



Financial Stability Report 2014:2

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 two occasions – on 12 and 25 November 2014. The Report takes into account data available as of 21 November 2014. The Report is available on the Riksbank's website, www.riksbank.se, where a printed version of the report can be ordered free of charge or a PDF can be downloaded.

The Riksbank and financial stability

- The Riksbank has the Riksdag's (the Swedish parliament) mandate to promote a safe and efficient payment system. Achieving this requires a stable financial system so that payments and the supply of capital function well. 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 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 the best possible way, the Riksbank needs to be well prepared for crises by having an efficient crisis organisation with good information channels and tools for analysis, as well as well-developed cooperation with other authorities.
- The Riksbank does not have the sole responsibility for promoting financial stability. It shares this responsibility 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 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.
- 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 sensitivity is due to the vulnerability of central parts of the system, such as banks and markets. Banks are vulnerable mainly because they fund their operations at short maturities but lend at longer maturities. This imbalance makes the banks dependent on the general public and the market having confidence in them. If the market participants' confidence in their counterparties or for the financial instruments traded on the market 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 problems that arise in one institution or market can rapidly spread throughout the system. Contagion effects may also arise if there is a general fall in confidence in similar activities.
- The combination of the sensitivity of the financial system and the large potential 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 some 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. The main focus of the analysis is on the Swedish banks and on the markets and infrastructure that are important for their funding and risk management.
- In some cases the Riksbank recommends specific measures to counteract risks. These recommendations may be based on the current economic situation. They may also relate to more structural circumstances and stem from current regulatory issues. The recommendations can be aimed at banks as well as at other market participants, or at legislators and other authorities.

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■ Summary

The financial system is deemed to work well at present. However, the Swedish banking system is large and interconnected. Moreover, the Swedish banks have a large proportion of wholesale funding and a small proportion of equity in relation to their total assets. This means that the financial system is sensitive to shocks. According to current analysis, the factors that could result in shocks are the high level of risk-taking on the financial markets and the high and growing indebtedness of Swedish households. The Riksbank assess that measures must be taken to strengthen the banks' resilience and dampen the risks inherent in household indebtedness. The Riksbank therefore recommends Finansinspektionen (the Swedish Financial Supervisory Authority) to bring forward the introduction of a leverage ratio requirement and to introduce an amortisation requirement for Swedish mortgages.

GOOD PROFITABILITY IN THE MAJOR SWEDISH BANKS

Although economic activity has been relatively weak, the major Swedish banks have continued to have good profitability and have access to inexpensive funding. In addition, the debt-servicing ability of the banks' borrowers is generally good and stress on the financial markets is low. All in all, the financial system is thus deemed to be functioning well at present.

STRUCTURAL VULNERABILITIES IN THE BANKING SYSTEM ARE INCREASING SENSITIVITY TO SHOCKS

The Swedish banking system is large and interconnected. In addition, the Swedish banks have a large proportion of wholesale funding and a small proportion of equity in relation to their assets. This means that the banks are sensitive to various economic shocks. If problems arise in the banking system, this will probably also have consequences for financial stability. According to current analysis, one risk that could lead to shocks is the high level of risk-taking on the global financial markets. This is largely an effect of the expansionary monetary policies being conducted by many central banks. These measures are important to support the economic development but, at the same time, could lead to risks accumulating on the financial markets. Another risk that could lead to shocks, both in the financial system and in the real economy, is the high level of indebtedness among Swedish households.

MEASURES MUST BE TAKEN TO DAMPEN THE RISKS LINKED TO HOUSEHOLD INDEBTEDNESS

The measures taken so far to manage the problems linked to household debt have not been adequate. It is therefore necessary to adopt more measures. One suitable measure would be to introduce an amortisation requirement. Finansinspektionen presented a proposed amortisation requirement in conjunction with the November 2014 meeting of the Financial Stability Council. The Riksbank considers that this proposal is a step in the right direction, but assesses at the same time that the measure will only have small effects on household

debt. However, the most important thing at present is that measures are put in place. Consequently, to avoid delay, the Riksbank recommends Finansinspektionen to introduce an amortisation requirement for new mortgages by issuing a general guideline. In addition to this, other measures will also have to be adopted within several policy areas in order to reduce the risks associated with household debt. These measures will need to be introduced gradually and over a longer period of time.

THE RESILIENCE OF THE BANKS NEEDS TO BE STRENGTHENED

As the Swedish banks' assets largely consist of mortgage loans, a connection exists between debt in the household sector and the state of the banks. In addition, the banks have a strong connection to the global financial markets via their wholesale funding. The structural vulnerabilities of the Swedish banking system need to be reduced to give the banks sufficient resilience to shocks. Several measures have already been taken, but the Riksbank's assessment is that further measures are needed. Increasing capital in the banks is one such measure. This is because the Swedish banks have relatively little equity in relation to their assets, which is to say that they have relatively low leverage ratios. Several other countries with large banking systems have already introduced a minimum requirement for the leverage ratio. The Riksbank considers that such a requirement should also exist in Sweden and therefore recommends Finansinspektionen to introduce a leverage ratio requirement from 2016.

1. Stability assessment and recommendations

Recently, global growth prospects have deteriorated, which has contributed towards slightly increased uncertainty on the financial markets. This has periodically resulted in falling stock market rates, increased volatility and higher risk premiums. However, demand for high-risk assets is still high on the financial markets. Although economic activity has been relatively weak, the major Swedish banks have continued to demonstrate high profitability and have had access to inexpensive funding. In addition, the debt-servicing ability of the banks' borrowers is generally good. All in all, the financial system is thus deemed to be functioning well at present. However, there are vulnerabilities in the structure of the banking system that make it sensitive to shocks. The Riksbank therefore recommends Finansinspektionen to bring forward the introduction of a leverage ratio requirement to further strengthen the resilience of the banks. Furthermore, the high and rising indebtedness of Swedish households entails risks for both macroeconomic and financial stability. The Riksbank therefore also recommends Finansinspektionen to introduce an amortisation requirement for Swedish mortgages.

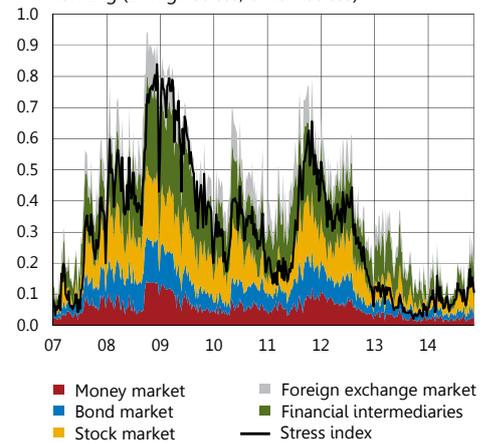
Assessment of the current situation and outlook

HIGH DEMAND FOR HIGH-RISK ASSETS DESPITE SOME AMOUNT OF UNCERTAINTY ON THE FINANCIAL MARKETS

Since the last Financial Stability Report was published in June, uncertainty has increased slightly on the financial markets, among other reasons due to the deterioration of global growth prospects. This has periodically resulted in falling stock prices, increased volatility and higher risk premiums. However, seen over a longer perspective, stock prices are still high, while volatility and risk premiums are low. Among other things, this is reflected by indicators for stress on the financial markets being on the same low levels as to prior to the break-out of the financial crisis in 2007 (see chart 1:1).

One important explanation for this development is provided by the expansionary monetary policy conducted by many central banks for several years. With the aid of low policy rates and other unconventional monetary policy measures, the central banks have supported economic growth. But, at the same time, the low interest rates and the low volatility to which these measures have contributed, have led investors' demand for higher-risk assets to increase (see chart 1:2). Many types of asset which are considered as higher risk and are thereby expected to give slightly higher returns have therefore increased in value over the last years. Among other things, prices for stocks have increased and yields on bonds have been pressed down to low levels (see charts 1:3 and 1:4). The signs of low stress indicated by chart 1:1 could thereby largely be seen as a consequence of this expansionary monetary policy, rather than as a consequence of risks being small on the financial markets. Additionally, the development in the real economy, for example in the euro area, has become more

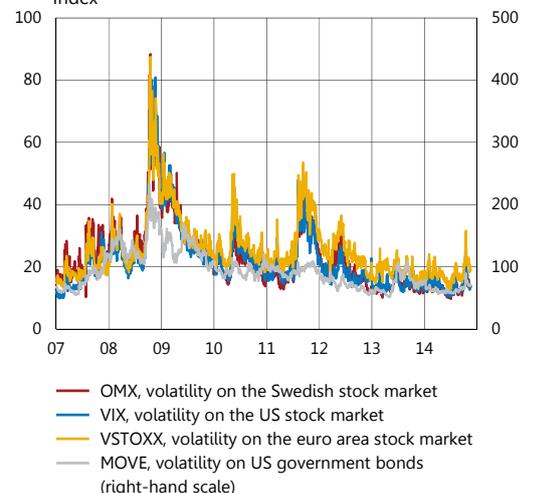
Chart 1:1 European stress index
Ranking (1=high stress, 0=low stress)



Note. The European stress index was produced by the ECB. A stress level of 1 signifies a historically high stress level while 0 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: The European Central Bank (ECB)

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



Note. The chart refers to the expected volatility within 30 days that can be derived from pricing on the options market.

Source: Reuters EcoWin

Chart 1:3 The stock market
Index, 1 January 2007 = 100



Sources: Bloomberg and the Riksbank

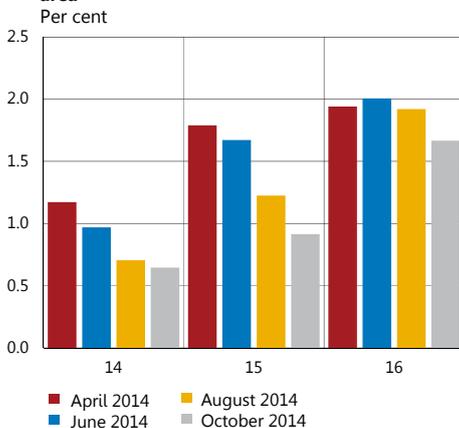
Chart 1:4 Difference in yield between European corporate bonds and German government bonds
Percentage points



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

Chart 1:5 The Riksbank's GDP forecasts for the euro area
Per cent



Source: The Riksbank

uncertain, which is not captured in the index for financial stress either.¹

ECONOMIC RECOVERY IN THE UNITED STATES AND UNITED KINGDOM

The recovery of the world economy as a whole is expected to continue in the coming years. Among other things, the expansionary monetary policy has contributed to the economic development of both the United States and United Kingdom picking up. The Federal Reserve has therefore initiated the tapering of its unconventional monetary policy measures and terminated its purchases of US government and mortgage bonds in October. Market pricing also indicates that both the Federal Reserve and the Bank of England are expected to start raising their monetary policy rates in the autumn of 2015.²

ECONOMIC GROWTH IS DAMPENED IN EUROPE

Although the ECB is conducting an increasingly expansionary monetary policy, the economic recovery has slowed down and inflation has been lower than expected in the euro area. Growth forecasts for the years immediately ahead have been revised downwards (see chart 1:5). Lending by the banks also continues to be tight, which results in constrained corporate investment and thereby restrained economic growth. Furthermore, several euro area countries are still facing problems with high private and public debts and poor competitiveness, which is also resulting in reduced confidence in the future economic development by both households and companies. In addition to this, the ongoing conflict in Ukraine has dampened the economic recovery.³ The risk-taking seen on the financial markets in Europe thus does not seem to have reached the real economy, where it could contribute to the economic recovery through higher consumption and increased investment.

SWEDISH ECONOMY IS BEING HAMPERED BY WEAKER INTERNATIONAL CLIMATE BUT STIMULATED BY EXPANSIONARY MONETARY POLICY

The weaker economic development in the euro area has also contributed to growth in the Swedish economy being restrained, above all with exports continuing to be dampened. At the same time, the expansionary monetary policy in Sweden has boosted domestic demand and, overall, the economy is stronger than in the euro area. In the longer term, the recovery of the Swedish economy is expected to take place at a faster rate as economic activity abroad improves.⁴

¹ For examples of indicators for uncertainty that are not captured in the stress index for financial markets, see Armelius, Hanna, Belfrage, Carl-Johan and Stenbacka, Hanna (2014), The mystery of the weak growth in world trade following the global financial crisis, *Sveriges Riksbank Economic Review*: 3, 2014. Sveriges Riksbank.

² *Monetary Policy Report*, October 2014. Sveriges Riksbank.

³ *Monetary Policy Update*, September 2014. Sveriges Riksbank.

⁴ *Monetary Policy Report*, October 2014. Sveriges Riksbank.

Borrowing by Swedish companies has increased over the last six months and is also expected to continue to do so as investment increases. The banks' funding terms for companies have improved and increasing numbers of companies are also utilising the financial markets for their funding by issuing corporate bonds (see chapters 2 and 3). This means that, in general, corporate investments in Sweden have not been restrained by tight credit terms in the same way as in the euro area.

However, the low interest rates have also led to a more rapid rate of increase of the already-high housing prices (see chart 1:6 and chapter 3). At the same time, households are borrowing increasing amounts and the growth rate of debt has accelerated recently (see chart 1:7). This development is also expected to lead to rises in the already-high debt ratio in the years ahead (see chapter 3).

STRONG PROFITS AND LOW LOAN LOSSES IN THE MAJOR SWEDISH BANKS

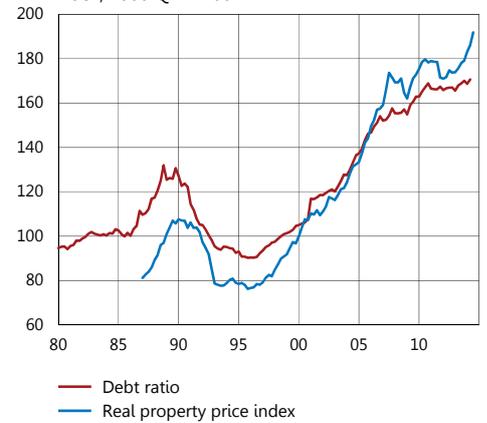
Although economic activity has been relatively weak, the major Swedish banks have continued to report strong profits (see chart 1:8). One explanation for this is that growth is high in the banks' lending activities. Over the past six months, growth in the banks' lending has increased to eight per cent on an annual basis, above all because volumes of mortgages have increased. This has contributed to increased revenues for the major banks. In addition, loan losses and funding costs are low, which, combined with the generally low cost levels, means that the profitability of the major banks is high (see chapter 4).

MIXED PICTURE OF THE MAJOR BANKS' CAPITAL AND LIQUIDITY SITUATION

The major Swedish banks' CET 1 capital ratios have strengthened and are high in an international comparison (see chart 1:9). This is partly due to recent years' strong profits, which have made it possible for the major banks to boost their equity with retained profits. However, the main reason is that the average risk weights for the banks' assets have decreased (see chapter 4). If the decrease in risk weights is disregarded and the banks' capital instead compared to their total assets, the same improvement of the capital situation is not seen. In addition, an international comparison of one such non-risk weighted capital measure shows that the major Swedish banks have comparatively low levels of capital (see chart 1:9).

The picture of the major banks' liquidity situation is also mixed. On an overall level, resilience to short-term liquidity risks is deemed to be strong and the banks' exceed the minimum level of 100 per cent in the short-term liquidity measure Liquidity Coverage Ratio (LCR). However, if the LCR is divided into different currencies, it can be seen that the levels are high in dollars and euros but lower, and

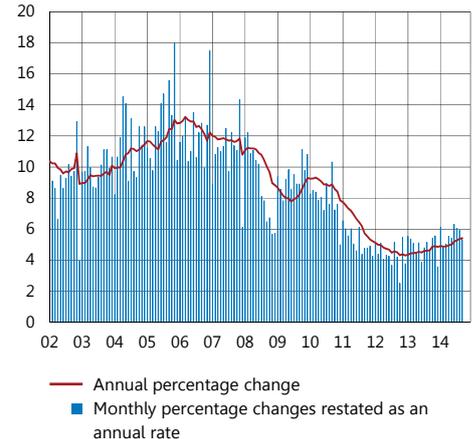
Chart 1:6 Swedish households' debt and the real property price index
Total debt as a percentage of disposable income, and index, 2000 Q1 = 100



Note: Property price index deflated with CPIF and then calculated as index 2000 Q1 = 100.

Sources: Statistics Sweden and the Riksbank

Chart 1:7 Swedish households' debt
Per cent

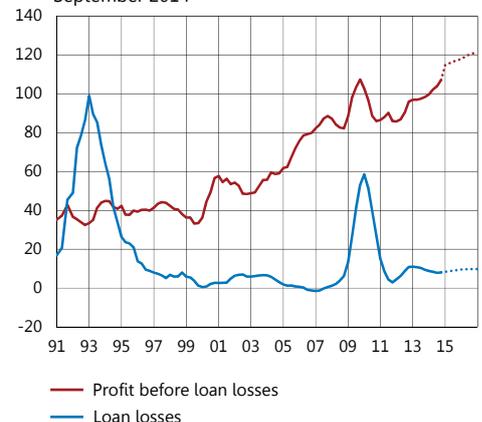


Note: Seasonally-adjusted data.

Sources: Statistics Sweden and the Riksbank

Chart 1:8 Profits before loan losses and loan losses in the major Swedish banks

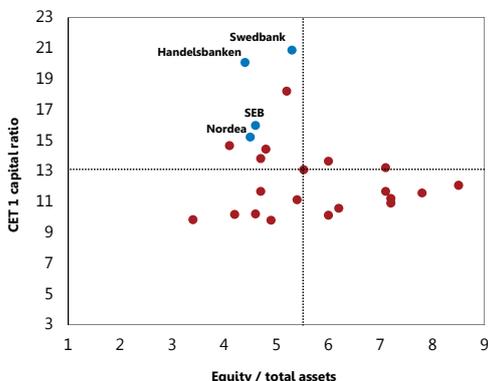
Rolling four quarters, SEK billion, fixed prices, September 2014



Note: The dashed lines refer to a forecast.

