an even lower interest rate than the interest rate they subsequently receive when they place the money with the Federal Reserve.[117] As the major Swedish banks have relatively small outstanding liabilities in dollars and euros, the large liquidity buffers also mean that their liquidity coverage ratios (LCR) in these currencies are rather high (see Chart B1:8).

However, the major banks' liquidity buffers in Swedish krona are small. Together with the fact that the buffers consist of the most liquid assets – so-called level 1-assets (see Chart B1:10) to only a limited extent, this means that the major Swedish banks' liquidity coverage ratios in Swedish krona are low.[118] In 2013, the major banks' average liquidity coverage ratio in krona was approximately 50 per cent (see Chart B1:8). [119]

The major banks are more exposed to structural liquidity risks than many other European banks. In the Riksbank's measure of structural liquidity risk, all of the major banks are below the average for the comparable group of European banks (see Chart 4:17).[120] The measure sets a bank's stable funding in relation to its illiquid assets, and a high level in the measure thus indicates that a bank's level of structural liquidity risk is low. In simple terms, stable funding refers here to funding at maturities longer than one year, while illiquid assets are assets that neither mature nor, it is assumed, can be sold within one year. As a large proportion of the major Swedish banks' assets consists of mortgages and corporate loans with maturities of more than one year, at the same time as these are largely funded by market funding that falls due within one year, they record a low result in the measure.

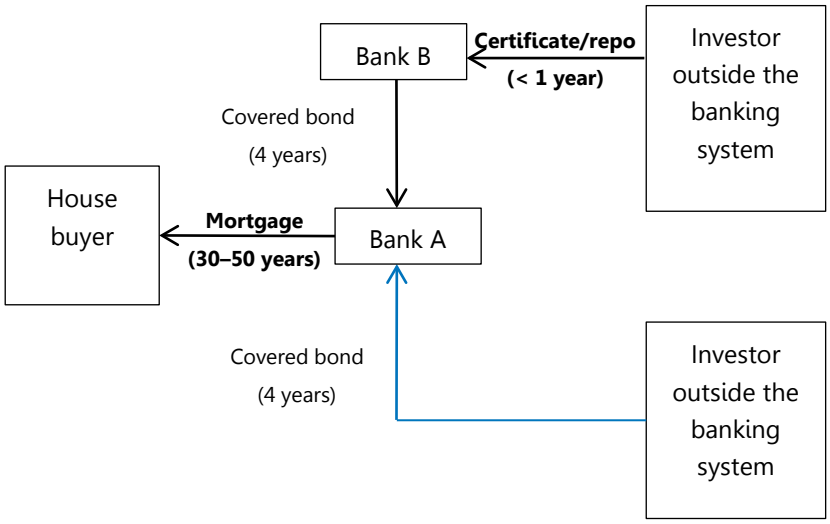
[117] The major Swedish banks also benefit from the fact that non-American banks do not need to pay the deposit guarantee charge in the United States, which would otherwise correspond to 10 basis points of their funding.
[118] "Level 1 assets" refers to cash, deposits with central banks and government securities.
[119] According to Finansinspektionen's definition in FFFS 2012:6. See the box Liquidity coverage ratio in Swedish krona. Swedbank is the only bank that publishes its liquidity coverage ratio in Swedish krona.
[120] The structural liquidity measure measures the banks' stable funding in relation to their illiquid assets. The measure is therefore similar to the Net Stable Funding Ratio (NSFR) in the Basel regulations. See the Riksbank's recommendations concerning the NSFR in Chapter 1. For a more detailed description of the Riksbank's structural liquidity measure, see Financial Stability Report 2010:2.

The major banks' liquidity risks are also high at maturities longer than one year. An important reason for this is that the mortgages granted by the banks have maturities much longer than one year. The time to maturity in Swedish mortgage contracts is usually 30 to 50 years.[121] At the same time, these mortgages are funded by covered bonds with an average maturity when issued of only four years (see Chart 4:18).[122] The resulting imbalance poses a risk to the banks as they must renew the funding for the mortgages many times before the customers have paid back their loans. If a bank cannot renew its funding it risks being hit by liquidity problems.