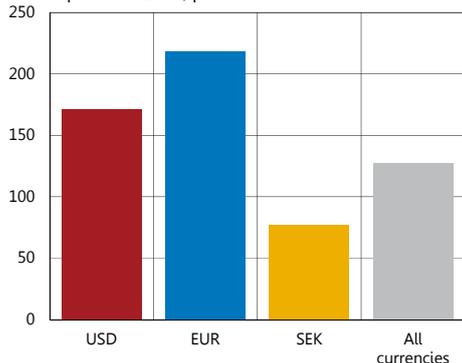
Sources: Bank reports and the Riksbank

Chart 1:9 Swedish and European banks' CET 1 capital ratios and equity in relation to total assets
June 2014, per cent



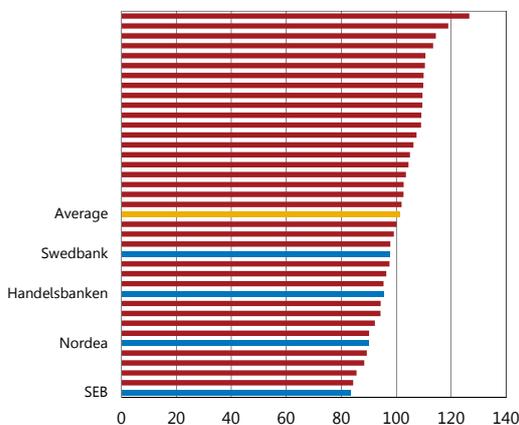
Note. CET 1 capital ratios in accordance with Basel III. The dashed lines represent mean values, the red dots show a sample of European banks.
Sources: SNL Financial and the Riksbank

Chart 1:10 The major Swedish banks' Liquidity Coverage Ratios (LCR)
September 2014, per cent



Note. According to Finansinspektionen's definition in FFFS 2012:6.
Sources: Finansinspektionen and the Riksbank

Chart 1:11 The Riksbank's structural liquidity measure
December 2013, per cent



Note. The red bars illustrate a group of European banks.
Sources: Liquidatum and the Riksbank

periodically very low, in Swedish kronor (see chart 1:10).⁵ The structural liquidity risks are also comparatively high in the major Swedish banks. They show lower levels than many other banks in Europe in both the liquidity measure Net Stable Funding Ratio (NSFR) and in the Riksbank's structural liquidity measure (see chart 1:11). The imbalances in maturities between the major banks' assets and liabilities are also large for longer maturities than those captured by the previously-mentioned liquidity measures. This means that the banks face high refinancing risks for maturities of over one year (see chapter 4).

Despite this, the overall picture is that the Swedish financial system is functioning well at present. Swedish banks, companies and households have good funding opportunities, not least as a consequence of the expansionary monetary policy conducted both in Sweden and internationally. Profitability is high in the major Swedish banks and their borrowers are deemed to have high debt-servicing ability. However, there are vulnerabilities and risks that may threaten both macroeconomic and financial stability.

Vulnerabilities and risks in the financial system

Even if the Swedish financial system is deemed to function well at present, there are vulnerabilities and risks that may threaten both the macroeconomic and the financial stability. The vulnerabilities, which may increase sensitivity to various economic shocks, are associated with the structure of the Swedish banking system. The largest risks, in turn, are linked to the development of the global financial markets and to the indebtedness of Swedish households.

VULNERABILITIES IN THE STRUCTURE OF THE SWEDISH BANKING SYSTEM

The Swedish banking system is large in relation to the Swedish economy (see chart 1:12). Additionally, the banking system is highly concentrated on four major banks with close links to each other. Consequently, should problems arise in one major bank, it is likely that the entire banking system, and thereby the entire financial system, would be impacted. The size of the banking system also means that any problems may be very expensive to remedy.⁶

One factor that further increases the vulnerability of the Swedish banking system is the major banks' dependence on domestic and foreign wholesale funding. This makes the banks more sensitive to both shocks on the international financial markets and to a lack of confidence in the Swedish banking system. In addition, the banks are exposed to liquidity risks due to low liquidity buffers in Swedish kronor and large imbalances between the maturities of assets and

⁵ See also the box Liquidity coverage ratios in Swedish kronor, *Financial Stability Report 2014:1*, Sveriges Riksbank, and Jönsson, Björn (2014), A survey of the liquidity coverage ratio (LCR) in Swedish kronor, *Economic Commentary* no. 6, 2014, Sveriges Riksbank.

⁶ For a more detailed discussion of the vulnerabilities of the Swedish banking system, see *Financial Stability Report 2014:1*, Sveriges Riksbank.

liabilities. Funding problems may therefore arise faster than would otherwise be the case.

As mentioned above, the major banks also have relatively little equity in relation to their assets, which is to say that their level of capitalisation is relatively low in terms of the leverage ratio.

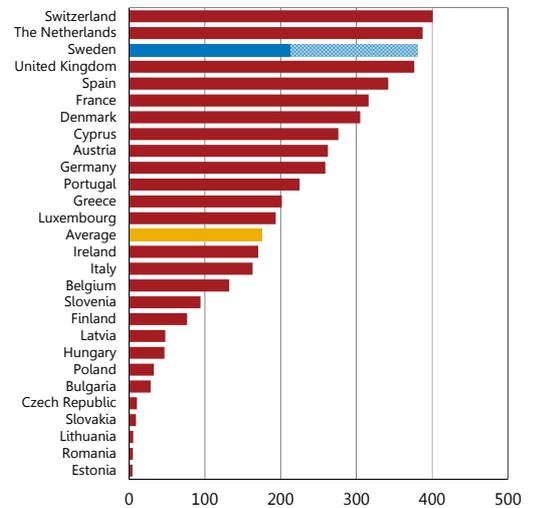
INCREASED RISK-TAKING ON THE GLOBAL FINANCIAL MARKETS MAY AFFECT FINANCIAL STABILITY IN SWEDEN

The high valuation of assets and the low volatility characterising the financial markets could be compared to the situation prevailing before the outbreak of the financial crisis in 2007. As then, there is, at present, high demand for high-risk assets among investors. The present situation is largely a deliberate effect of the expansionary monetary policies being conducted by many central banks. But at the same time, investors' high demand for high-risk assets can lead to a situation where various types of risk are being underestimated or are not being priced in full, or that the asset portfolios contain more risk than actually intended. In this way, risks may be accumulating in the financial system.⁷

Due to the high level of risk-taking, a chain of events entailing falling asset prices, rising risk premiums and increasing volatility may have widespread effects on the financial markets. This is because investors may choose to rapidly lower their risk-taking and therefore make large and sudden redistributions of their asset portfolios. This, in turn, may lead to the value of high-risk assets falling and volatility and risk premiums increasing. In addition, in such a situation, the liquidity of the financial markets may be negatively affected. For Sweden's part, such a development could have a negative impact on financial stability. Above all, this is because both access to and the price of the Swedish banks' wholesale funding would probably be affected negatively in a situation where stress increases considerably. Swedish companies also obtain funding from the financial markets to an increasing extent. In a stressed situation on the financial markets, these companies would probably also have decreased access to funding (see chapter 2).

There are several events that could trigger a chain of events in which the risks accumulating on the financial markets are realised. An example of such an event is a worsening of the conflict in Ukraine. Other events could include increasing unease over the situation of public finances in the euro area, for example as a result of necessary structural reforms not being adopted, or unease among market participants in conjunction with the return to less expansionary monetary policy in the United States.⁸ The increased uncertainty and the fluctuations seen on the financial markets over the autumn have been relatively moderate and are not deemed to have affected financial

Chart 1:12 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 1:13 Swedish households' debt ratio
Total debt as a percentage of disposable income



Note. The dashed line represents the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank

Chart 1:14 Housing prices in Sweden
Index, January 2005 = 100



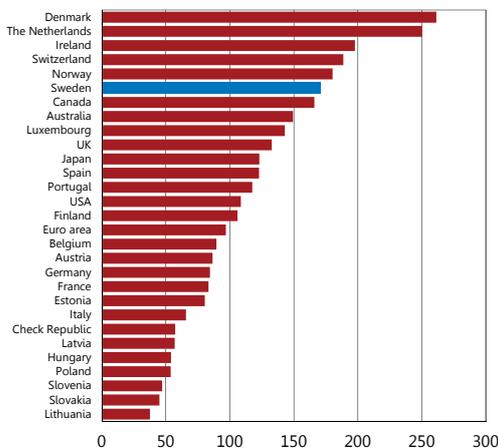
Note. Seasonally-adjusted data.

Sources: Valueguard and the Riksbank

⁷ Johansson, Tor (2013), Search for yield in a low-interest rate environment, *Economic Commentary* no. 4, 2013. Sveriges Riksbank.

⁸ See, for example, *Global Financial Stability Report*, October 2014. International Monetary Fund (IMF).

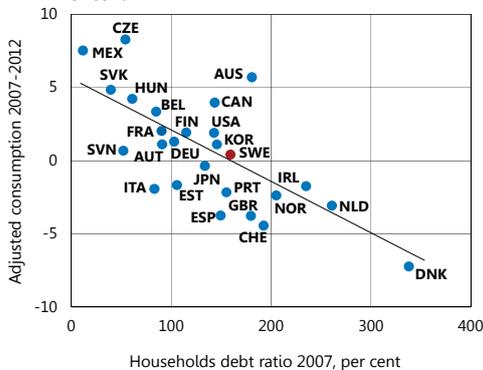
Chart 1:15 Households' debt in various countries
Per cent of disposable income



Note. Figures for Australia, Denmark, Canada and the euro area are from 2013. Figures for Japan and Switzerland are from 2011 and for Sweden from the second quarter 2014. Figures for other countries are from 2012. Figures for Australia, Canada, Japan, Switzerland and the United States come from either the OECD or national statistics agencies. Figures for other countries come from Eurostat. For Sweden the debt ratio during 2013 is 150 per cent if data from Eurostat is used.

Sources: Eurostat, the OECD, national statistics agencies and the Riksbank

Chart 1:16 The relationship between debt ratio and consumption growth, 2007–2012
Per cent



Note. Adjusted consumption growth has been calculated as actual consumption growth minus contributions from growth in debt ratio, current account and consumption. For further information, see Flodén, Martin, (2014), *Did household debt matter in the great recession?*

Sources: The OECD and the Riksbank

stability. However, in a situation in which uncertainty is increasing, the high valuation of high-risk assets entails a risk.

HIGH HOUSEHOLD INDEBTEDNESS MAY THREATEN BOTH THE REAL ECONOMY AND FINANCIAL STABILITY

Swedish household indebtedness is high in a historical perspective and housing prices are increasing at an accelerating rate (see charts 1:13, 1:14 and 3:1 in chapter 3). The level of indebtedness in Sweden is also high in an international perspective (see chart 1:15). Household indebtedness has long been highlighted as a risk that could threaten both the macroeconomic development and the financial stability. This is because historical experience indicates that financial crises have often been preceded by high indebtedness and rapid growth in credits and property prices.⁹

The high level of indebtedness makes the real economy sensitive to shocks. If a shock occurs that affects, for example, the households' incomes, interest expenditure or the value of their housing, their consumption may fall. This is because in such a situation they will probably choose to increase their saving and amortise their debt rather than consuming. The higher the level of household debt, the greater these effects may be. During the financial crisis that broke out in 2007, consumption in many cases decreased more in countries with high indebtedness than in countries with low indebtedness (see chart 1:16).¹⁰ The high level of indebtedness in the household sector may thus aggravate an already negative economic development.¹¹

If a large proportion of the households reduce their consumption at the same time, the effects on the real economy may be so great that the profitability of the companies is weakened. This could also lead to more defaults in the corporate sector. The high level of indebtedness could thus also affect financial stability by causing higher loan losses for the banks. In negative scenarios, there may also be a risk of a decline in confidence in the Swedish banking system. This in turn may have a negative impact on the banks' access to wholesale funding, which could lead to higher interest rates for Swedish borrowers. If this occurs during a period when the borrowers' financial situation is already strained, the economic downturn may be reinforced.

The banks could also be affected more directly in that loan losses on their lending to households may arise. This could happen if highly-indebted households end up in a position in which it is diffi-

⁹ International studies have shown that a substantial rise in 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, *World Economic Outlook*, April 2012, International Monetary Fund (IMF), Boria, Claudio and Drehmann, Mathias (2009), Assessing the risk of banking crises – revisited, *BIS quarterly review*, March 2009, Schularick, Mortis and Taylor, Alan. M. (2012), Credit booms gone bust: Monetary policy, leverage cycles and financial crises, 1870–2008, *American Economic Review no. 102*, American Economic Association.

¹⁰ Several studies based on household data from the financial crisis of recent years show that highly-indebted households reduced their consumption more than lowly-indebted households. See for example Dynan, Karen, (2012), Is household debt overhang holding back consumption? *Brookings Papers on Economic Activity*, Brookings Institution, Mian, Atif, Kamelesh, Rao and Amir Sufi, (2013), Household balance sheets, consumption, and the economic slump, *Quarterly Journal of Economics 128(4)*, and 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.

¹¹ Mian, Atif, och Amir, Sufi (2014), *House of debt: how they (and you) caused the Great Recession, and how we can prevent it from happening again*. University Of Chicago Press.

cult for them to make their interest and amortisation payments, at the same time as the value of their homes falls to a value below that of their debt. It is true that such loan losses have previously been small and the Riksbank deems that this will also continue to be the case in future. However, at present, households are significantly more indebted than before. It cannot, therefore, be ruled out that the banks' losses on loans to households could increase in a situation in which housing prices are falling. In addition, the banks need to make provisions for loan losses as soon as they suspect that their customers may face difficulty in repaying their loans.

In conclusion, the high level of household indebtedness may thus threaten both the macroeconomic development and the financial stability in several ways. The low interest rates are also expected to lead to continued rises in housing prices and rising household debt.¹² The risks involved in household indebtedness will thus continue to increase. It will therefore become increasingly urgent to take measures to manage these risks.

Recommendations

In light of the vulnerabilities and risks identified, the Riksbank presents two new recommendations. The Riksbank recommends Finansinspektionen to introduce an amortisation requirement for new mortgages to counteract the risks linked to households' high and rising indebtedness. The Riksbank also recommends Finansinspektionen to bring forward the introduction of a leverage ratio requirement. This is in order to reduce vulnerability in the financial system and strengthen the resilience of the major banks.

Apart from these new recommendations, a number of recommendations from previous Financial Stability Reports still stand (see table 1:1).

NEW RECOMMENDATIONS

Finansinspektionen should introduce an amortisation requirement for new mortgages.

Swedish households' indebtedness is high. Household debt in relation to household income, that is the debt ratio, amounts at present to about 171 per cent. If it is assumed, as a simple example, that debt and incomes will continue to develop at the same rate as they have over the last ten years, the debt ratio will be about 230 per cent in ten years' time.¹³

In recent years, several measures have been taken in an effort to dampen the development of household indebtedness. For example, Finansinspektionen introduced a cap on the loan-to-value ratio in 2010. Despite this, household debt has continued to increase. Households' mortgages are currently increasing by an annual rate of app-

¹² *Monetary Policy Report*, October 2014. Sveriges Riksbank.

¹³ This projection is based on the average annual growth in debt and incomes between the third quarter of 2004 and the second quarter of 2014.

roximately 6 per cent, which is higher than the increase in GDP and the households' disposable incomes. The low interest rate environment also means that both the debt ratio and housing prices are expected to continue to increase in the period ahead.

The measures adopted have thus not been sufficient to manage the growing problem of the Swedish household indebtedness. The Riksbank therefore considers it necessary that more measures are taken to reduce the risk of an unsustainable development of the debt situation in the household sector. In recent years, several international analysts, including the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD) and the European Commission, have also pointed out the need for measures to deal with the problems relating to household indebtedness (see the box Amortisation requirements – A step towards a more sustainable debt situation).

One possible measure is the introduction of an amortisation requirement for mortgages. In connection with the meeting of the Financial Stability Council in November 2014, Finansinspektionen presented a proposal that all new mortgages should be amortised down to 50 per cent of the value of the housing concerned. However, the proposal lacked certain specific details, for example there was no definition of what constitutes a new mortgage. There is therefore some uncertainty about the effects the proposal would have. Nevertheless, the assessment is that even if the proposal is interpreted strictly it would have only small effects on the household debt ratio (see the box Amortisation requirements – A step towards a more sustainable debt situation). Although Finansinspektionen's proposal is a step in the right direction, the Riksbank considers it to be insufficient to fully deal with the problems associated with household indebtedness.

However, the most important thing at present is that measures are put in place without any delay. The Riksbank therefore assesses that Finansinspektionen ought to introduce an amortisation requirement by issuing a general guideline. It will then be important to frequently monitor and evaluate the effects of the measure on household indebtedness.

The risks associated with household indebtedness are also so considerable that an amortisation requirement alone will not be sufficient. This will be the case even if the stipulations of an amortisation requirement are stricter than the proposal presented by Finansinspektionen. Several measures that counteract the risks relating to household indebtedness will thus be needed as a complement to an amortisation requirement. Such measures will concern several policy areas and will need to be introduced gradually over a long period of time. Conceivable measures include tightening the cap on loan-to-value ratios, restricting the percentage of mortgages at variable interest rates, adjusting the tax deduction for interest payments, raising the minimum levels of the banks' discretionary income calculations and extending taxation of housing. In addition, measures

that increase the supply of housing and lead to a more effective housing market are needed to reducing the risks associated with household indebtedness in the long term.

Finansinspektionen should introduce a leverage ratio requirement for major Swedish banks at the group level of 4 per cent from January 2016 and 5 per cent from January 2018.

One important lesson of the last financial crisis is that risk-based capital adequacy requirements are not always adequate to safeguard financial stability. One problem is that a bank's risk exposure amounts and the risk weights used in the calculation of this do not always fully reflect the actual risks in a satisfactory manner. The Basel Committee therefore decided, in December 2010, to introduce a leverage ratio as a complement to the risk-based capital adequacy requirements. The measure of the leverage ratio is not based on risk weights but is a ratio of a bank's capital and its assets. The Basel Committee aims to introduce an international minimum requirement for the leverage ratio in 2018 and the EU aims to introduce a requirement as a binding measure in the same year.

The Swedish banking system is large, concentrated and dependent on funding in foreign currency. This has motivated the major Swedish banks to currently have risk-based capital adequacy requirements over the international minimum requirements. At the same time, the major Swedish banks still have relatively low leverage ratios compared with many other European banks. To increase the resilience of the Swedish banks, it would therefore be justifiable to move forward the introduction of a Swedish leverage ratio requirement as a complement to the risk-based capital adequacy requirements. Other countries with large banking systems, such as Switzerland, the United Kingdom and the Netherlands, have similarly already introduced or will introduce leverage ratio requirements. A leverage ratio requirement addresses the risk that the banks' risk weights do not reflect the actual risk in a satisfactory manner. Furthermore, it can reduce the risk of an unhealthy increase in lending by setting a limit for how much the banks can expand their balance sheets without their capital also increasing (see the box A Swedish leverage ratio requirement).

Just like the risk-based capital adequacy requirements, the Swedish leverage ratio requirement should be set above the minimum requirements indicated by the Basel III Accord. Better capitalised banks have better resilience to loan losses and therefore have a direct effect on promoting financial stability. But more capital in the banking system could also promote financial stability indirect by strengthening the confidence in the banking system. This would also reduce the risk of funding problems arising for the banks.

A Swedish leverage ratio requirement should be introduced gradually over a long period of time in order to give the banks time to meet the requirement. The requirement should take the form of a minimum requirement of 3 per cent supplemented by a buffer re-

quirement of 1 per cent from 2016 and 2 percent from 2018. More precisely, this means that banks that meet the minimum requirement but not the extra buffer requirement should draw up a plan to increase their leverage ratios, for example by limiting their dividends to shareholders and their bonus payments. The assessment is that the major Swedish banks can accumulate sufficient capital within the context of their profits. If the banks pay out half of their forecast profits in dividends, it is calculated that they will reach a leverage ratio around or above 5 per cent from 1 January 2018.

The leverage ratio should be calculated in accordance with the definition in the EU's Capital Requirements Regulation (CRR), which is being adapted to the measure used by the Basel Committee.¹⁴ This will make it possible for the banks to increase their leverage ratios in ways other than just using share capital and accumulated profits. However, experience shows that share capital and accumulated profits have a greater ability to absorb losses than other types of capital have. It is therefore important that Finansinspektionen ensures that the banks do not meet the requirement by using other Tier 1 capital instruments to too great an extent.

EXISTING RECOMMENDATIONS

Table 1:1 The Riksbank's existing recommendations

Current recommendations	Introduced
<i>Household indebtedness</i>	
Finansinspektionen should ensure that sound minimum levels are introduced for the standard values that the banks use in their discretionary income calculations.	Financial Stability Report 2014:1
<i>The banks' capital levels</i>	
The major Swedish banks should report their leverage ratios at least once a quarter.	Financial Stability Report 2013:2
Finansinspektionen should set the countercyclical capital buffer level at 2.5 per cent with the aim of increasing the banks' resilience.	Financial Stability Report 2014:1
<i>The major banks' liquidity risks</i>	
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
The major Swedish banks should report their Liquidity Coverage Ratios (LCR) in Swedish kronor at least once a quarter.	Financial Stability Report 2013:2
Finansinspektionen should extend requirements for Liquidity Coverage Ratios (LCR) to also cover Swedish kronor. The requirement should be set at 60 per cent.	Financial Stability Report 2014:1

¹⁴ On 10 October 2014, the European Commission adopted what is known as a delegated act to change the definition of the leverage ratio in the EU's Capital Requirements Regulation ahead of the start of publication of leverage ratios by banks in the EU in 2015. The definition is in line with the definition agreed on by the Basel Committee in January 2014. The delegated act will enter into force if neither the European Parliament nor the European Council raises objections within three months.

Finansinspektionen should ensure that sound minimum levels are introduced for the standard values that the banks use in their discretionary income calculations.

A large part of the Swedish banks' lending consists of mortgage loans to Swedish households. The banks are obliged to conduct credit assessments to ensure that borrowers are able to meet their commitments. As part of this, the banks usually draw up so-called discretionary income calculations. However, at present, there are large differences in how the banks formulate these calculations, meaning that different banks assess their borrowers' economic margins in different ways. Setting minimum levels for the standard values in the discretionary income calculations will ensure that the borrowers will at least be able to cope with certain levels of lending rates, amortisation rates and living costs, regardless of which bank issues the loan.¹⁵ In addition, if the standard values are transparent, the measures could contribute towards sounder credit assessment.¹⁶

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

The Riksbank recommends that the major Swedish banks publicly report the leverage ratio at least once a quarter in accordance with the definition in the EU Capital Requirements Directive (CRR). By publishing this measure, the Swedish banks provide investors with information that can be compared both over time and between banks. At present, three of the four major banks report their leverage ratios in accordance with the CRR definition (see table 1:2 and chart 1:17).¹⁷ However, from 1 January 2015, all of the major Swedish banks must publicly report their leverage ratios at least once per quarter in accordance with the CRR and Finansinspektionen's regulations.¹⁸

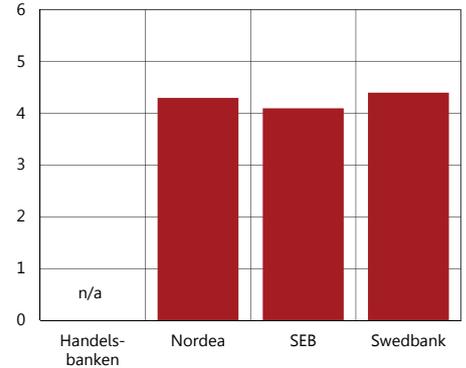
Table 1:2 Public reporting of leverage ratio according to the EU Capital Requirements Directive

	Handelsbanken	Nordea	SEB	Swedbank
Report leverage ratio according to CRR at least once a quarter				

Reports

Does not report

Chart 1:17 The banks reported leverage ratio September 2014, per cent



Note. The bank's published measures are not fully comparable. This is because the European Commission recently published a delegated act that clarifies how the calculations should be carried out so that the measure is comparable between banks in the EU ahead of the turn of the year, when a publication requirement will come into force. In the third quarter, only Swedbank stated that it was applying the delegated act. Sources: Bank reports and the Riksbank

¹⁵ 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.

¹⁶ *Financial Stability Report 2014:1*. Sveriges Riksbank.

¹⁷ *Financial Stability Report 2014:1*. Sveriges Riksbank.

¹⁸ Finansinspektionen's regulations (FFFS 2014:12) regarding supervisory requirements and capital buffers.

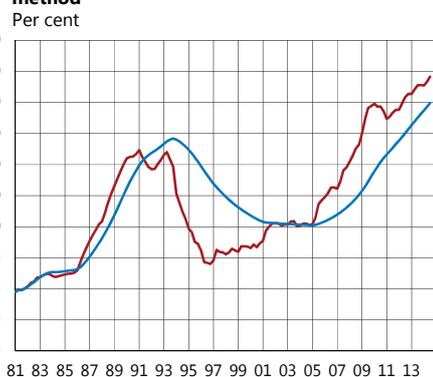
Chart 1:18 The countercyclical buffer rate according to the Basel Committee's standard method with no upper limit for the buffer rate



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 reduction of the buffer value according to the standard method is represented by a dotted line in the chart.

Source: The Riksbank

Chart 1:19 The credit-to-GDP ratio and statistical trend according to the Basel Committee's standard method



— Credit-to-GDP ratio
— Trend

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

Finansinspektionen should set the countercyclical capital buffer level at 2.5 per cent with the aim of increasing the banks' resilience.

The development of the housing market prices in recent years and the rapid increase in indebtedness in the Swedish household sector are considered to pose a risk that could threaten the macroeconomic development and the financial stability. To strengthen the banks' resilience to these risks, the Riksbank recommended, in the Financial Stability Report 2014:1, that a countercyclical capital buffer be included as part of the Swedish banks' capital requirement, and that the rate of this buffer should amount to 2.5 per cent.

Since then, Finansinspektionen has set the countercyclical capital buffer rate at 1 per cent as of 1 September 2015.¹⁹ This decision is based, among other things, on the buffer benchmark calculated using the Basel Committee's standard method, which is based, in turn, on the so-called credit gap (see charts 1:18 and 1:19). An updated calculation of the credit gap using the standard method gives a buffer benchmark of approximately 2 per cent.²⁰ However, the Riksbank deems that this method does not fully capture the current risks in the Swedish financial system. Other quantitative indicators and an overall assessment also suggest that considerable systemic risks have built up in recent years.²¹ All-in-all, this means that the Riksbank considers that the countercyclical capital buffer rate should be raised to 2.5 per cent. If cyclical systemic risks continue to increase, the buffer rate should be raised further.

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).

Over a long period of time, the Riksbank has pointed out that the structural liquidity risks in the major Swedish banks are high in comparison with many other banks in Europe. One way of measuring this is by using the NSFR. A revised definition of this measure was presented by the Basel Committee in October 2014. The revised definition gives the Swedish banks higher NSFR levels than the original definition did. Consequently, it has become easier for the major Swedish banks to attain 100 per cent in the NSFR. In addition, the potential for reducing structural liquidity risks and improving the NSFR is strong, as the major Swedish banks are able to obtain funding over long maturities at a low cost. The Riksbank thus considers that the major banks should reach an NSFR of 100 per cent as soon as possible with the definition the measure has been given in the most recent Basel Accord from October 2014.²² At present, Swedbank is the only of the four major banks to publish the NSFR. In the third

¹⁹ Finansinspektionen's regulations (FFFS 2014:33) regarding the countercyclical buffer rate.

²⁰ A contributory factor to the increase in the buffer rate is that the figures for GDP have been revised in connection with the restructuring of the National Accounts.

²¹ See for example the section on vulnerabilities and risks in this chapter or the box The Countercyclical Capital Buffer, *Financial Stability 2014:1*. Sveriges Riksbank.

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, December 2010, Basel Committee. The recommendation now refers to the most recent definition, see Basel III: the Net Stable Funding Ratio, Basel Committee, October 2014. Basel Committee.

quarter of 2014, Swedbank reported an NSFR of 102 per cent, thereby complying with the Riksbank's 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 major Swedish banks should report the NSFR. This is because the internationally-accepted measure makes it possible to monitor the development of structural liquidity risks over time and between banks. As mentioned above, only Swedbank publishes its NSFR at present (see table 1:3). If 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 1:3 Public reporting of NSFR

	Handelsbanken	Nordea	SEB	Swedbank
Reports NSFR at least once a quarter				

Reports

Does not report

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

The major Swedish banks' LCRs in Swedish kronor are below 100 per cent. They have, at times, been extremely low and are considerably lower than their LCRs in euros and dollars. This indicates that the banks' resilience to liquidity stress in Swedish kronor is small.

The Riksbank therefore considers that Finansinspektionen should extend the current requirements for the LCR²³ to also include requirements in Swedish kronor. However, the LCR requirement should initially be set at a lower level than 100 per cent. This is because the fact that the supply of government bonds in Swedish kronor is limited must be taken into account, and because the measures must not lead to a significant fall in the liquidity buffers in foreign currencies. The Riksbank considers that in the current situation it should be possible to introduce an LCR requirement in Swedish kronor at a level of 60 per cent.²⁴ The Riksbank will continue to analyse how the liquidity risks in Swedish kronor can be reduced.

Norges Bank has carried out a similar assessment of the liquidity risks in the Norwegian banks and recommended, in its latest stability

²³ Finansinspektionen's regulation FFFS 2012:6.
²⁴ Jönsson, Björn, (2014), A survey of the liquidity coverage ratio (LCR) in Swedish kronor, *Economic Commentary no. 6*, 2014. Sveriges Riksbank. *Financial Stability Report 2014:1*. Sveriges Riksbank.

report, that an LCR requirement in Norwegian kroner be introduced in Norway at the level of 60 per cent.²⁵

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

The major 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 kronor would provide a more complete view of the Swedish banks' liquidity risks in various currencies. At present, Swedbank is the only bank that reports its LCR in Swedish kronor (see table 1:4).

Table 1:4 Public reporting of the LCR in SEK

	Handelsbanken	Nordea	SEB	Swedbank
Reports LCR publicly at least once a quarter				

Reports
 Does not report

²⁵ *Financial stability 2014*, Norges Bank.

RECOMMENDATIONS THAT HAVE BEEN FULFILLED

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 1:5).

Table 1:5 Recommendations that have been fulfilled

Recommendations	Introduced	Observed
The risk weight floor for Swedish mortgages should be raised.	Financial Stability Report 2013:2	Financial Stability Report 2014:2
The major Swedish banks should ensure that they have a core Tier 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

Amortisation requirements – A step towards a more sustainable debt situation

Swedish household indebtedness is high in both historical and international terms. The Riksbank considers that this situation may have serious consequences for the development of the real economy and for financial stability. In order to reduce the risks of such consequences, the households need to increase the amortisation of their mortgages. The Riksbank therefore recommends Finansinspektionen to introduce an amortisation requirement for new mortgages. This box describes how Swedish households currently amortise and how amortisation requirements are expressed in other countries. The box also presents two calculations that examine how amortisation requirements can dampen household indebtedness and the potential effects on household consumption and Swedish GDP growth.

Swedish household debt has increased rapidly

The fact that a large proportion of the Swedish households are not reducing their debt has contributed to a sharp increase in the debt ratio over a long period of time. Over the last ten years, the debt ratio has increased by 41 percentage points to approximately 171 per cent. The Riksbank's forecast is that the debt ratio will continue to increase and reach 185 per cent by the end of 2017 (see chart 1:13). If it is assumed, as a simple example, that debt and incomes increase at the same rate as the average over the last ten years, the debt ratio would reach approximately 230 per cent by 2025.

Many Swedish households have interest-only loans and long amortisation periods

There are many indications that households' propensity to amortise has decreased in tandem with interest-only loans being offered by the banks.²⁶ The Riksbank's credit data shows that approximately four out of ten mortgage borrowers do not amortise their mortgages today.²⁷ Those who do amortise their mortgages often do so at a slow rate (see chapter 3). The Riksbank's analysis of the sample in Finansinspektionen's mortgage survey shows that a typical new mortgage borrower only amortises approximately SEK 400 of the mortgage per month, which means that it will take a very long time to pay off the loan. For approximately half of the new mortgage borrowers in the sample it will take at least 85 years to pay off the loan. The mortgage survey also shows that 42 per cent of new

²⁶ From A to Z: the Swedish mortgage market and its role in the financial system, *Riksbank Studies*, April 2014. Sveriges Riksbank.

²⁷ The Riksbank's credit data can be used to analyse how household debt has changed during the year. In this way, not only amortisation but also new loans can be taken into account. For mortgage borrowers who have reduced their debt, amortisation payments have thus been higher than the new loans that have been taken.

mortgage borrowers do not draw up an amortisation plan.²⁸ For those households with a loan-to-value ratio of below 75 per cent, this figure is as high as 60 per cent.²⁹

The most common reason given for households to have interest-only mortgages is that they have instead chosen to amortise more expensive loans for consumption or that they have a low loan-to-value ratio.³⁰ The decision not to amortise by households with low loan-to-value ratios could be explained by it probably having been more advantageous to save by investing in financial assets such as equity funds and fixed-income funds. The low level of volatility on the property market since the mid-1990s has probably also led many households to assess the risk of a fall in value of their property as low. This also affects households' incentive to reduce the high loan-to-value ratios through amortisation.³¹

Several measures are needed to dampen household debt

In recent years, several measures have been taken to dampen household indebtedness. In the autumn of 2010, Finansinspektionen introduced a mortgage ceiling of 85 per cent to limit how much a household can borrow in relation to the value of the property. In the same year, the Swedish Bankers' Association also issued a recommendation aimed at increasing households' mortgage amortisation.³² In addition, Finansinspektionen has taken a number of measures to raise the capital in the Swedish banks. These measures have primarily aimed to make the banks more robust and to get them to bear their losses themselves to a greater extent. However, the Riksbank's current assessment is that the banks' lending rates have not been affected to such a degree that the households' incentives to take on debt have been reduced by these measures.³³

However, the measures that have been directly targeted at household indebtedness have not been adequate either. Debt and housing prices have continued to increase rapidly and the debt ratio is also expected to continue to rise in the period ahead (see charts 1:6, 1:7 and 1:13). The Riksbank's assessment is therefore that more measures are imperative.

Several international analysts have also indicated the need for further measures to dampen the growth of housing prices and indebtedness in Sweden. They have proposed measures aimed at addressing the underlying problems on the Swedish housing market

²⁸ *The Swedish mortgage market 2014*, April 2014, Finansinspektionen.

²⁹ In October 2013, Finansinspektionen proposed that banks should provide new mortgage customers with individually-tailored amortisation plans. This was introduced by the banks in July 2014. At present, the effect this has had is unclear. However, a small survey that Finansinspektionen has conducted among some 750 new mortgage borrowers, indicate that the mortgage borrowers have started to amortize to a greater extent after this.

³⁰ Random sampling in the mortgage survey showed that households with interest-only loans have a similar ability to repay loans as the average household included in the random sampling.

³¹ Jansson, Thomas, (2014), Households' amortisation decisions, *Memorandum*, Sveriges Riksbank.

³² In December 2010, the Swedish Bankers' Association issued a recommendation on lending for housing purposes entailing that borrowers should amortise the part of their mortgages above 75 per cent of the market value. In April 2014, this recommendation was tightened up to specify that amortisation should take place to 70 per cent of the property's market value over a 10–15 year period.

³³ Monetary policy and macroprudential policy in a globalised world, Stefan Ingves, *speech to Swedish Economics Association*, Stockholm, May 2014. Sveriges Riksbank.

and at directly influencing household indebtedness. For example, in its annual review of the Swedish economy, the IMF proposes a combination of macroprudential policy measures targeted at the demand for loans. These are amortisation requirements, limits to the loan amounts in relation to income and a stricter cap on loan-to-value ratios.³⁴ The IMF, the European Commission and analysts at the OECD have also pointed out that the taxation system needs to be improved and that housing construction needs to be increased.³⁵

Amortisation requirements in other countries

In many other countries, it is more common for households to amortise their entire mortgages. This often happens without the authorities having imposed requirements or recommendations on the lenders. The common factor for most countries is that there is a clear maturity for when the loan is to be repaid, usually between 20 and 40 years.³⁶ The proportion of interest-only loans is also low in many other countries. For example, according to the central bank of France, only 0.33 per cent of all new loans in the country are interest-only.

There are also a number of countries that have introduced various forms of amortisation requirements to dampen household indebtedness. For example, in the Netherlands, the Dutch Banking Association has issued recommendations limiting how much of a mortgage loan that may be interest-only. At the same time, the authorities have linked the right to tax relief to an obligation for households to repay their loans within 30 years. In Canada, the housing market is instead regulated by the insurance terms of a government agency. Under these terms, Canadian borrowers with a loan-to-value ratio above 85 per cent must have mortgage insurance. There is also a requirement that mortgages must be paid off within 25 years.

In South Korea, the authorities have chosen to limit the percentage of the banks' mortgage lending that can be interest-only. This resulted from a recommendation entailing that, by 2017, a maximum of 60 per cent of the banks' lending may be interest-only.³⁷ Finland does not have any statutory amortisation requirements either. Instead, the Finnish financial supervisory authority has issued a recommendation to the banks specifying that they are to assume a 25-year amortisation period for new mortgages in their credit assessments of new customers. Together with a stressed interest rate of 6 per cent, this is used to assess the debt-servicing ability of new mortgage borrowers.³⁸ Slovakia, Singapore and Hong Kong have also

³⁴ See Sweden: *2014 Article IV Consultation Staff Report, IMF Country Report No. 14/261*, July 2014. International Monetary Fund (IMF).

³⁵ See Sweden: *2014 Article IV Consultation Staff Report, IMF Country Report No. 14/261*, July 2014. International Monetary Fund (IMF). Macroeconomic imbalances Sweden, *Occasional papers 186*, March 2014, European Commission, and McGowan, M. Adalet, Housing, (2013), Financial and Capital Taxation Policies to Ensure Robust Growth in Sweden, *OECD Economics Department Working Papers*, No. 1024. OECD.

³⁶ Lea, Michael (2010), International Comparison of Mortgage Product Offerings, September 2010. *Special Report*. Research Institute for Housing America.

³⁷ South Korea's central bank, the Bank of Korea.

³⁸ Finanssivalvonta, the Finnish financial supervisory authority.

recently introduced measures aimed at promoting a healthier amortisation culture.³⁹

What will happen if an amortisation requirement is introduced?

This section presents two calculations illustrating how household indebtedness can be dampened by various amortisation requirements. The effects of the amortisation requirements are illustrated by comparing a scenario in which amortisation requirements are introduced with a base scenario without such requirements.