The structural liquidity risks are also greater for the banking system as a whole than for individual banks. This is because the major banks own approximately 20 per cent of each others' covered bonds. To illustrate why this increases liquidity risk in the banking system we can imagine a scenario in which Bank A grants mortgages with a maturity of 30 to 50 years and funds these by issuing covered bonds with a maturity of four years (see Figure 4:1). Some of these are purchased by Bank B. As Bank B holds the bonds partly in its liquidity reserve and partly in its stock in order to meet its commitments as a market maker, they are usually funded at very short maturities using either certificates or repos.[123] From a system perspective, this thus means that part of the borrowing that enters the banking system and that ultimately funds mortgages actually has a maturity shorter than one year, despite the fact that Bank A funded its loan at a maturity of approximately four years. The maturity transformation, and thereby the structural liquidity risk, is thus greater for the banking system as a whole than for individual banks.

[121] The average customer redeems a bank loan after approximately seven years, but this is usually made possible by the customer taking a new loan with another bank. Therefore the maturity for the banking system as a whole is much longer.
[122] This refers to the average maturity of Swedish covered bonds issued between March 2009 and March 2013, according to the Association of Swedish Covered Bond Issuers. The average maturity of the outstanding covered bonds in March 2014 was just under three years.
[123] The reason the banks fund their holdings of covered bonds at short maturities is that the bonds are assumed to be liquid and thus possible to sell quickly to acquire means of payment. This is a reasonable assumption in normal times, but in times of severe financial stress a situation can arise in which this is not possible.

Figure 4:1 Example of cross holding of the banks' covered bonds



Note. Note that the figure only illustrates the part of mortgage funding that is carried out using covered bonds.

Shadow banking and the Swedish financial system

Shadow banks conduct bank-like operations outside the regular banking system and may therefore be associated with the same types of risk as regular banks. However, they are not subject to the same regulations as the banks. If shadow banks are interlinked with the banking sector, problems that arise in the shadow banks may spread to the entire financial system. This was why shadow banks played a central role during the financial crisis of 2007-2008. At present, international efforts are underway to improve the oversight and regulation of shadow banks. This box discusses shadow banks and the risks that they can give rise to. One type of shadow bank that is important to the Swedish financial system and for which work on new regulations is now underway is money market funds. This box therefore focuses on money market funds.

The most generally accepted description of shadow banking is banking operations involving institutions and activities that are separate from the traditional banking system.[124] The bank-like operations conducted by shadow banks often include the funding of long-term, illiquid assets with short-term borrowing.[125] Shadow banking is a term that was coined in connection with the financial crisis. However, the phenomenon goes back much further than this. For example, the finance companies that were involved in the Swedish crisis of the 1990s can be regarded as shadow banks.[126]

Shadow banks diversify and increase the efficiency of the financial system in that they offer funding alongside the banks. They are often regulated and under supervision, but from a consumer-protection perspective. One of the reasons why shadow banks are not regulated as banks is that they are not covered by the deposit guarantee scheme. The fact that they are not regulated as banks creates profit-making opportunities that are exploited by some shadow banks.

The operations of shadow banks are associated with risks as they, like banks, are dependent on short-term borrowing to fund their operations. If problems arise with short-term borrowing, both banks and shadow banks may find it difficult to fund their long-term assets. During periods of financial turbulence, it may also be difficult to sell assets, particularly illiquid assets. Unlike the banks the shadow banks have no direct access to central bank facilities, such as emergency liquidity assistance. This means that the shadow banks are often more sensitive to shocks on the financial markets than banks are.

[124] This follows from the Financial Stability Board's (FSB) definition of shadow banks. However, there are other definitions.
[125] The bank-like operations conducted by shadow banks are usually seen as various forms of credit intermediation, which includes maturity and liquidity transformation.
[126] Nyckeln and other finance companies were less regulated than the banks before the crisis of the 1990s. These finance companies funded high-risk projects on the construction and property markets by issuing short-term certificates. They were linked to the Swedish banks in various ways, so when they experienced problems with their short-term funding in the autumn of 1990 the banks lost money. These losses were a contributory factor to the Swedish banking crisis.

If, in addition, shadow banks are large and interlinked with the banking sector, problems that arise in the shadow banks may spread to the banks and give rise to systemic risks. The links between banks and shadow banks may be one or several of the following:

- *Banks invest in shadow banks, for example in the assets issued by shadow banks.* If the shadow banks experience problems, the banks may lose the money they have invested in the shadow banks.
- *Shadow banks account for part of the banks' funding.* If the shadow banks experience problems, funding that is important to the banks may disappear.
- *Shadow banks and banks invest in the same assets.* If the shadow banks experience problems they may be forced to sell assets, which will lead to a fall in asset prices. Consequently, the value of the banks' holdings in these assets will also fall.
- *The banks have both formal and informal commitments to the shadow banks.* These commitments may, for example, be in the form of liquidity lines. If the shadow banks experience problems, these commitments may mean that the banks inject money to the shadow banks.

The financial institutions that are classed as shadow banks differ from country to country, partly due to differences in legislation. There is also a shortage of statistics on the shadow banking sector. Moreover, not all shadow banks are strongly linked to banks and not all shadow banks are large enough to constitute a systemic risk. This makes it difficult to estimate the size of the shadow banking sector and to assess the financial systemic risks associated with it.

In Sweden, the shadow banking sector makes up a smaller proportion of the financial system than in the United States. This is largely because the banks in Sweden conduct the operations that in the United States are conducted by shadow banks instead. One type of shadow bank that plays an important role in the Swedish financial system is Swedish and foreign money market funds. The rest of this box therefore focuses on money market funds.[127]

Why money market funds are shadow banks and their role in the financial crisis of 2007-2008

Money market funds mainly invest in debt instruments, for example government securities, and certificates and bonds issued by banks and companies.[128] Some of these instruments have low liquidity. At the same time, those who invest in the funds can withdraw their money at any time, i.e. the funds have short-term funding. The money market funds thus conduct bank-like operations. However,

[127] For example, financial vehicle corporations (FVCs) that conduct securitisation, certain types of finance companies, hedge funds and exchange-traded funds (ETFs) are often classed as shadow banks. Repos and securities loans are often seen as shadow banking activities.
[128] Swedish money market funds invest in securities with a total average maturity less than one year. In the case of US money market funds, the average maturity is less than three months.

the funds are not regulated in the same way as banks and are therefore shadow banks. [129]

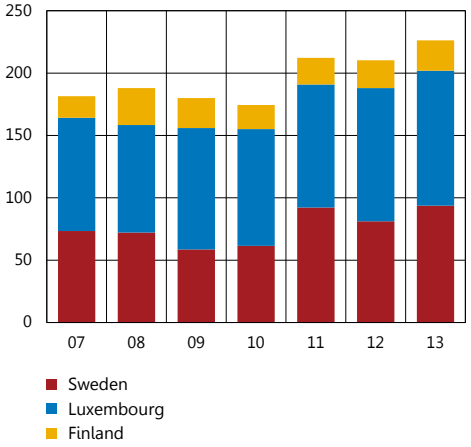
There are differences between different types of money market funds which may be decisive for their impact on financial stability. One example of such a difference is whether the funds have a constant or variable net asset value (NAV). A constant net asset value means that the value remains the same over time, for example USD 1 or EUR 1. The return on such a fund is often in the form of new fund units instead. In the case of a variable net asset value the value may vary from one day to another. Money market funds with a constant NAV are mainly to be found in the United States, Luxembourg and Ireland, while the funds in Sweden have a variable NAV.

It was primarily the funds with a constant NAV that encountered problems during the financial crisis.[130] In principle, these funds promise the same thing as a bank account, that is that the investor will get back the amount in the account. However, these funds do not have access to capital in the way that the banks do to cover potential losses. Nor are they covered by the deposit guarantee scheme. When assets that a constant NAV fund has invested in fall in value, the fund is nevertheless forced to write-down the value of the fund units. If the investors are unaware of this risk, a write-down or the rumour of a write-down may lead to substantial outflows. This can be compared to a bank run.

When a US money market fund with a constant NAV was forced to write down its net asset value during the financial crisis, several funds were subjected to substantial outflows as a result of a loss of confidence.[131] These funds were then forced to rapidly reduce their investments on the US money market. This led to problems for the companies and banks that were dependent on funding from this market, which also included European banks. In this way, problems among the US money market funds spread to the European financial system. The difficulty of the European banks to fund their operations in dollars was the reason why the European central banks, including the Riksbank, with assistance from the Federal Reserve started lending dollars to the banks during the autumn of 2008.[132]

Some banks also chose to inject money into the money market funds that were linked to them to avoid acquiring a bad reputation.[133] There were thus informal commitments between the