Finansinspektionen's assessment is that a requirement covering the entire mortgage stock, including existing loans, is difficult to justify. However, it will be possible to introduce both general guidelines and binding regulations on amortisation requirements for new mortgages.⁴⁰ The calculations presented here therefore assume that the amortisation requirement will apply to new mortgage lending. In these examples, it is assumed that the percentage of new loans in the debt stock will increase by five percentage points each year, meaning that it will take 20 years for all loans to be classified as new.

The first example assumes that all new mortgage borrowers amortise an equal amount of their new loans every month until their entire loans have been repaid after 35 years. The reason this amortisation period was chosen is that it is in line with amortisation periods in other countries. The second example is based on the proposal that Finansinspektionen presented following the meeting of the Financial Stability Council on 11 November 2014. The implication of the proposal is that all new mortgage loans with loan-to-value ratios above 50 per cent are to be amortised. All of the details of Finansinspektionen's proposal have not been presented yet. For instance, there is no definition of what constitutes a new loan. There should also be some scope for flexibility in the application of the regulations.⁴¹ However, the calculations are based on a strict interpretation of the proposal. It is therefore assumed that all mortgage borrowers that take a new loan and have loan-to-value ratios over 70 per cent will amortise two per cent of their mortgages per year, while all mortgage borrowers with loan-to-value ratios between 50 and 70 per cent will amortise one per cent of their mortgages per year. This means that the calculations for Finansinspektionen's proposal can be seen as an upper limit for how great the effects could be. The effects for various typical households and the effects on the debt ratio, consumption and GDP growth are presented for both illustrative calculations.

³⁹ In 2014, Slovakia's central bank issued a recommendation limiting the maturity of new mortgages to 30 years. In 2012, Hong Kong introduced an amortisation requirement of 30 years. However, as the average amortisation period in Hong Kong is about 25 years, this requirement is not binding for many households. Singapore similarly introduced an amortisation requirement of 35 years in 2012. In addition, the mortgage cap was lowered for loans with amortisation periods longer than 30 years and for loans not planned to be repaid by retirement age (65 years).

⁴⁰ Measures to counter household indebtedness - amortisation requirements, *Memorandum*, 2014. Finansinspektionen.

⁴¹ See Finansinspektionen's view on an amortisation requirement, *Memorandum* presented in connection with the meeting of the Financial Stability Council on 11 November 2014.

Example 1: New mortgage loans amortised over 35 years

This example has been formulated so that all new mortgage borrowers in Sweden are subject to a requirement that the entire mortgage has to be amortised over 35 years. For a typical household that with the new loan increases its indebtedness to a small extent, this requirement means that amortisation payments on the new loan would constitute 1.8 per cent of the household's disposable income (SEK 767 per month).⁴² For a household that increases its indebtedness to a somewhat greater extent, it would constitute 4.8 per cent (SEK 1,642 per month) and for a household that increases its indebtedness to a great extent it would constitute 10.1 per cent of disposable income (SEK 3,685 per month). At present, the corresponding amortisation payments amount to 0.9 per cent, 1.3 per cent and 2.7 per cent of disposable income respectively (equivalent to SEK 281, SEK 395 and SEK 948 per month).⁴³ These figures are presented in table B1:1.⁴⁴ All-in-all, it is calculated that the Swedish households will increase their amortisation payments by approximately SEK 3 billion during the first year in this example. This represents approximately 0.1 per cent of GDP. In the second year it is calculated that the increase will be roughly twice as much.

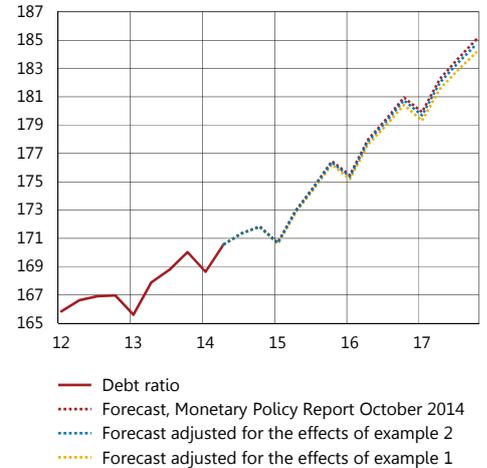
In the long term and compared to a base scenario in which no measures are taken, the requirement is expected to lead to a fall of 31 percentage points in the debt ratio of the Swedish household sector. At the same time, the long-term effect on GDP is expected to be small. During a transitional phase, however, the amortisation requirement will dampen growth. If housing prices, at the same time, fall by 12 per cent from the initial position, it is calculated that GDP and the level of consumption at the most will be 1.9 per cent and 2.4 per cent lower than in the base scenario (see chart B1:2).

Example 2: Finansinspektionen's proposal

This example has been formulated so that all new Swedish mortgage borrowers with a loan-to-value ratio (LTV) over 50 per cent amortise new loans. The calculations are based on Finansinspektionen's proposal. As mentioned earlier, the calculations are based on a strict interpretation of the proposal, which means that the calculated effects can probably be seen as an upper limit.

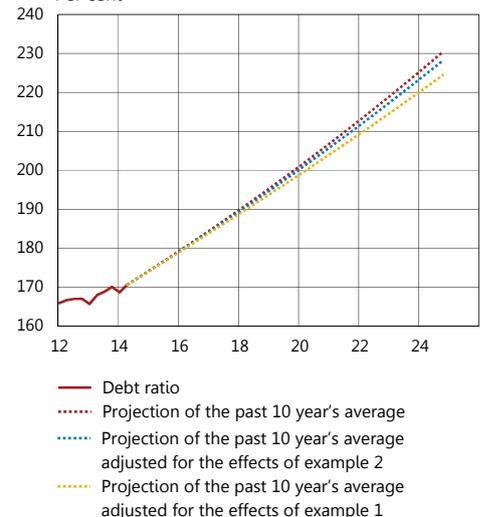
The results of the Riksbank's calculations show that this amortisation requirement will not have significant effects on the typical household or on the macroeconomy as the example with an amortisation period of 35 years. Nor will the debt ratio be affected to a great extent (see charts B1:1 and B1:2). For a household that with the new loan increases its indebtedness to a small extent,

Chart B1:1 Forecast for household debt ratio
Per cent



Source: The Riksbank

Chart B1:2 Projections of the debt ratio based on the average increase over the last 10 years
Per cent



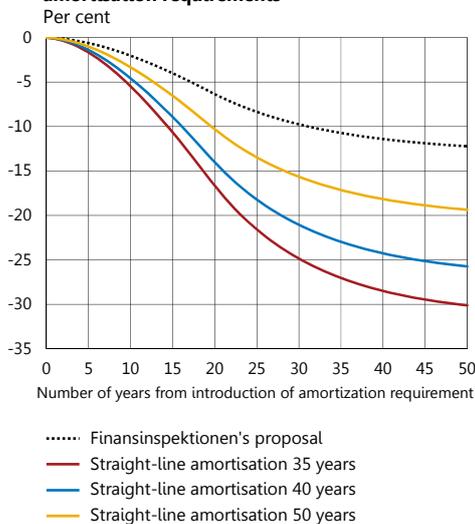
Source: The Riksbank

⁴² To increase indebtedness in a small, a somewhat greater and a great extent in this context means that the new loan amount to 59, 162 and 352 per cent of the disposable income. These figures are obtained by sorting out mortgage borrowers by the size of the ratio between new mortgages and disposable income. Subsequently the 22.5 percentile, the 50th percentile and the 77.5 percentile are selected.

⁴³ These amortisations are based on the amortisation rates specified for new mortgages in the sample collected in connection with Finansinspektionen's mortgage survey.

⁴⁴ These percentages only apply to amortisation payments on borrowers' new mortgages. Amortisation of other loans and existing mortgages are not included.

Chart B1:3 Change in the debt ratio compared to the base scenario in connection with different amortisation requirements



Source: The Riksbank

Finansinspektionen's proposal means that amortisation payments on the new loan would initially constitute 1.1 per cent of the household's disposable income (SEK 385 per month). For a household that increases its indebtedness to a somewhat greater extent, it would constitute 3.0 per cent (SEK 850 per month) and for a household that increases its indebtedness to a great extent it would constitute 6.9 per cent of disposable income (SEK 2,160 per month). This can be seen in table B1:1.⁴⁵ All-in-all, it is calculated that the Swedish households will increase their amortisation payments by less than SEK 1 billion during the first year after the implementation of the amortisation requirement. This represents approximately less than 0.05 per cent of GDP.

In the long term and compared to a base scenario in which no measures were taken, Finansinspektionen's proposal is expected to lead to a fall of 13 percentage points in the debt ratio. With this requirement, the annual rate of growth of the debt will be at most approximately 0.5 per cent higher than in example 1. It is estimated that the effects on GDP will be limited in this example too. During the transitional phase, the effects on GDP and the level of consumption are expected to be slightly lower than in example 1. It is calculated that the levels could fall by no more than 1 per cent relative to a base scenario. This would be in the event of an estimated fall in housing prices of, at most, 5 per cent (see table B1:3).

An important reason why amortisation payments are expected to increase to such a limited extent is that the requirement only covers new borrowers. In addition, the amortisation requirement proposed by Finansinspektionen entails a relatively long amortisation period. It will take 32 years for a borrower with an original loan-to-value ratio of 85 per cent to reach a loan-to-value ratio of 50 per cent. As borrowers in many other countries often pay off the entire loan over the same period of time, this means that the amortisation behaviour in Sweden will still differ abroad.

Other possible formulations of the amortisation requirement

An amortisation requirement can be formulated in many different ways. For example, the amortisation period can be both shorter and longer than in example 1. Chart B1:3 illustrate the effect on the aggregate debt ratio if the amortisation period in example 1 is extended to 40 and 50 years. The calculated effects on the debt ratio of these longer amortisation periods is less than in example 1, but larger than the calculated effects of the Finansinspektionen's proposal.

⁴⁵ These percentages only apply to amortisation payments on borrowers' new mortgages. Amortisation of other loans and existing mortgages are not included.

Changed behaviour among households could affect the result

The calculated effects of different amortisation requirements should be interpreted with caution for several reasons. First, the calculations have been made under the assumption that new borrowers will borrow in the same way before and after the introduction of an amortisation requirement. However, the effects may also be different as the new borrowers have the opportunity to adjust to the new regulations. If, for example, the amortisation requirement leads the borrowers to take smaller loans, the effects of the requirement on household expenditure will also be smaller. Second, the effects may be different if housing prices are affected to a greater extent than assumed in the calculations and vice versa (see tables B1:2 and B1:3). If an amortisation requirement leads to a stronger correction of housing prices than estimated, the high level of indebtedness could strengthen the tightening of the economy. On the other hand, however, one could argue that the macro-economic effects of an amortisation requirement may be weaker as we are presently in a situation in which interest rates are very low. If measures are taken that affect the households' scope for consumption, it is probable that the effects of the measures would be greater in a situation where interest rates are at more normal levels.⁴⁶

Table B1:1 Amortisation of new mortgages with and without amortisation requirements

	Small debt increase	Medium debt increase	Great debt increase
New loan in relation to disposable income, per cent	59	162	352
Amortisation amount (SEK/month)			
Amortisation without measure	281	395	948
If new loan is amortised in 35 years (example 1)	767	1,642	3,685
If new loan is amortised according to Finansinspektionen's proposal (example 2)	385	850	2,160
Amortisation amount in relation to disposable income (per cent)			
Current amortisation	0.9	1.3	2.7
If new loan is amortised in 35 years (example 1)	1.8	4.8	10.1
If new loan is amortised according to Finansinspektionen's proposal (example 2)	1.1	3.0	6.9

Note. The borrowers have been sorted according to the size of the ratio of new mortgages to disposable income. Other loans or existing mortgages are not included. Borrowers with a small debt increase are represented by the mean for borrowers between the 20th and 25th percentile, borrowers with a medium debt increase by the mean for borrowers between the 45th and 55th percentile, and borrowers with a large debt increase by the mean for borrowers between the 75th and 80th percentile. All of the values are mean values for the respective variables. This means, for example, that the difference between the various amortisation amounts does not correspond to the difference between the amortisation amount as a percentage of disposable income.

Source: The Riksbank

⁴⁶ Monetary policy and macroprudential policy in a globalised world, Stefan Ingves, *speech to Swedish Economics Association*, Stockholm, May 2014. Sveriges Riksbank.

Table B1:2 Macro effects when new loans are amortised fully over 35 years (example 1)

Per cent

Small house price effects	Maximum effect in transition period	Long-term effect
GDP	-0.9	-0.1
Consumption	-1.4	-0.1
Real house prices	-1.3	-0.9
Large house price effects	Maximum effect in transition period	Long-term effect
GDP	-1.9	-0.1
Consumption	-2.4	-0.2
Real house prices	-12.0	-0.2

Note. The figures presented in this table are the average effects of the Riksbank's calculations using a number of different macroeconomic models and refer to deviations from a base scenario. The initial position is the first quarter of 2016. Long-term effects means effects after up to 50 years from the introduction of the amortisation requirement. The result for macro effects with large house price effects is based on the assumption that housing prices will fall more than initially indicated by the macro models.

Source: The Riksbank

Table B1:3 Macro effects when new loans are amortised according to Finansinspektionen's proposal (example 2)

Per cent

Small house price effects	Maximum effect in transition period	Long-term effect
GDP	-0.3	-0.1
Consumption	-0.7	-0.1
Real house prices	-0.5	-0.3
Large house price effects	Maximum effect in transition period	Long-term effect
GDP	-0.8	-0.1
Consumption	-1.0	-0.1
Real house prices	-5.0	-0.3

Note. The figures presented in this table are the average effects of the Riksbank's calculations using a number of different macroeconomic models and refer to deviations from a base scenario. The initial position is the first quarter of 2016. Long-term effects means effects after up to 50 years from the introduction of the amortisation requirement. The result for macro effects with large house price effects is based on the assumption that housing prices will fall more than initially indicated by the macro models.

Source: The Riksbank

Other measures for dampening household indebtedness could complement an amortisation requirement

There are also other measures that could be used to dampen household indebtedness. One example would be to limit how much households may borrow by setting a lower ceiling for the size of a mortgage loan in relation to collateral. Another alternative would be to limit indebtedness in relation to income, a so-called LTI (loan-to-income) requirement. In addition, higher standard values in the banks' discretionary income calculations could limit how much households could borrow. Such a proposal would also create better and more robust lending for housing financing.

Measures directly influencing households' incentive to borrow could also be used to dampen their indebtedness. One example of such a measure would be lowering tax relief. Considering that interest rates are currently at a historically low level, such an adjust-

ment would not affect the households' scope for consumption as heavily as the introduction of the measure once the interest rate environment has normalised. This is one of the reasons why this may be a good time to introduce such a measure.

Another example is to limit how much of the loan amount a mortgage borrower is allowed to take at a variable rate. If a larger share of the households' loans were at fixed rates, variations in the interest rates paid by the households would be smaller, which could result in a more even development of the loan-based expenditure for households. This could lead to more robust household finances.

As was discussed above, the accumulation of debt in recent years has followed the development of housing prices in Sweden. The rise in housing prices, above all in the largest cities, can be explained, to a certain extent, by a poorly functioning housing market with a small supply of housing to buy or rent. In order to achieve a sounder development of the housing market, measures that limit the households' incentive to borrow must also be complemented by measures that increase the supply of housing and lead to a more effective housing market.

A Swedish leverage ratio requirement

It is of vital importance to financial stability that banks maintain adequate capital in relation to their assets. This box discusses how a leverage ratio requirement can be introduced with the aim of strengthening the banks' resilience to financial stress. It also discusses what constitutes an appropriate level for a Swedish leverage ratio requirement and the effects that such a requirement may have on the banks.

What is a leverage ratio?

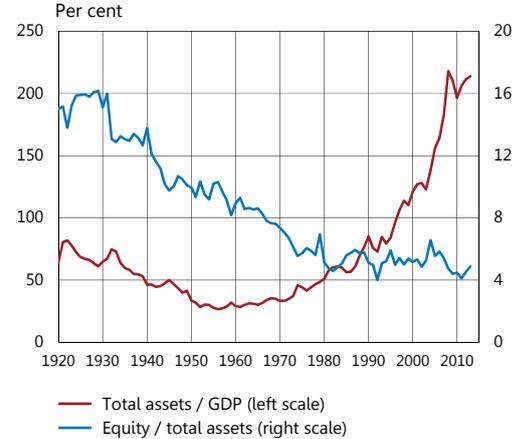
The size of a bank's capital automatically decreases if the bank suffers losses. How much capital a bank has is therefore of major importance to its resilience against financial stress, as well as to financial stability as a whole.

The capital adequacy of banks can be measured using various key ratios. One such ratio is the leverage ratio, which is a measure of how much capital a bank has in relation to its assets. Viewed over a long period of time, the leverage ratios of the Swedish banks have decreased at the same time as their total assets have increased (see chart B1:4). This indicates that the importance of the banks to the economy has increased at the same time as they fund their operations with money from their shareholders to a lesser and lesser extent.

A lesson of the financial crisis is that many banks had been able to expand their balance sheets considerably without also having to increase their capital in any significant way. This showed that there was a need to complement the risk-based capital requirements with a minimum requirement for the leverage ratio. For some time now the Basel Committee on Banking Supervision has been working to draw up an international minimum requirement for the leverage ratio. In January 2014, the Committee published a final definition of the leverage ratio as the ratio between a bank's *Tier 1 capital* and its *total exposures*. In simple terms, a bank's Tier 1 capital consists of its share capital and accumulated profits, as well as certain debt instruments which are often referred to as additional Tier 1 capital instruments. In this context, total exposures means that assets both on and off the balance sheet are included in the calculation.

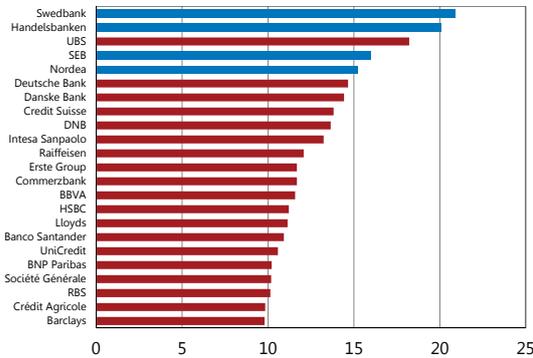
The Basel Committee's intention is to introduce an international minimum requirement for a bank's leverage ratio from January 2018. At present, the Committee is monitoring how the banks comply with a leverage ratio requirement of 3 per cent. The EU's Capital Requirements Regulation (CRR) currently defines a measure of the leverage ratio and work is underway in the EU to revise this measure in line with the Basel Committee's final definition. It is expected that a leverage ratio requirement will be introduced into the European regulatory framework for banks' capital adequacy from 2018.