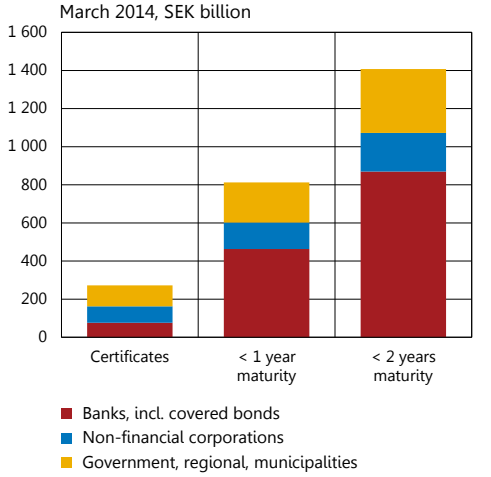
Chart B4:1 Swedish money market funds' assets per legal domicile
SEK billion



Note. Refers to the fixed income funds that have assets with an average maturity of less than one year that mainly invest in instruments issued in Swedish krona.

Source: Morningstar

Chart B4:2 Outstanding Swedish debt instruments per remaining maturity and type of issuer
March 2014, SEK billion

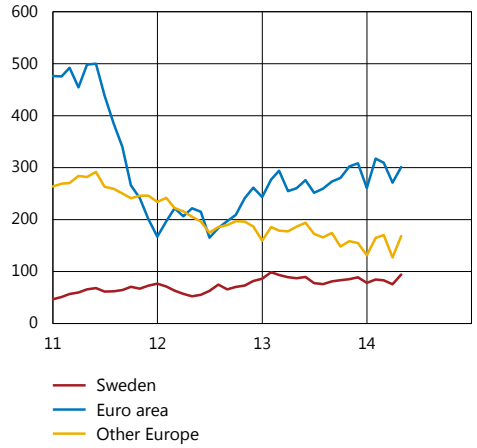


Note. Certificates refers to money market instruments. Certificates are included in the column < 1 year maturity and instruments with maturities of less than 1 year are also included in the column < 2 years maturity. All issued in Swedish krona.

Source: Statistics Sweden

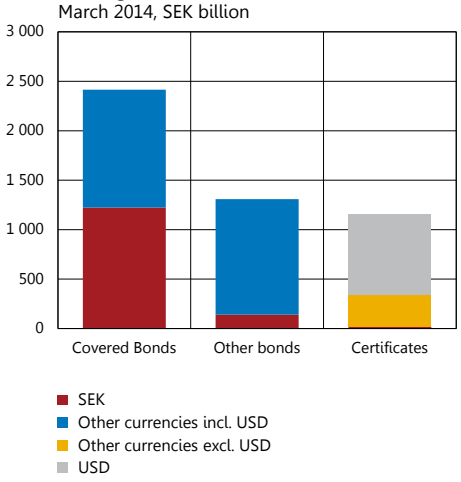
[129] In Sweden, the money market funds are regulated by two acts: Lagen om investeringsfonder (2004:46) and Lagen om förvaltare av alternativa investeringsfonder (2013:561). These acts derive from the common legislation in the EU. There is similar legislation in the United States.
[130] Money market funds with a variable NAV also suffered substantial outflows during the financial crisis. However, these outflows were smaller than for the constant NAV funds, see Witmer, Jonathan. (2012), Does the Buck Stop Here? A Comparison of Withdrawals from Money Market Mutual Funds with Floating and Constant Share Prices, *Bank of Cananda Working Paper 2012:25*.
[131] When Lehman Brothers went bankrupt on 15 September 2008, the US money market fund Reserve Primary Fund, which owned debt instruments issued by Lehman Brothers, was forced to reduce its net asset value to less than USD 1. This is called "breaking the buck" and triggered outflows from many other money market funds. Over the course of only a few days, over USD 300 billion was withdrawn from these funds, corresponding to approximately 10 per cent of the total wealth of the funds. In Sweden there were no substantial outflows from the money market funds during the financial crisis, see Gunnarsdottir, Gudrun. and Strömqvist, Maria (2010), "Money market funds and financial stability", Sveriges Riksbank Economic Review 2010:2.
[132] For further discussion see Baba, Nakolika, McCauley, Robert. and Ramaswamy, Srichander, (2009), US dollar money market funds and non-US banks, *BIS Quarterly Review, March, pp. 65-81*.
[133] An estimated 20 money market funds in the United States and the EU received around USD 12 billion from the financial institutions, mainly banks, that backed them.

Chart B4:3 US money market funds' investments in different countries' banking sectors
USD billion



Note. The investments are in the form of holdings of bank certificates, deposits and reverse repos.
Sources: ICI and the Riksbank

Chart B4:4 The major Swedish banks' market funding
March 2014, SEK billion



Source: Bank reports and the Riksbank

banks and the funds. To prevent continued problems for the money market funds, temporary measures were taken in the United States to the effect that the funds were to a certain extent covered by the deposit guarantee scheme and were given access to central bank facilities.[134]

The role of money market funds in the Swedish financial system

The total assets (fund wealth) of the Swedish money market funds amount to approximately SEK 225 billion (see Chart B4:1), while the assets of the Swedish banking sector amount to over SEK 12,000 billion.[135] The funds mainly invest on the Swedish short-term fixed income market, which comprises debt instruments with a remaining maturity of up to two years. The funds' assets correspond to almost 20 per cent of the total volume of approximately SEK 1,400 billion of outstanding assets on the Swedish short-term fixed income market (see Chart B4:2).[136] So although the funds only correspond to around two per cent of the size of the Swedish banking sector, they are important players on the short-term fixed income market, on which the banks are the largest issuers.

The investments of US money market funds in Swedish banks' securities amount to around SEK 600 billion (see Chart B4:3), that is more than double the size of the Swedish money market funds.[137] Their investment in Swedish banks account for over 10 per cent of the banks' total market funding or, alternatively, correspond to around 70 per cent of the Swedish banks' certificates in US dollars (see Chart B4:4). They are thus important to the Swedish banks' funding, especially in dollars. That the banks have access to this funding is also important to, for example, Swedish insurance companies. This is because it is a precondition for the banks being able to offer derivatives to the insurance companies, which they need to manage the currency risks that arise when they invest abroad.[138]

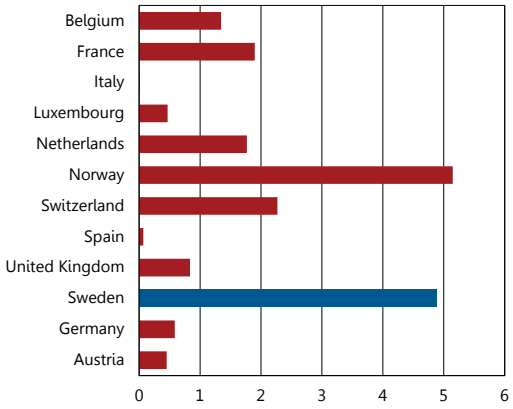
Seen in relation to the size of the banking system, the US money market funds' investments in Swedish banks are larger than in most European banks (see Chart B4:5). This is largely because the Swedish banks are deemed to be less risky than many other European banks, which is also reflected in the relatively low CDS premiums for Swedish banks (see Chart 2:13). However, the funds' lending to banks can fall quickly. For example, the funds' investments in the euro countries' banks fell dramatically in a short period of time in 2011 in connection with the European debt crisis (see Chart B4:3). If the funds were to reduce their investments in the Swedish banks the banks

[134] For a description of these events see, for example, ESRB Occasional paper series (2012), *Money Market Funds in Europe and Financial Stability.*
[135] This refers to the money market funds that primarily invest in debt instruments in Swedish krona, including the Swedish funds that are registered abroad. Despite the fact that a large proportion of the funds are registered abroad, it is Swedish financial institutions, mainly banks, that stand behind these funds.
[136] No detailed statistics are available on the assets of the Swedish money market funds.
[137] The investments in the banks are in the form of holdings of bank certificates, deposits and reverse repos.
[138] For further discussion see Hilander, Ida (2014), "Short-term funding in foreign currency by major Swedish banks and their use of the short-term currency swap market", *Sveriges Riksbank Economic Review 2014:1.*

would lose some of their funding in dollars. This would mainly result in a reduction in the banks' liquidity buffers in dollars and consequently their resilience to short-term stress in this currency would also decline.[139]

The US money market funds' investments in the Swedish banks show that there are significant links between the Swedish financial system and shadow banks outside Sweden. Money market funds from other parts of the world, including Europe, also contribute to the funding of Swedish banks. However, other countries do not have such detailed statistics as the United States, which makes it difficult to determine the extent to which this takes place.

Chart B4:5 US money market funds' investments in the country's banks in relation to the size of the banking sector
April 2014, Per cent



Note. Includes only those countries whose banks US money market funds have invested in. The size of the banking sector relates to June 2013.