Chart B1:4 Swedish banks' total assets in relation to GDP and equity in relation to total assets



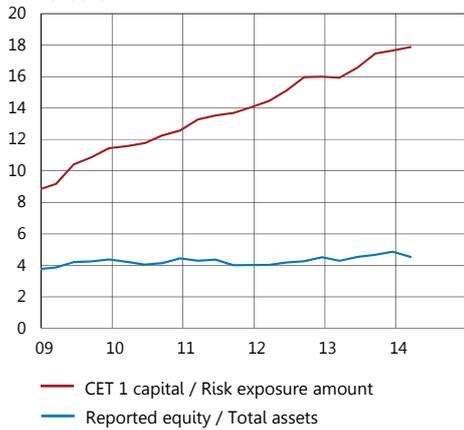
Sources: Hortlund (2005), Do Inflation and High Taxes Increase Bank Leverage? *SSE/EFI Working Paper Series in Economics and Finance*, No 612/2005, November 2005, Statistics Sweden and the Riksbank.

Chart B1:5 CET 1 capital ratios according to Basel III
June 2014, per cent



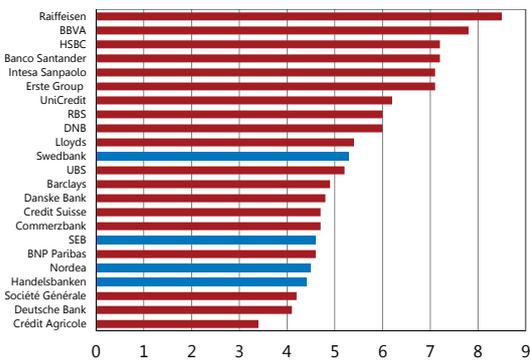
Sources: SNL Financial and the Riksbank

Chart B1:6 CET 1 capital ratios and reported equity in relation to total assets of the major Swedish banks
Per cent



Sources: Banks' reports

Chart B1:7 Reported equity in relation to total assets
June 2014, per cent



Sources: SNL and the Riksbank

Why is a Swedish leverage ratio requirement needed now?

For many years, a bank's capital requirement has been expressed as a percentage of its risk exposure amount. In simple terms, this means that a bank that is assessed as less risky has a lower capital requirement than a bank where the risks are deemed to be higher. Since 2007, Swedish banks have been able to use internal models to calculate their risk exposures, and thus their own risk-based capital requirement. Partly as a consequence of this, the capital levels of the major banks in relation to their risk exposure amounts have increased. As a result, the major Swedish banks have relatively high capital levels in relation to their risk-weighted assets compared to most other European banks (see chart B1:5). However, their capital in relation to their total assets has not increased to the same extent (see chart B1:6). Moreover, the major Swedish banks have relatively lower capital levels in relation to total assets than many other European banks (see chart B1:7). The Swedish banks thus have relatively little capital with which to manage losses in relation to their total assets.

The risk-weight floor for Swedish mortgages introduced by Finansinspektionen entails an increase in the banks' capital requirement and may therefore lead to an increase in the leverage ratio. The earlier introduction of a Swedish leverage ratio requirement will never the less provide an important complement to today's capital requirement, as this may help to manage the uncertainty regarding whether the banks' total risk exposure amounts fully reflect their actual risks. A leverage ratio requirement will also reduce the risk of an unsound growth in lending. The reason for this is that a leverage ratio requirement imposes an upper limit for the amount of assets a bank can hold given a certain amount of capital. There is no such limit for certain types of exposure in the current capital requirements. A leverage ratio requirement will thus limit the possibilities of the banks to increase their lending without also increasing their capital.

A leverage ratio requirement will therefore constitute an important complement to the existing capital requirements. In addition, there are particular reasons why Sweden should exceed the international minimum requirements for the leverage ratio. A higher and earlier implemented Swedish leverage ratio requirement is needed to manage the risks that Sweden's large banking system entails and to strengthen the banks' resilience to financial stress. Several other countries with banking systems that are similar in size to Sweden in terms of GDP, such as those in the Netherlands, Switzerland and the United Kingdom, have introduced or are planning to introduce leverage ratio requirements for banks. The United States, where the banking system is smaller than Sweden's in relation to GDP, also has leverage ratio requirements.

The size of the Swedish banking system means that any problems in the banking may potentially be very costly to society. The fact that the sector is highly concentrated, with four major banks,

and the banks' dependent on market funding in foreign currencies also makes the system vulnerable. Against this background, the Ministry of Finance, Finansinspektionen and the Riksbank agreed in November 2011 to both bring forward and raise the capital requirements in relation to risk exposure amounts for the major Swedish banks over and above the minimum levels in the Basel III Accord. In addition, the Basel Committee is currently working to evaluate and revise the methods that govern the size of capital requirements for various exposures depending on how great the risks are assessed to be. This work may result in a further tightening of the risk-based capital requirements.

As the Swedish banking system is still large and concentrated it is natural that a Swedish leverage ratio requirement that is higher than the Basel Committee's preliminary minimum level should also be introduced earlier. Otherwise a Swedish leverage ratio requirement would not have the intended effect as a complement to today's risk-based capital requirements, as these requirements are higher than the minimum level in the Basel Accord.⁴⁷

What could be an appropriate level for a Swedish leverage ratio requirement?

A natural starting point when setting an appropriate level for a Swedish leverage ratio requirement is to examine previous agreements and analyses of appropriate capital levels for the major Swedish banks.

In 2011, the Riksbank published an analysis of what would be appropriate capital levels for major Swedish banks.⁴⁸ The study weighed the economic benefits of higher capital levels against the economic costs from society's point of view. This indicated that an appropriate level for the banks' CET 1 capital was in the interval 10 to 17 per cent of the banks' risk-weighted assets. A similar calculation of an appropriate level for Tier 1 capital in relation to the banks' total assets arrived at a leverage ratio of between 3.5 and 6 per cent at the time of the study. This can be compared with the current average leverage ratio of the major Swedish banks of about 4 per cent. In countries that have or will introduce leverage ratio requirements for banks, the levels are between 3 and 6 per cent. The IMF considers that a leverage ratio requirement of around 5 per cent is appropriate for the Swedish economy, while the OECD assesses that 5 per cent is an appropriate leverage ratio for being able to consider the European banks well capitalised.⁴⁹

⁴⁷ For a more detailed discussion of the link between capital requirements in relation to risk exposures and leverage ratio requirements, see the minutes of the meeting of the Bank of England's Financial Policy Committee on 15 October and the report *The Financial Policy Committee's review of the leverage ratio*, October 2014. Bank of England.

⁴⁸ *Appropriate capital ratios in major Swedish banks – an economic analysis*, 2011. Sveriges Riksbank.

⁴⁹ Sweden: 2014 Article IV Consultation-Staff Report, *IMF Country Report No. 14/261*, August 2014, International Monetary Fund (IMF). Box 1.5 in *OECD Economic Outlook*, November 2012. OECD.

How can banks manage a future leverage ratio requirement?

To increase their leverage ratios, banks can either increase their Tier 1 capital or reduce the size of their total exposures. If a leverage ratio requirement is introduced earlier in Sweden, it is conceivable that the banks concerned will comply with the requirement through a combination of these two measures.

In simple terms, a bank's Tier 1 capital consists of its share capital and accumulated profits, as well as other so-called additional Tier 1 capital instruments. Banks that wish to increase their Tier 1 capital levels can thus do so by reducing their share dividends and issuing Tier 1 capital instruments.

Banks can also choose to reduce their assets in order to increase their leverage ratios. Exactly which assets they will reduce in such cases is unclear. However, it is possible that they will reduce the exposures that are currently subject to low capital requirements. The reason for this is that the return provided by these assets in relation to the capital the banks believe they need to hold when subject to a leverage ratio requirement will probably not meet the banks' own required yield. However, there are several factors apart from a future leverage ratio requirement that govern the composition of the banks' assets. Examples include the bank customers' needs for financial services and the regulations concerning the banks' liquidity. Any analysis of which assets the banks would reduce to meet a leverage ratio requirement is therefore uncertain.

Overall assessment

All-in-all, the Riksbank's assessment is that the economic benefits of a leverage ratio requirement are greater than the potential costs from society's point of view. This is because it will strengthen the resilience of the banking system and reduce the risk of a costly financial crisis. A leverage ratio requirement should be introduced gradually over a long period of time in order to give the banks time to meet the requirement.

On the basis of the reasoning above, the overall assessment is that the major Swedish banks should have a leverage ratio at the group level that exceeds 4 per cent from 1 January 2016 and 5 per cent from 1 January 2018. The leverage ratio should be calculated in accordance with the definition in the EU's Capital Requirements Regulation, as adapted to the measure used by the Basel Committee.

In order to meet a leverage ratio requirement of 5 per cent, the four major banks together need to increase their Tier 1 capital by approximately SEK 100 billion. This can be compared to the forecast for the major bank's total profits up to 1 January 2018 of SEK 250 billion. If the major Swedish banks pay out half of their forecast profits in dividends, it is calculated that they will have a leverage ratio around or above 5 per cent from 1 January 2018.

A Swedish leverage ratio requirement should take the form of a minimum requirement of 3 per cent supplemented by a buffer requirement of 1 per cent from 2016 and 2 per cent from 2018. More precisely, this means that banks that meet the minimum requirement but not the extra buffer requirement must present a plan for how to increase their leverage ratios. They could achieve this, for example, by limiting dividends to shareholders and bonus payments.

Experience shows that share capital and accumulated profits have a greater ability to absorb losses than other types of capital. It is therefore important that the banks do not meet the requirement by using additional Tier 1 capital instruments to too great an extent, and that Finansinspektionen follows this up with the banks.

In parallel with the leverage ratio requirement it is important to continue revising the risk-based capital requirements, for example through the Basel Committee's ongoing review of the banks risk weights. The aim of this work includes further strengthening the banks' resilience to financial stress and ensuring that the risk-based capital requirements are well-balanced in relation to the leverage ratio requirement.

■ 2. Financial markets

Uncertainty has increased somewhat on the financial markets. This is primarily because economic growth has deteriorated in some regions, but is also due to the ongoing geopolitical conflicts in various parts of the world. However, the expansionary monetary policy in several countries is helping to keep interest rates and volatility low and asset prices high on the financial markets. This benefits, for instance, the Swedish banks, which are still able to acquire funding at low costs. However, it will also help to maintain the demand for higher-risk assets among investors, which in turn may increase the risk of assets being overvalued.

Swedish banks and companies are active on the global financial markets and are dependent on these markets for their funding and risk management. Developments on these markets are thus important for assessing the stability of the Swedish financial system. This chapter therefore describes both general developments on the financial markets and developments on those markets of particular importance for the funding of Swedish banks and companies.

Developments on the financial markets

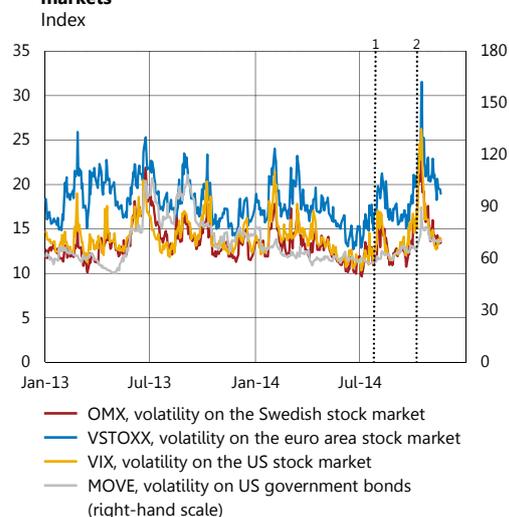
EXPANSIONARY MONETARY POLICY CONTINUES TO SUPPORT DEVELOPMENTS ON THE FINANCIAL MARKETS

Uncertainty on the financial markets has increased somewhat since the previous Financial Stability Report. This is primarily because growth outlooks have deteriorated in certain regions and because geopolitical conflicts, such as that in Ukraine, have intensified. This increased uncertainty is reflected, for example, in higher volatility, lower stock prices and higher yields on higher-risk bonds (see charts 2:1, 2:2 and 2:3).

However, central banks' expansionary monetary policy is still supporting the development on the financial markets. Volatility and risk premiums are still comparatively low and asset prices comparatively high (see charts 1:2, 1:3 and 1:4 in chapter 1). Partly as a result of this, stress indexes for the euro area and for Sweden remain at low levels (see chart 1:1 in chapter 1 and chart 2:4). Although the recent uncertainty has resulted in a higher stress index for the euro area it is still, as in the case of the Riksbank's stress index for Sweden, at the same low level as prior to the financial crisis in 2007. However, these indexes primarily measure financial stress on the markets and do not necessarily take into account the fact that risks can build up in the financial system (see chapter 1).

The expansionary monetary policy has also contributed to an increase in investors demand for higher-risk assets. The low interest rates, low volatility and increased risk taking are, however, intended effects of the expansionary monetary policy. This is because they make it easier for governments, households and companies to

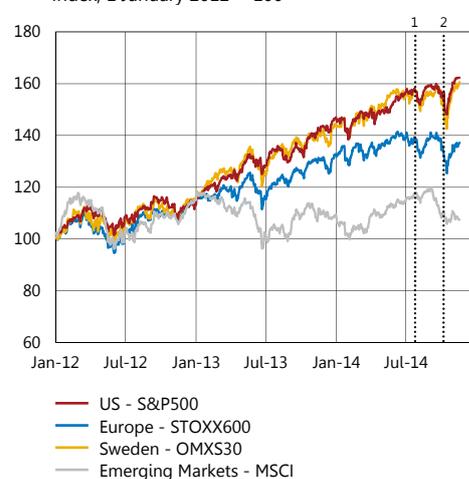
Chart 2:1 Expected volatility on the bond and stock markets



Note. The chart refers to the expected volatility within 30 days that can be derived from the pricing on the options market. The events marked in charts 2:1 to 2:3 are 1: EU imposes extensive economic sanctions on Russia. 2: The IMF revises its global growth forecast downwards.

Source: Reuters EcoWin

Chart 2:2 The stock market
Index, 1 January 2012 = 100

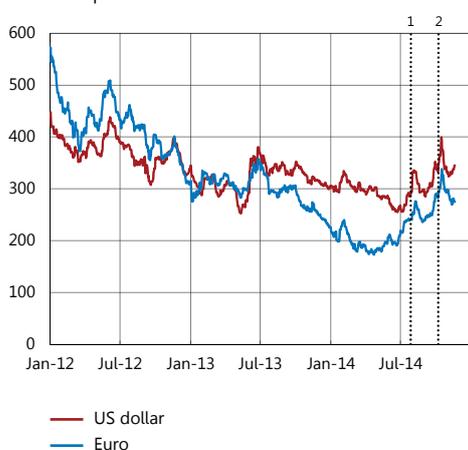


Note. The events marked are described in chart 2:1.

Source: Bloomberg

Chart 2:3 Corporate bond yields

Basis points

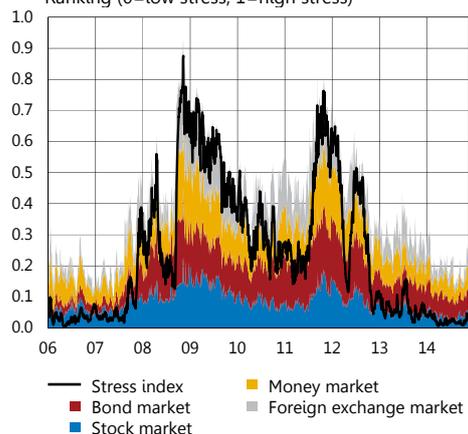


Note. The series show the spread between the yield on corporate bonds rated Investment Grade and High-Yield issued in the respective currencies. The events marked are described in chart 2:1

Sources: Bloomberg and the Riksbank

Chart 2:4 Swedish stress index

Ranking (0=low stress, 1=high stress)

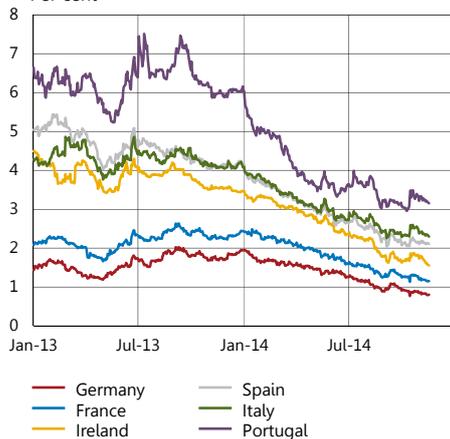


Note. The Swedish stress index has been produced by the Riksbank using a method similar to that used by the ECB for the European stress index. See Johansson, Tor and Bonthron Fredrik (2013), Further development of the index for financial stress in Sweden, *Economic Review*, 1, 2013. Sveriges Riksbank.

Sources: Bloomberg and the Riksbank

Chart 2:5 Ten-year government bond yields

Per cent



Source: Reuters EcoWin

get funding at a lower cost and to strengthen their balance sheets, which in turn contributes to the economic recovery. However, a prolonged period of expansionary conditions can also lead to various assets being overvalued. This is noted, for example, by participants in the Swedish fixed-income market in the Riksbank's latest risk survey.⁵⁰ Such a situation may increase the risks in the financial system as overvalued assets are particularly sensitive to situations in which investor demand suddenly decreases and prices fall. Market participants and authorities around the world have focused on such risks to an increasing extent since the spring.^{51,52} Recent developments on the financial markets have also shown that higher-risk assets, at current valuations, may be particularly sensitive to situations in which volatility suddenly increases.

The increased risk propensity of investors has among other things contributed to a fall in government bond yields for euro area countries with sovereign debt problems (see chart 2:5). One contributing factor behind this is that the credit ratings of Ireland and Portugal have been raised since the previous Financial Stability Report. The lower government bond yields are also explained by the deterioration in the macroeconomic outlook for the euro area and the ECB's monetary policy measures. The German government bond yield has also fallen as a result of this. The Greek government bond yield, on the other hand, has risen. This is primarily because there is uncertainty regarding political stability and the ability of the country to leave its economic support programme at the end of the year. Greece and several other euro area countries are still burdened by large and growing central-government debts and weak competitiveness. It cannot therefore be ruled out that remaining structural problems and a failure to implement necessary reforms could lead to renewed financial unease.

Investor demand for higher-risk assets is also one explanation of why the Swedish market for corporate bonds is growing. Both in Sweden (see chart 2:6), as well as in the rest of Europe and several emerging- market economies, the segment of High-Yield corporate bonds has grown most. An important explanation of why an increasing number of companies are issuing bonds is that it is cheaper for many companies to issue bonds on the market than to get bank loans.⁵³ One reason for this may be the new regulations that have been imposed on the banks. These may entail increased costs, which can lead to higher bank lending rates.⁵⁴ High investor demand is also

⁵⁰ *Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets*, autumn 2014. Sveriges Riksbank.

⁵¹ See for example *Global Financial Stability Report*, October 2014, International Monetary Fund (IMF) or *Financial Stability Report*, June 2014, Bank of England.

⁵² Another factor that is being discussed is whether an extended period of low interest rates could lead to a larger shadow banking sector. At present, however, this sector is small in Sweden in relation to the banking system and in international terms. For further discussion see Hansson, Daniel, Oscarius, Louise, and Söderberg, Jonas (2014), Shadow banks from a Swedish perspective, *Sveriges Riksbank Economic Review* 3, 2014. Sveriges Riksbank.