Sources: SNL Financial, ECB, ICI and the Riksbank

New regulation for money market funds

Initiatives have been taken internationally to strengthen the regulation of money market funds as a result of the problems caused by these funds during the financial crisis. In December 2012, the European Systemic Risk Board (ESRB) issued a recommendation on a regulatory framework for money market funds in the European Union. Among other things, this states that all money market funds with a constant NAV should be converted into variable NAV funds. The aim is thus to prohibit money market funds with a constant NAV due to the systemic risks associated with them.[140] Approximately half of the money market funds in the European Union, which amount to around EUR 1,000 billion, have a constant net asset value.[141]

In September 2013, the European Commission presented a proposal on a new regulatory framework for money market funds.[142] Instead of prohibiting money market funds with a constant NAV, the European Commission proposed that these funds should have a capital buffer corresponding to three per cent of the fund wealth. Negotiations on this proposal are now being held in the European Union. The Riksbank supports the ESRB's recommendation to prohibit money market funds with a constant NAV in the European Union.

The Riksbank is currently analysing the shadow banking sector in Sweden and the links between the Swedish financial system and shadow banks abroad. Once this work is completed, the Riksbank will publish the results of this analysis.

[139] For further discussion see the box The major Swedish banks' borrowing in US dollars, in *Financial Stability Report 2013:1*, Sveriges Riksbank.
[140] *Recommendation of the ESRB of 20 December 2012 on money market funds (ESRB/2012/1).*
[141] ESRB 2012: *Annex to the ESRB Recommendation on money market funds.* More than 90 per cent of the funds are in France, Luxembourg or Ireland.
[142] The European Commission's proposal is entitled *Proposal for a Regulation of the European Parliament and of the Council on Money Market Funds.*

Testing the banks in every EU country

Comprehensive work is currently underway in the EU with the aim of investigating the health of the banks and remedying any weaknesses. This work largely involves ensuring that the banks' assets have been valued correctly and that the banks have enough capital to resist any future economic strains.

Investigating the banks' financial position is an important condition for strengthening confidence in banks across the entire EU. The exercise is also an important element in the ECB's preparations for taking over supervision of the largest banks in the euro area in November.

The first element in the exercise is formed of an Asset Quality Review (AQR). In this, national supervisory authorities will primarily investigate lending by the banks to ensure that it has been recorded at the right value. For Swedish banks' operations in Sweden (including branches abroad), the review will be carried out by Finansinspektionen[143], while Swedish banks' overseas subsidiaries will be reviewed by the respective country's designated supervisory authority. For example, Nordea's Finnish subsidiary will be reviewed by the Finnish financial supervisory authority on the basis of the method worked out within the ECB.

In a second stage, the supervisory authorities will carry out what is known as a stress test, under the supervision of the European Banking Authority (EBA). The stress test will investigate the banks' resilience to a negative macroeconomic development in which, for example, unemployment is assumed to rise at the same time as GDP and certain asset prices fall. The underlying stress test is somewhat more stringent than that in the EBA's stress test of 2011.

The stress test will be designed in a similar way for all banks in the EU, taking into consideration particular vulnerabilities in various countries. Input values on bank balance sheets may be adjusted in the stress test based on the results of AQR. The EBA has announced that it requires banks to have a core Tier 1 capital ratio amounting to at least 5.5 per cent after the stress test. However, each country's supervisory authority may determine a more stringent limit for the banks under its jurisdiction and the consequences for any bank failing to comply with the limit set. It is planned to present the results of the AQR and stress tests in October. It is of central importance for the strengthening of confidence in the European banks that the asset reviews and stress tests are conducted in an ambitious, transparent and accurate manner.

[143] Finansinspektionen will examine Handelsbanken, Nordea, SEB, Swedbank and Danske Bank's exposures in Sweden.

Glossary

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 conservation buffer: A requirement for a capital buffer consisting of Common Equity Tier 1. If the buffer is not complete, the bank must retain a portion of its profit to improve its capital ratio. The buffer requirement must be fully implemented by January 2019.

CDS, **Credit Default Swap:** A contract between agents on the credit market aimed at transferring the credit risk of an asset, such as a bond, from one agent to another. The buyer of a CDS contract buys credit protection from the seller of the CDS contract by paying a premium over the contract's duration or until a credit event occurs. If a credit event occurs, the buyer transfers the insured asset to the seller in exchange for the nominal value of the asset.

CDS premium: Annual cost in basis points for buying a CDS contract.

Certificate: A security for trading in the money market, issued for example by a bank or a company with the purpose of borrowing money. Maturity is a maximum of one year.

CET 1: Common Equity Tier 1. A definition of a bank's capital in accordance with the Basel III Accord.

Core Tier 1 capital: Tier 1 capital with a deduction for capital contributions and reserves that may be included in the capital base as Tier 1 capital in accordance with chapter 3, section 4 of the Capital Adequacy and Large Exposures Act (2006:1371).

Core Tier 1 capital ratio: Core Tier 1 capital in relation to risk exposure amount.

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 gap: The deviation from the trend in lending by monetary financial institutions to companies and households in relation to GDP.

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

CRR/CRDIV, **Capital Requirements Regulation/Capital Requirements Directive IV:** Proposed EU regulation with directives that implement the Basel III Accord. The regulations include stipulations on the banks' capital adequacy, leverage and liquidity.

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: Total household debt in relation to disposable income.

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

EBA, **European Banking Authority:** The European Banking Authority establishes joint regulatory and supervisory standards in the EU and conducts stress tests of European banks.

ESRB, **European Systemic Risk Board:** The European Systemic Risk Board is responsible for the macroprudential supervision of the financial system within the EU.

Impaired loans: Loans which will probably not be repaid in accordance with the terms of the loan contract. Impaired loans are listed on the balance sheet at their full amount, even if only parts of the loans are covered by collateral.

Interbank market: Financial market where banks trade interest and currencies with one another.

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.

LCR, **Liquidity Coverage Ratio:** Liquidity measurement defined by the Basel Committee that measures a bank's ability to deal with a stressed net outflow of liquidity for 30 days. In simple terms, an LCR of 100 per cent means that a bank's liquidity reserves are adequate to enable the bank to manage an unexpected liquidity outflow for 30 days.

Level 1 assets: Highly-liquid assets, above all securities issued by governments and holdings with central banks. Used when calculating the LCR.

Leverage ratio: A non-risk adjusted capital measure. This measure specifies, somewhat simplified, the banks' equity in relation to their total assets.

Liquidity: Measure of the ability of a company or organisation to meet its payment obligations in the short term. Can also describe how quickly it is possible to convert an asset into money.

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.

Liquidity assistance: Measures that a central bank may take to support the ability of one or more financial institutions to meet payment obligations in the short term with the purpose of avoiding a serious disruption in the financial system and strengthening confidence in the payment mechanism.

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.

LTRO (Long-Term Refinancing Operation): A refinancing programme in which the European Central Bank (ECB) lends capital at longer maturities to banks in the EU. Maturities are 3, 6, 12 and 36 months.

Moral hazard: The risk that knowledge of a safety net (for example insurance) affects behaviour in a way that increases the probability of an unfavourable outcome.

Net commission income: Income less cost of financial services sold (apart from interest), e.g. services related to payments, share trading, asset management and card operations.

Net interest income: Interest income from lending less interest expenditure for funding and deposits.

NSFR, **Net Stable Funding Ratio:** Liquidity measurement defined by the Basel Committee. The measurement puts a bank's stable funding in relation to its illiquid assets in a stress scenario that covers a period of one year.

Pillar 2 requirement: The basic capital requirement (Pillar 1) stipulates that a bank, at any one point in time, shall have a minimum capital base equal to the sum of the capital requirements for credit risks, market risks and operational risks. In addition, the capital base shall also cover the capital requirement for additional identified operational risks not captured in Pillar 1, so-called internal capital adequacy assessment (Pillar 2). Pillar 2 is an individual capital requirement that varies between different banks. For Swedish banks, the Pillar 2 requirement is determined by Finansinspektionen. While the Pillar 1 requirement is public and affects the risk exposure amount, the Pillar 2 requirement is not public as yet and does not affect the banks' risk exposure amount.

Provisions: Provisions for probable loan losses.

Recoveries: Previous quarters' realised loan losses that are reversed.

Reversals: Previous quarters' provisions for probable loan losses that are reversed.

Risk exposure amount: 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).

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 exposure amount, 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.

Stibor: See Interbank rate.

Unsecured bonds: A bond whose holder does not have a special benefit right in the event of a bankruptcy. Unsecured bonds normally entail a higher credit risk than covered bonds, which means that the termination costs are higher.

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