⁵³ Landeman, Louis and Bergin, Gabriel (2014), *Företagsobligationer*. Ekerlids förlag.

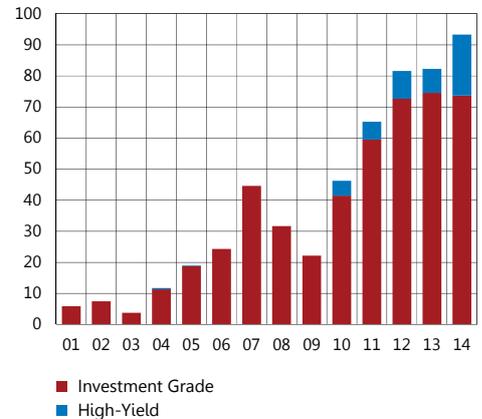
⁵⁴ Basel III – Effects on the Swedish banks and Sweden, box in *Financial Stability Report 2010:2*. Sveriges Riksbank.

helping to keep risk premiums, and thus yields, low on the Swedish market for corporate bonds (see chart 2:7). Although the demand for corporate bonds is high, the turnover on the secondary market is limited. Only approximately six per cent of the outstanding volumes are traded each month.⁵⁵ In the Riksbank's most recent risk survey, participants in the Swedish fixed-income market state that the secondary market for corporate bonds is less liquid than other bond markets.⁵⁶ The participants feel that this entails risks as volatility may increase if investors are forced to sell their bond holdings. Such a situation may also have a negative impact on the companies' possibility to renew outstanding bonds when they mature.

UNCERTAIN EFFECT ON THE FINANCIAL MARKETS OF THE DIFFERENCE BETWEEN EURO AREA AND US MONETARY POLICY

The difference between the monetary policies conducted in the United States and in the euro area is increasing. The fact that the monetary policies differ is not least explained by the differences in economic growth and inflation.⁵⁷ Expectations of future monetary policy also differ and this is reflected, for example, in the difference between sovereign bond yields (see chart 2:8). In the United States, the Federal Reserve ended its asset purchases of US government and mortgage bonds in October. Market pricing now indicates that the Federal Reserve and the Bank of England are expected to start raising their policy rates during the autumn of 2015. The ECB and the Riksbank have instead chosen to cut their policy rates during the summer and autumn. The ECB has also taken a number of measures to stimulate bank lending to households and companies in the euro area. It is above all the small and medium-sized companies in the euro area that have reported difficulties to get the funding they want from the banks.⁵⁸ Lending to these companies is important in order to boost economic growth as they account for a large share of employment and investment in the euro area.⁵⁹ The ECB therefore chose to introduce new targeted loans to the banking system and to begin purchasing securitised loans and covered bonds from the banks. Although the expansionary monetary policy has supported the development of the financial markets so far, it is uncertain what effects the return to a less expansionary monetary policy in the United States may have on the financial markets.

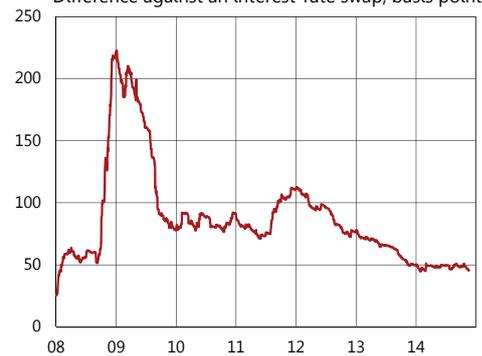
Chart 2:6 Issues on the Swedish market for corporate bonds
SEK billion



Note. Some bonds have no credit rating from a credit institution and for these bonds the allocation between Investment Grade and High Yield is based on the banks' credit assessments of the companies.

Source: Dealogic

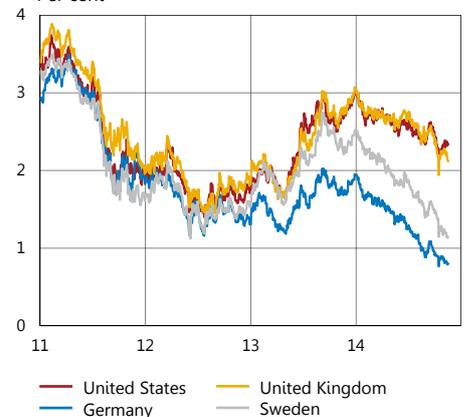
Chart 2:7 Risk premia for Swedish corporate bonds
Difference against an interest-rate swap, basis points



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.

Sources: Nasdaq OMX and Bloomberg

Chart 2:8 Ten-year government bond yields
Per cent



Source: Reuters EcoWin

⁵⁵ Bonthron, Fredrik (2014), Developments on the Swedish corporate bond market, *Economic Commentary* no. 7, 2014. Sveriges Riksbank.

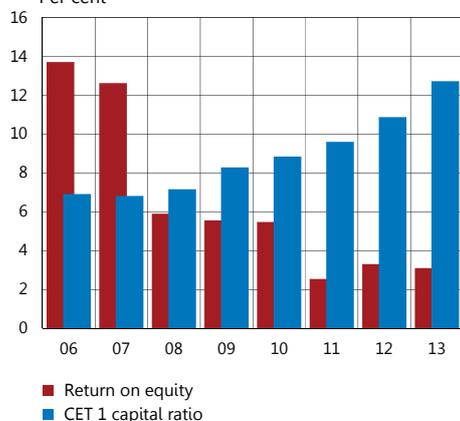
⁵⁶ *Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets*, autumn 2014. Sveriges Riksbank.

⁵⁷ *Monetary Policy Update*, September 2014. Sveriges Riksbank.

⁵⁸ *Survey on the access to finance of small and medium-sized enterprises in the euro area*, November 2014. The European Central Bank (ECB).

⁵⁹ The European Commission estimates 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. See *Finance for Growth*, December 2013. European Commission.

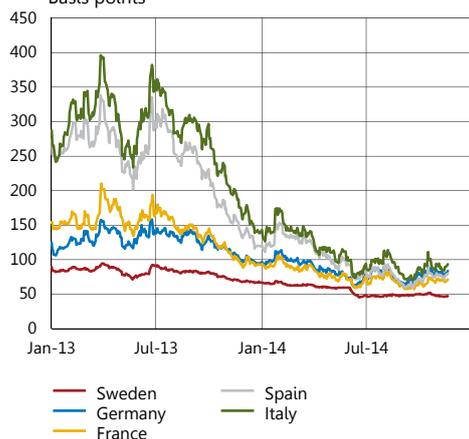
Chart 2:9 European banks' CET 1 capital ratios and return on equity
Per cent



Note. Data refers to mean values based on 108 banks in the euro area that are subject to the ECB's supervision on the basis of the criteria for total assets.

Sources: SNL Financial and the Riksbank

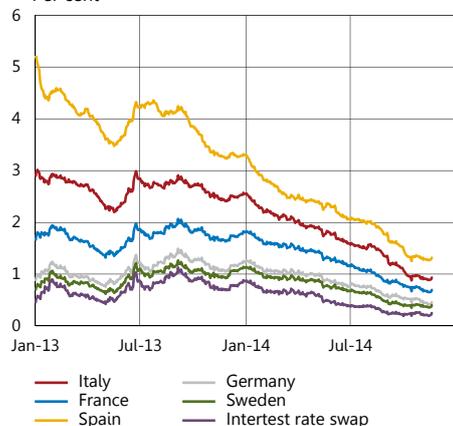
Chart 2:10 Five-year CDS premiums for banks
Basis points



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

Sources: Bloomberg and the Riksbank

Chart 2:11 Covered bond yields
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.

Source: Barclays Research

Markets that are important for the banks' funding

The banks can fund their operations using various instruments and at different maturities. In the short-term, for example, the banks can borrow on the interbank market or issue certificates. In the longer term, they can acquire funding using unsecured and covered bonds. The costs of unsecured, long-term funding can be estimated through CDS premiums, and for covered funding through price quotes on the secondary market for covered bonds. Developments on the markets for these instruments thus provide indications of changes in the banks' funding costs.

GENERAL IMPROVEMENT IN FUNDING CONDITIONS FOR EUROPEAN BANKS

The European Banking Authority's stress test of European banks showed that there is a capital shortfall in the banks of EUR 25 billion.⁶⁰ The stress test was conducted for the 123 largest banks in Europe, including the major Swedish banks. None of the Swedish banks had a capital shortfall according to the test (see chapter 4). On the other hand, 25 other European banks had a capital shortfall totalling EUR 25 billion at the end of 2013. However, several of these banks had strengthened their capital situation before the publication of the EBA's test results, for example by increasing their CET 1 capital (see chart 2:9).⁶¹ More than half of the shortfall, EUR 15 billion, had thus already been covered before the results were published. However, the profitability of the banks is still weak. One reason for this is that the banks in some countries, such as Italy, Portugal and Spain, have made substantial provisions for loan losses.

CDS premiums are in general low for the European banks. This also applies to the Swedish banks, which indicates that their funding costs for unsecured bonds have fallen. In general, CDS premiums for European banks did not change in connection with the publication of the results of the ECB's evaluation (see chart 2:10). The reason for this may be that the market participants believe that the banks will be able to acquire the capital needed themselves. However, CDS premiums increased temporarily at the end of the summer when a Portuguese bank went bankrupt and two Bulgarian banks needed liquidity support from the Bulgarian central bank.

The costs of funding through covered bonds have fallen for the Swedish banks. This is also generally the case for European banks. It is primarily covered-bond yields for banks in Spain and Italy that have fallen (see chart 2:11). The banks there continue to take advantage of this by increasing their issues of covered bonds. However, the banks in Sweden, Germany and France can still acquire funding

⁶⁰ Testing the banks in every EU country, box in *Financial Stability Report 2014:1*. Sveriges Riksbank.
⁶¹ *Global Financial Stability Report*, October 2014. International Monetary Fund (IMF).

through covered bonds at a lower cost than the Spanish and Italian banks.

Costs for the Swedish banks' short-term funding are still low.

This is evident by the fact that the banks issue certificates in both euro and US dollars at a low cost. On the Swedish interbank market, volatility and the level of the short-term interest rate Stibor T/N has risen from time to time since the previous Financial Stability Report was published. One contributory factor is that the issues of the Riksbank's weekly certificates have been fully subscribed on a number of occasions, as was the case during the spring. As the liquidity in the banking system varies depending on how much is invested in these certificates, the short-term interbank rate has risen in connection with this. However, Swedish interbank rates at longer maturities have not risen, which indicates that the overall effect of this on the banks' funding costs has been limited.

■ 3. The Swedish banking groups' borrowers

Despite subdued economic development in several of the countries in which the Swedish major banks do business, the assessment is that in general the banks' borrowers are well able to service their loans. An important reason for this is that interest rates are still low, which is holding down the interest expenditure of the households and companies. In Sweden, housing prices and household debt continue to increase at an increasingly rapid rate from already high levels. In the case of households with mortgages, debt has also increased more rapidly than incomes. The higher level of indebtedness makes the Swedish economy more sensitive to shocks. If the situation in the household sector were to weaken, for example as a result of a fall in housing prices, this could lead to a fall in demand in the economy. This could in turn undermine the ability of the companies to service their debt and thus have a negative impact on both the real economy and financial stability.

The risk that the banks' borrowers will be unable to service their loans, that is the credit risk, is one of the greatest risks the banks are exposed to. At the same time, the banks' earnings are directly affected by their loan volumes. The borrowers thus play an important role for the stability of the financial system. This chapter therefore describes the borrowing, indebtedness and debt-servicing ability of the largest groups of borrowers of the major Swedish banks.

The Swedish household sector

HOUSING PRICES AND DEBT CONTINUE TO RISE FROM HIGH LEVELS

Housing prices have risen at an increasingly rapid rate in recent years (see chart 3:1). This is despite the fact that economic activity has been relatively weak in Sweden and that the banks have tightened up credit terms for new mortgage borrowers since 2010. There are several explanations for the price increases, for example the low and falling interest rates. In addition, the households have benefited from the increases in employment and real wages. Another factor is that housing construction has not increased to the same extent as the population for some time now. All-in-all, this has contributed to a substantial increase in housing prices, which are now at historically-high levels (see chart 1:6 in chapter 1).

The rate of growth in household debt has also increased. It is above all loans with tenant-owned apartments as collateral that have risen more rapidly (see chart 3:2). This is in line with previous patterns, when interest rates have fallen the households have often increased their borrowing, and vice versa (see chart 3:3). Debt are expected to continue increasing more quickly in the period ahead when the Swedish economy improves at the same time as interest rates are expected to remain low.⁶²

Chart 3:1 Housing prices in Sweden
Annual percentage change



Source: Valueguard

Chart 3:2 Swedish household debt per type of collateral
Annual percentage change

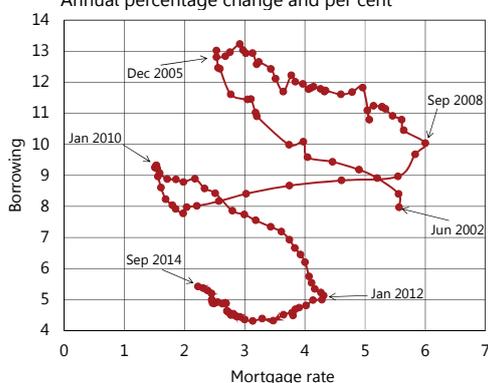


Note. Consumer loans are loans without collateral (unsecured loans) and loans guaranteed by others than central and local government. Other loans have collateral other than housing, for example agricultural properties or financial instruments.

Sources: Statistics Sweden and the Riksbank

⁶² *Monetary Policy Report*, October 2014. Sveriges Riksbank.

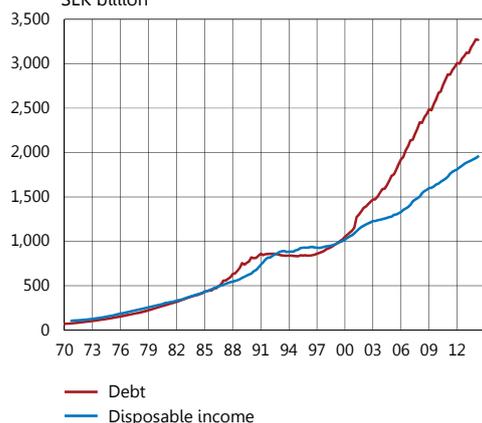
Chart 3:3 Relation between household borrowing and the variable mortgage rate
Annual percentage change and per cent



Note. The chart shows how the annual percentage change in household debt from Monetary Financial Institutions (MFIs) relates to the level of the variable mortgage rate. Each point illustrates a monthly outcome and the chart comprises the period June 2002 to the end of September 2014.

Sources: Statistics Sweden and the Riksbank

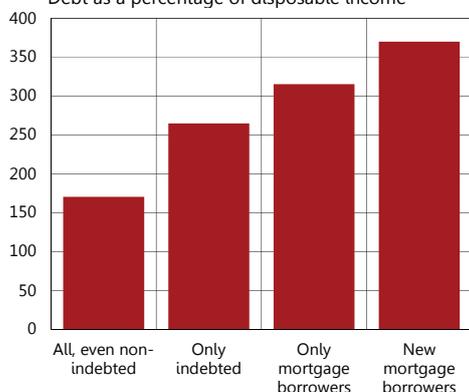
Chart 3:4 Swedish household total debt and disposable incomes
SEK billion



Note. Households' disposable incomes are expressed as a four-quarter moving total.

Sources: Statistics Sweden and the Riksbank

Chart 3:5 Debt ratios for different groups, 2014
Debt as a percentage of disposable income



Note. The aggregate debt ratio also includes student-loan debt and tax debt which are not included in the other groups' debt. The measure is also calculated as total debt divided by total incomes. The other measures are averages of debt ratios for different households. The definition of household incomes also differs in the different calculations. Debt ratio for new mortgage borrowers is from 2013.

Sources: Statistics Sweden, Finansinspektionen and the Riksbank

Household debt has been increasing faster than household incomes over a long period of time (see chart 3:4). This has led to a substantial increase in the household debt ratio in recent decades. This ratio is also expected to continue to rise in the period ahead (see chart 1:13 in chapter 1). Although the debt ratio has been relatively stable in recent years, it is still high in an historical perspective and in comparisons with other countries. If the debt of tenant-owner associations is included the level is even higher.⁶³ However, the aggregate debt ratio also includes individuals who are not indebted but do have an income. The average debt ratio is significantly higher if only the households that have some form of debt are included in the calculations (see chart 3:5).

For households with mortgages, the average debt ratio has increased since 2010 (see chart 3:6). This is revealed by the

Riksbank's credit data, which contains information on household indebtedness at the individual and household levels. These statistics also show that those households with the highest incomes continue to take out the largest mortgages expressed in Swedish kronor. However, households in the lower income groups still take out larger mortgages in relation to their incomes. Debt ratios are above 250 per cent in all income groups, and are higher the lower the annual income the household has (see chart 3:7). The fact that debt ratios are highest among low and middle-income earners means, all else being equal, that these households are most sensitive to, for example, a loss of income or an increase in interest expenditure.

HIGH INDEBTEDNESS MAY AFFECT BOTH REAL-ECONOMIC AND FINANCIAL STABILITY

Many households choose variable mortgage rates. During the autumn, 73 per cent of the new mortgage loans have been subscribed at a variable rate, which means that 57 per cent of the household loans in the mortgage stock now have a variable mortgage rate. The shorter fixed-rate periods may, among other things, be due to the fact that the households expect interest rates to remain low for a long time, as well as the fact that the variable mortgage rate has been low in comparison with rates for longer fixed-rate periods. There has long been a clear covariation between the percentage of new mortgage loans with variable rate and the difference between variable and fixed rates. When there has been a significant difference between these mortgage rates, the households have often chosen a variable rate, and vice versa (see chart 3:8).

The combination of high indebtedness and shorter fixed-rate periods makes the households increasingly sensitive to interest rates. During periods of falling interest rates, households and the real economy may of course benefit if many households have a

⁶³ *Financial Stability Report 2014:1*. Sveriges Riksbank.

variable mortgage rate. However, during periods with rapidly rising interest rates, for example as a result of uncertainty on the financial markets, a variable rate can substantially increase the households' interest expenditure and thus the scope for consumption. This is particularly true if households are highly indebted in relation to their incomes.⁶⁴ Stress tests of new mortgage borrowers show that many households may be forced to reduce their consumption if interest rates rise. For example, the percentage of households with a negative margin in their discretionary income calculations will exceed 21 per cent if interest rates rise by more than five percentage points. For approximately one third of these households, the deficit would also correspond to more than 10 per cent of their disposable incomes.⁶⁵ The effect of an increase in interest rates could be particularly substantial for households living in tenant-owned apartments, as it may be necessary to increase the fees paid to the tenant-owner association when the association's interest expenditure increases (see chart 3:7). The size of the associations' debt may thus have a significant impact on the households' living costs in the period ahead. In addition, there are indications that tenant-owners have been rather unaware of the size of the associations' debt and the credit terms governing this debt.⁶⁶

Table 3:1 Changes in housing costs per month at different interest rates for a household in a tenant-owned apartment

	Fee to association	Interest expenditure for mortgage	Total housing cost (non-amortisation)
Low interest rate (2%)			
Stockholm County	SEK 3,606	SEK 2,487	SEK 6,093
Skåne County	SEK 3,869	SEK 1,008	SEK 4,877
Västra Götaland County	SEK 3,853	SEK 1,456	SEK 5,309
Sweden	SEK 3,721	SEK 1,661	SEK 5,382
High interest rate (7%)			
Stockholm County	SEK 5,124	SEK 8,703	SEK 13,827
Skåne County	SEK 5,007	SEK 3,527	SEK 8,534
Västra Götaland County	SEK 5,110	SEK 5,098	SEK 10,208
Sweden	SEK 5,000	SEK 5,814	SEK 10,814

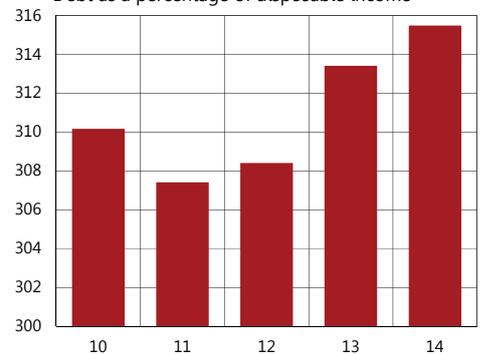
Note. The table shows how housing costs per month for a tenant-owner change at different interest rates. The fee to the association is based on the average fee for a tenant-owned apartment of 70 m², which is roughly the average size of such apartments in Sweden. The example assumes that the higher interest expenditure for the association is completely compensated for by a higher fee for the households. The households' interest expenditure is after tax and based on the average price of a tenant-owned apartment in the respective regions where the household is assumed to have a loan-to-value ratio of 70 per cent.

Sources: Mäklarstatistik och Värderingsdata

The households expect low interest rates and rising housing prices in the period ahead.⁶⁷ Consumption may be subdued if these expectations are not realised as households that have expected to have a certain disposable income and wealth in the future may adjust their consumption to the new conditions. If, at the same time, other

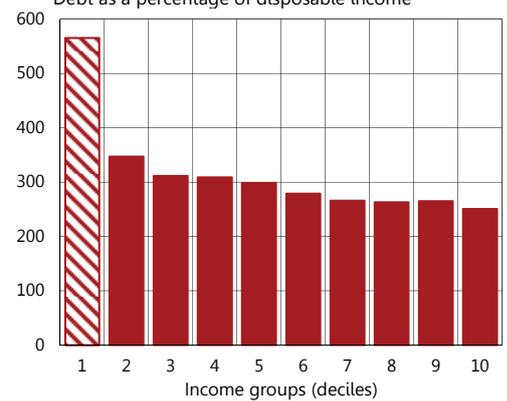
⁶⁴ Households' sensitivity to interest rates, article in *Monetary Policy Report*, October 2014. Sveriges Riksbank.
⁶⁵ Alsterlind et al (2013), Risks to the macroeconomy and financial stability from the development of household debt and housing prices, *Cooperation Council analysis group Memo 6*, 2013. Sveriges Riksbank.
⁶⁶ Almenberg, Johan and Artashes, Karapetyan, Mental accounting in the housing market, 2009, *IFN Working Paper*, No. 798.
⁶⁷ *Housing price indicator*, November 2014, SEB and *Business Tendency Survey*, October 2014. National Institute of Economic Research.

Chart 3:6 Average debt ratio for households with mortgages
Debt as a percentage of disposable income



Note. Mean value for indebted households in July each year.
Source: The Riksbank

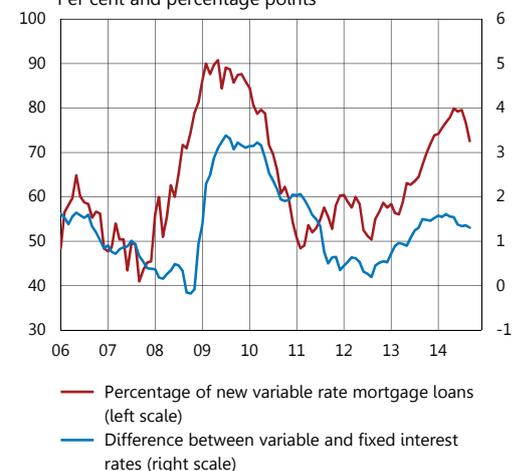
Chart 3:7 Swedish household debt ratios in different income groups during 2014, only mortgage borrowers
Debt as a percentage of disposable income



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 a wide range of incomes.

Source: The Riksbank

Chart 3:8 Relation between percentage of new variable rate mortgage loans and the difference between variable and fixed rates
Per cent and percentage points

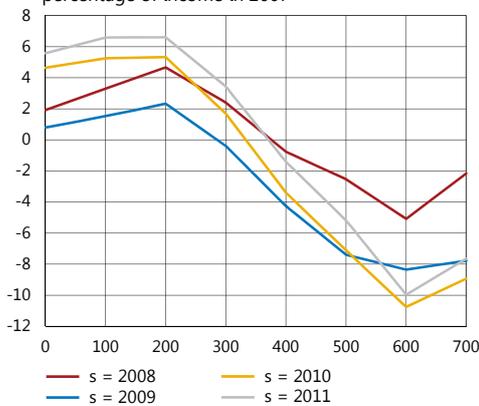


Note. The blue line is based on the difference between the lending rate for a new loan with a fixed rate period of up to three months compared with a new loan with a fixed rate period of over five years.

Sources: Statistics Sweden and the Riksbank

Chart 3:9 Estimated change in consumption among Danish households at different debt ratios

Change in consumption from 2007 to year *s* as a percentage of income in 2007



Note. The chart shows the development of consumption for Danish households with various levels of indebtedness between 2007-2011.

Source: Andersen et al. (2014)

Chart 3:10 Swedish household interest expenditure

Percentage of disposable income

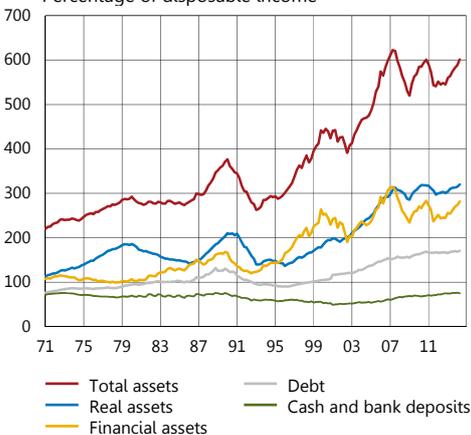


Note. The long-term interest ratio is based on the current level of the debt ratio and a repo rate of four per cent and an assumed difference of two percentage points between the repo rate and a weighted mortgage rate.

Sources: Statistics Sweden and the Riksbank

Chart 3:11 Swedish household balance sheet

Percentage of disposable income



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

Sources: Statistics Sweden and the Riksbank

factors were to affect the development of the real economy and to result, for example, in lower disposable incomes and falling asset prices, the impact on the economy could be even greater. Empirical studies and international experience from countries such as Denmark, the United Kingdom and the United States have shown that highly-indebted households adjust their consumption more in connection with various types of shock than households with low debt (see chart 3:9).⁶⁸ The high level of debt in the household sector may thus aggravate economic downturns and have serious negative effects on unemployment and economic growth.⁶⁹ If a large proportion of the households reduce their consumption at the same time, the effect on the real economy may be so great that the profitability, and thus the debt-servicing ability, of the companies is weakened. This could also lead to more defaults in the corporate sector. Indebtedness could thus affect financial stability by causing higher loan losses. In a situation where the companies' debt-servicing ability weakens, there is also a risk of a negative impact on the banks financing possibilities. This could lead to higher interest rates for Swedish borrowers in a period when their financial situation is already strained, which could reinforce the downturn.

DESPITE THE RISKS, THE ASSESSMENT IS THAT THE HOUSEHOLDS ARE WELL ABLE TO SERVICE THEIR LOANS

Although their debt has increased, the households' interest expenditure has fallen in pace with the fall in interest rates. The interest ratio has also fallen and was at just over three per cent during the autumn. This is a low level historically and the interest ratio is expected to remain low in the years ahead (see chart 3:10). When the repo rate is raised in the future it is expected that the interest ratio will also increase and reach over four per cent at the end of 2017, that is a level somewhat below the historical average. However, the assessment is that an interest ratio of around four per cent will not weaken the ability of the households to service their loans. Moreover, Finansinspektionen's stress tests of new mortgage borrowers show that most households would be able to service their loans even in stressed macroeconomic scenarios, although a number of households would probably need to reduce their consumption.⁷⁰ Historically, only a small proportion of the Swedish households have defaulted on their loans. This was the case, for example, during the crisis in Sweden in the early 1990s. However, the households were much less indebted then than they are now.

Wealth is high in the household sector. During the year, the households' total assets (excluding collective insurance saving) have increased more rapidly than their debt (see chart 3:11). This has led

⁶⁸ 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*, 2014. Danmarks Nationalbank.

⁶⁹ Mian, Atif and Amir, Sufi, *House of debt: how they (and you) caused the Great Recession, and how we can prevent it from happening again*, 2014. University of Chicago Press.

⁷⁰ *The Swedish Mortgage Market 2014*. Finansinspektionen.

to an increase in the net wealth of the households and, at the same time, to a fall in their debt-to-assets ratio. However, these factors are measured at the aggregate level and both assets and debts are unevenly distributed between the households.⁷¹ The real assets are also largely illiquid. In addition, the value of both real and financial assets can be very volatile and can fall in periods of financial turbulence, while debt remains unchanged.

Household saving is high in an historical perspective. The household saving ratio has increased in recent years, which means that the household sector in general has built up buffers that can be used in the event of various types of shock (see chart 3:12). However, as the saving ratio is also measured at the aggregate level and saving is probably unevenly distributed too, this does not mean that all households have increased their buffers. Many households also save by buying shares or investing in mutual funds rather than by making amortisation payments on their loans. The Riksbank's credit data shows, for example, that between 2013 and 2014 approximately 40 per cent of the mortgage borrowers did not reduce their debt (see chart 3:13). A possible explanation of this is that it has probably been more profitable to save in funds than to amortise, as the return on financial assets of this type has been high in recent decades.⁷² However, for the household sector as a whole it has led to increasing indebtedness as the debt is repaid at a slower rate than previously.

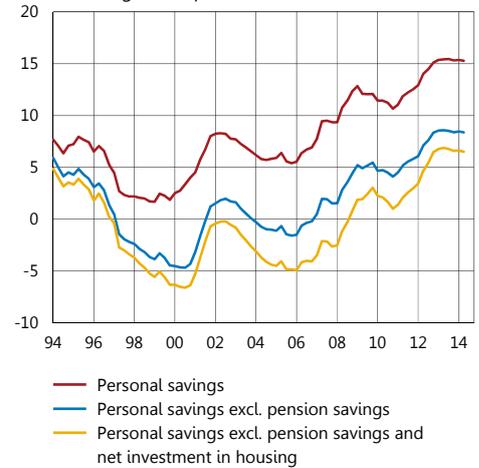
The Swedish corporate sector

THE DEBT-SERVICING ABILITY OF THE COMPANIES HAS IMPROVED AND BORROWING HAS INCREASED

Total corporate indebtedness has been relatively stable in recent years. One reason why it has not increased to any great extent is that corporate investment has been low as a result of relatively weak economic activity in Sweden and the euro area. In relation to GDP, debts has thus only increased marginally (see chart 3:14). However, the level of corporate debt may seem high in international terms.⁷³ But international comparisons also include intra-group loans when calculating indebtedness. Some Swedish companies use intra-group loans from abroad for tax reasons, which can sometimes exaggerate the debt situation in the corporate sector.⁷⁴

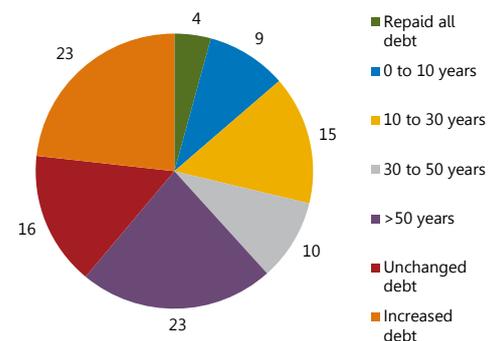
However, the companies have increased their total borrowing (see chart 3:15). Following several years in which the companies have increasingly complemented some of their bank borrowing with market funding (see chapter 2), the companies have slightly in-

Chart 3:12 Swedish household savings
Percentage of disposable income



Sources: Statistics Sweden and the Riksbank

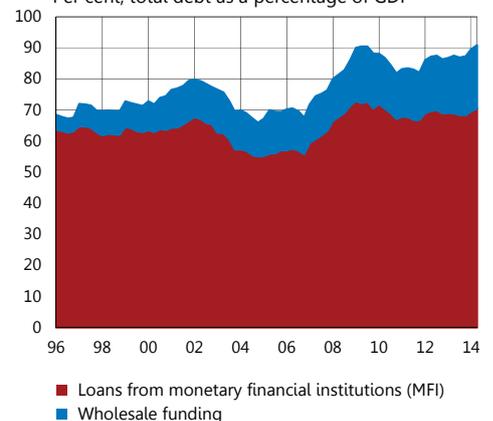
Chart 3:13 Proportion of mortgage borrowers with increased, reduced or unchanged debt between 2013 and 2014, and estimated repayment periods
Percentages



Note. The repayment period is calculated as the number of years it takes for a borrower to pay back the entire loan given that the repayment rate is the same as between 2013 and 2014.

Source: The Riksbank

Chart 3:14 Swedish corporate indebtedness
Per cent, total debt as a percentage of GDP



Sources: Statistics Sweden and the Riksbank

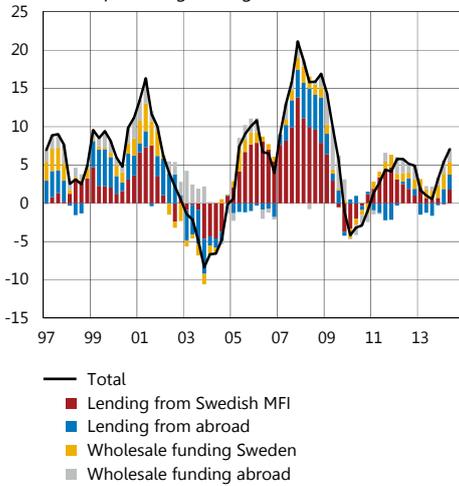
⁷¹ Since 2007, when wealth tax was abolished, no authority has had the task of compiling data on individuals' assets. This has made it impossible to analyse debts and assets at the individual or household level.

⁷² Jansson, Thomas, The households' amortisation decisions, *Analysis group's memo on household indebtedness, Memo 4*, 2014. Sveriges Riksbank.

⁷³ Macroeconomic imbalances - Sweden 2014, *Occasional papers 186*, March 2014. European Commission

⁷⁴ Blomberg, Gunnar, Hokkanen, Jyry and Kåhre, Sofia (2012), Tax planning may have contributed to high indebtedness at Swedish companies, *Economic Commentary* no. 3, 2012. Sveriges Riksbank.

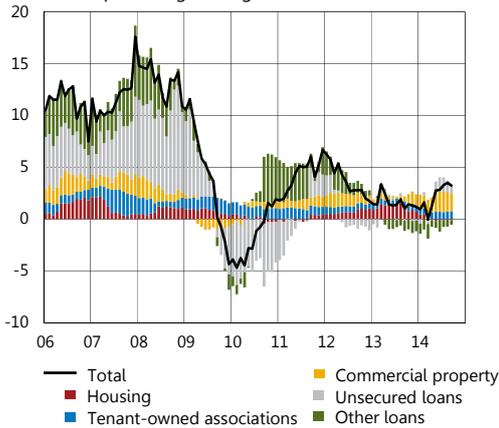
Chart 3:15 Swedish companies' total borrowing
Annual percentage change



Note. The bars indicate the contribution to the annual percentage change.

Sources: Statistics Sweden and the Riksbank

Chart 3:16 Swedish companies' borrowing from banks per type of collateral
Annual percentage change

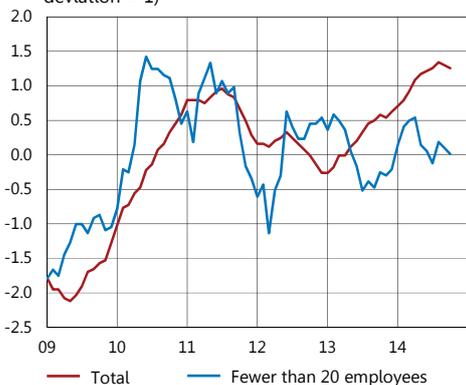


Note. The bars indicate the contribution to the annual percentage change.

Sources: Statistics Sweden and the Riksbank

Chart 3:17 The Swedish corporate financing conditions

Standardised net figures (mean = 0 and the standard deviation = 1)



Note. A positive net figure indicates that companies' funding conditions have improved. A net figure above 0 indicates that companies perceive the funding situation as better than normal.

Sources: The National Institute of Economic Research and the Riksbank

creased the pace of their borrowing from the banks recently (see chart 3:16).⁷⁵ One reason for this is that credit and funding conditions have improved during the year. Most companies also report that it is relatively easy to get funding, although it is easier for large companies than small companies (see chart 3:17).⁷⁶ The companies' need for new investment is expected to increase in the period ahead as demand and capacity utilisation increase at the same time as interest rates are expected to be low. Bank borrowing is thus expected to continue to increase next year, which is also the assessment of the majority of bank managers according to Almi's loan indicator.⁷⁷

The companies' debt-servicing ability has generally improved.

The default rate has continued to fall and is low in an historical perspective (see chart 3:18). The expected default frequency for listed Swedish companies has also fallen during the year. This applies to the corporate sector as a whole as well as to the Swedish property companies. However, weaker growth in the euro area or unexpectedly weak growth in the household sector, for example due to a fall in prices on the Swedish housing market, could reduce the profitability, and thus the debt-servicing ability of the companies.

Activity on the commercial property market has increased and the number of vacant office premises has fallen.

Transaction volumes have increased during the year, but from relatively low levels in an historical perspective (see chart 3:19). Swedish buyers continue to contribute most to this increase. The higher level of activity is also illustrated by an increase in the demand for office premises, which has led to falling vacancy rates in several cities. However, a large part of the banks' lending to non-financial companies goes to property companies. Weaker development in this sector could thus have a negative impact on the Swedish banks. At present, however, the very low interest rates are helping to maintain good profitability in the property sector and the assessment is that the property companies are well able to service their loans.

The Swedish banking groups' borrowers abroad

The debt-servicing ability of Norwegian borrowers is generally good.

⁷⁸ Economic activity has strengthened following a period of subdued growth. The households have benefited from low interest rates, good increases in real wages and low unemployment. In addition, housing prices continue to rise and Norges bank's assessment is that prices will continue to rise in the years ahead.⁷⁹ The indebtedness of the Norwegian households has also continued to rise somewhat during the year from already high levels. Norges bank continues

⁷⁵ Bonthron, Fredrik (2014), The Swedish corporate bond market, *Economic Commentary* no. 7, 2014. Sveriges Riksbank.

⁷⁶ Capital on credit? 2014. Expertgruppen för studier i offentlig ekonomi (Expert Group for Public Economics), Ministry of Finance.

⁷⁷ Almi's loan indicator, September 2014. Almi.

⁷⁸ See table 4.1 in chapter 4 for a geographical distribution of the banks' lending.

⁷⁹ *Monetary policy report with financial stability assessment 2, 2014*. Norges Bank.

to highlight household debt and high housing prices as potential risks.

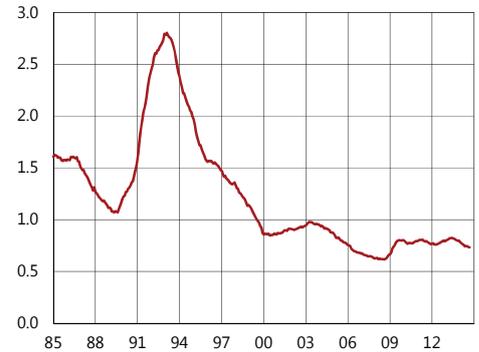
In Denmark, the debt-servicing ability of the borrowers has improved. However, the economic recovery is proceeding slowly and the Danish economy is still affected by the domestic banking and property crisis. Among other things, high household indebtedness has contributed to a weak development of consumption (see chart 3:9). On the other hand, the situation on the housing market has improved somewhat. There are, however, regional differences and the price increases mainly relate to apartments in the large cities.⁸⁰ The number of bankruptcies among Danish companies has also continued to fall during the year (see chart 3:20). However, a large proportion of the loan losses of Swedish banks still stem from Danish companies, and they are expected to continue to do so for some time to come.

Structural problems and increased geopolitical unrest have contributed to a weakening of debt-servicing ability in Finland.

The forestry industry and the IT sector are still experiencing problems. Domestic demand is weak and the households are under pressure from high unemployment and tax increases. There are also structural problems, such as low productivity and a fall in the proportion of the population of working age. The conflict in Ukraine has also had a negative impact on the economy, partly due to a fall in exports, primarily in the food industry. Investment has also fallen.⁸¹ It is expected that the development of the Finnish economy will continue to be weak in the period ahead and the poorer economic outlook has led to a lowering of Finland's credit rating during the year. Increased geopolitical unrest may lead to even weaker exports, which may further undermine the debt-servicing ability of the borrowers.

Debt-servicing ability in the Baltic countries has weakened due to the conflict in Ukraine. Estonia has major exports to this region and may therefore be even more severely affected if the conflict escalates. Although the economic prospects on important export markets have weakened, domestic demand in the Baltic countries is relatively strong. For example, the households have benefited from increases in real wages and the fact that interest rates remain low, which has strengthened consumption and increased the profitability of the Baltic companies.

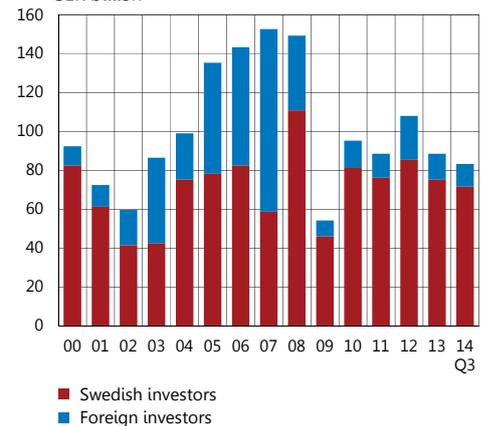
Chart 3:18 Default rate for Swedish companies
Per cent



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

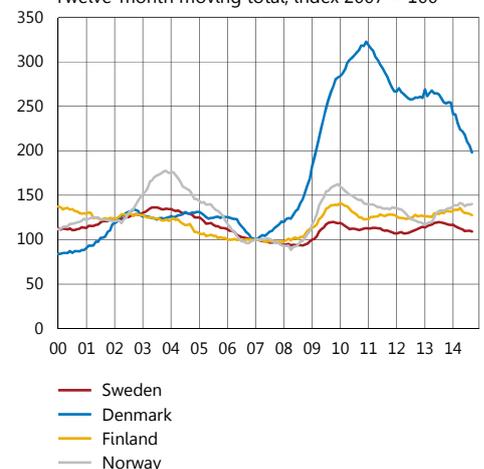
Sources: Swedish Companies Registration Office, Statistics Sweden and the Riksbank

Chart 3:19 Transaction volumes on the commercial property market
SEK billion



Source: Pangea Property Research

Chart 3:20 Number of corporate bankruptcies
Twelve-month moving total, index 2007 = 100



Sources: Reuters EcoWin and the Riksbank

⁸⁰ Monetary review 3rd Quarter. Danmarks Nationalbank.

⁸¹ Ministry of Finance Economic Survey, Ministry of Finance publications 24c/2014, Autumn 2014. Ministry of Finance, Finland.

4. Developments in the Swedish banking groups

The profitability of the major Swedish banks is currently high compared to that of many other European banks. This is due to increased income, low costs and low loan losses. In addition, the major banks' CET 1 capital ratios have continued to strengthen. This has however mainly been driven by the ongoing decline in the banks' risk weights, which implies that their non-risk weighted capital ratios, i.e. leverage ratios, have not strengthened to the same extent. With regard to liquidity risk the major banks have substantial liquidity buffers in euros and dollars, while the buffers in Swedish kronor at times have been very low. Under certain circumstances, this could lead to the banks experiencing liquidity problems in Swedish kronor. The banks are also exposed to significant structural liquidity risks due to the considerable maturity mismatch between their assets and liabilities.

The Swedish banking system is highly concentrated to the four major Swedish banks Handelsbanken, Nordea, SEB and Swedbank.⁸²

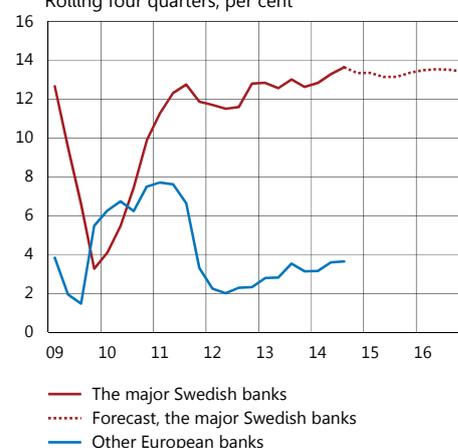
Together, they account for approximately 75 per cent of both lending and deposits in Sweden and are thus critical for the functionality of the Swedish financial system. This chapter therefore describes and analyses how the four major banks' income statements and balance sheets have developed recently.

Profitability and earnings

The major Swedish banks continue to have high profitability (see chart 4:1). The banks' revenues largely consist of net interest income, which has increased steadily in recent years (see chart 4:2). The increase is due to the growth in the banks' deposit and lending volumes. Although the banks' margins on lending have increased, their deposit margins have decreased.⁸³ The net of the lending and deposit margins, that is the net interest income margin, has thus remained relatively unchanged. At the same time as revenues have increased, the banks have also implemented extensive cost-cutting programmes. Consequently, their costs-to-income-ratios are low in comparison with many other European banks (see chart 4:3).⁸⁴

The major banks' income is expected to increase in the upcoming years (see chart 4:2). Both net interest income and net commission income are expected to rise as the economic situation improves.⁸⁵ Net interest income is expected to rise, mainly driven by an increase in lending volumes. As the economy continues to improve, demand for banks' commission-generating services is also expected to increase. As the banks' costs, at the same time, are

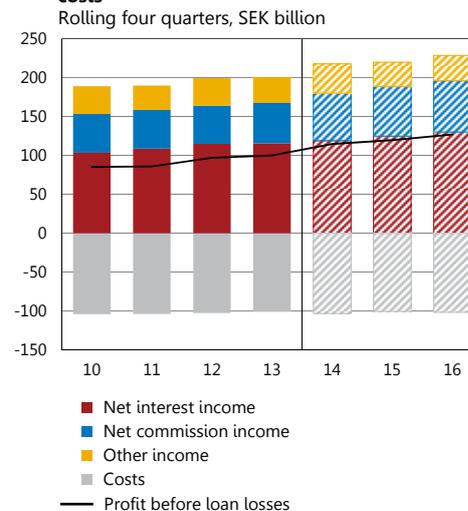
Chart 4:1 Return on equity
Rolling four quarters, per cent



Note. Unweighted average. The blue line represents a sample of European banks, see footnote 109 in *Financial Stability Report 2014:1*. The forecast is based on the banks meeting their dividend targets, alternatively paying out the same proportion of their profits as they have done during the last year.

Sources: SNL Financial, SME Direkt and the Riksbank

Chart 4:2 The major Swedish banks' income and costs
Rolling four quarters, SEK billion



Note. Shaded bars show the Riksbank's forecast.

Sources: Bank reports, SME Direkt and the Riksbank

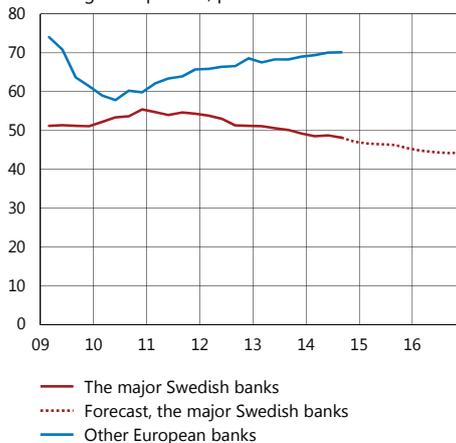
⁸² Hereinafter, the term "the major Swedish banks" refers to the major banking groups, including both domestic and foreign operations.

⁸³ In simple terms, the deposit margin is the difference between the interest a bank can earn if it invests money on the market and the interest return the bank offers on the customers' deposit accounts. If market rates fall, the bank will receive less interest when it invests money on the market and so the bank will also lower the interest it offers its customers' deposits. However, interest is often low or even zero on many deposit accounts. As the bank cannot set its deposit rate below zero, lower market rates will thus also lead to lower deposit margins for the bank.

⁸⁴ See footnote 109 in *Financial Stability Report 2014:1* for a list of the banks used for comparison. Sveriges riksbank.

⁸⁵ The forecast for the bank's earnings, costs and loan losses is based on a mean value of market analysts' assessments compiled by Nyhetsbyrån Direkt/SME Direkt. These analysts work at Swedish and international banks, investment banks and financial brokerage firms.

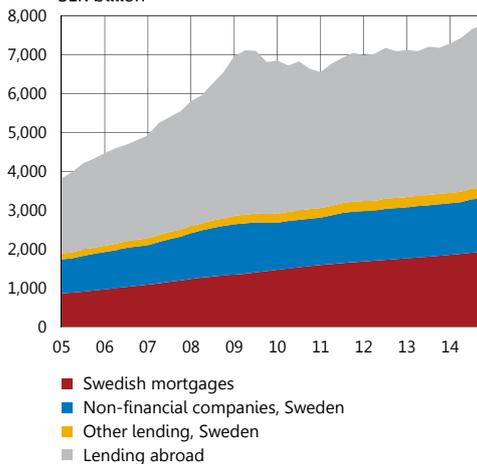
Chart 4:3 Costs-to-income ratio
Rolling four quarters, per cent



Note. Unweighted average. The blue line represents a sample of European banks, see footnote 109 in *Financial Stability Report 2014:1*.

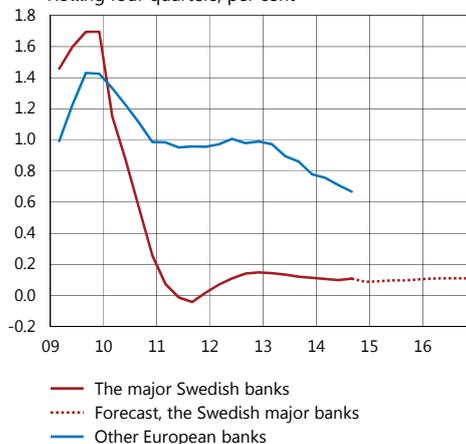
Sources: SNL Financial, SME Direkt and the Riksbank

Chart 4:4 The major Swedish banks' lending to the general public
SEK billion



Sources: Statistics Sweden, Bank reports and the Riksbank

Chart 4:5 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 in *Financial Stability Report 2014:1*. The forecast is based on lending continuing to grow at the same rate as in the last two years.

Sources: SNL Financial, SME Direkt and the Riksbank

assumed to remain relatively unchanged, cost-to-income ratios are expected to decrease (see chart 4:3).

Lending and credit risk

LENDING

Growth in the major Swedish banks' lending has increased over the last six months. Growth is currently eight per cent, as compared to five per cent six months ago. In Sweden, it is mainly mortgage lending that has increased, although lending to corporates also has grown in recent quarters (see chart 4:4). Lending in Sweden is expected to continue to increase going forward due to the low interest rate environment and an improvement in economic activity. Given that the economic outlook in Norway is brightening and the housing market in Denmark is improving (see chapter 3) lending is expected to increase in these countries as well. However, growth of lending in Finland is expected to be low due to a weak development of the real economy.

The major banks have small exposures to Russia and Ukraine.

Lending of Nordea and Swedbank in Russia constitutes 1.8 and 0.1 per cent of their total lending respectively, while SEB's lending in Russia and Ukraine together constitutes 0.1 per cent of the bank's total lending. Moreover, all of the three banks' lending in Russia and Ukraine goes mainly to large domestic companies and to Nordic companies that have operations in the region. Consequently, the assessment is that the potential loan losses that may arise in Russia and Ukraine as a result of the conflict in the region would have only a limited effect on the banks' profitability.

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

September 2014, per cent

	Handelsbanken	Nordea	SEB	Swedbank	Total
Sweden	64	25	72	86	53
Norway	12	16	2	3	10
Denmark	4	23	1	0	11
Finland	7	31	1	1	15
Baltic countries	0	3	8	10	4
UK	9	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	1	3	1	2

Note. The table is based on the banks' public reporting. The banks' total exposures to a geographical area may deviate from the table as, for example, certain business areas that relate to the banking group as a whole are only reported at a geographical office. The major banks' total lending amounted to SEK 7,776 billion in the third quarter of 2014.

Sources: Banks reports

CREDIT RISK

The major banks have low loan losses compared to many other European banks (see chart 4:5). A key explanation to this is that the Swedish banks mainly are active in Sweden and the rest of the Nordic countries, where the economic development has been more favourable than in, for example, the euro area. In addition, the Swedish banks have been able to reverse some of the provisions they previously made for anticipated loan losses in the Baltic countries and Denmark and on loans to companies in the shipping and oil industries.

Capital

The major Swedish banks have continued to increase their CET 1 capital ratios over the last 12 months (see chart 4:7). This is mainly driven by a decrease in their risk exposure amount (see chart 4:7), which in turn is driven by a decrease in the banks' average risk weights. At the same time as their CET 1 capital ratios have strengthened, the banks' CET 1 capital in relation to their total assets has not increased to the same extent (see chart 4:6).

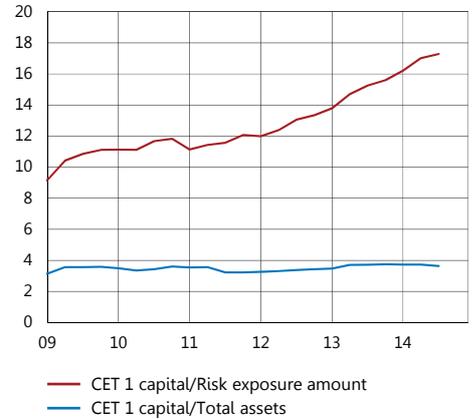
Part of the decrease in risk weights is due to the fact that the banks have reduced the proportion of high-risk exposures. For example, corporate lending as a proportion of total lending has continued to decrease to the benefit of mortgage lending. The banks have also continued to reduce their lending in eastern Europe. Nordea has sold its operations in Poland, while SEB and Swedbank have reduced their exposures in Russia, Ukraine and the Baltic countries.

In addition, the banks have moved to using advanced calculation methods to assess their risk weights to an increasing extent. The option for Swedish banks to use these methods was introduced in 2007. One reason for introducing this option was to increase risk sensitivity in the capital requirement, which is essentially positive. There was, however, a relatively sharp fall in risk weights in connection with the transition to more advanced method, and there is some uncertainty regarding whether the advanced methods fully reflect the risks in the banks' lending. One way of managing this uncertainty is to introduce a leverage ratio requirement for the banks as a complement to the risk-based capital requirement. Partly for this reason, the Riksbank considers that Sweden should introduce a leverage ratio requirement ahead of the implementation date that is being discussed internationally (see chapter 1).

STRESS TEST OF THE MAJOR BANKS' RESILIENCE TO LOAN LOSSES

The Riksbank regularly conducts a stress test of the major Swedish banks to assess their resilience to a much weaker economic scenario

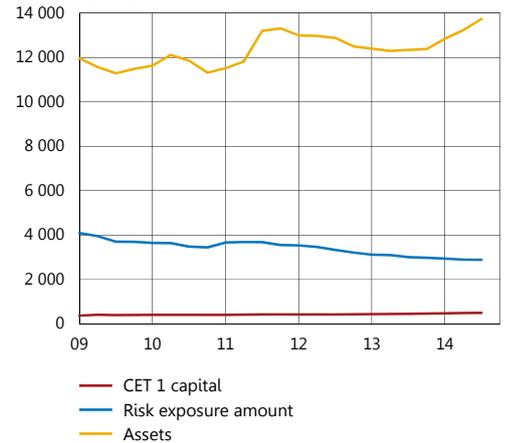
Chart 4:6 The major Swedish banks' CET 1 capital ratios and CET 1 capital in relation to total assets
Per cent



Note. Weighted average. CET 1 capital and risk-weighted exposure are expressed according to Basel II up to 2013 and thereafter according to Basel III.

Sources: Bank reports and the Riksbank

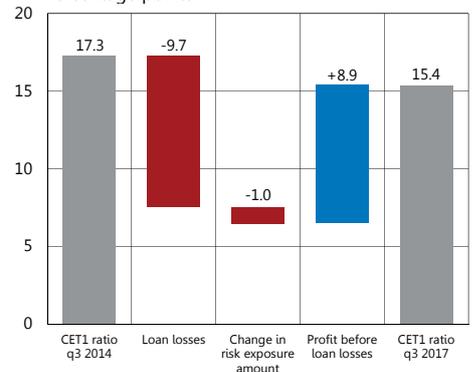
Chart 4:7 The major Swedish banks' CET 1 capital, assets and risk exposure amount
SEK billion



Note. CET 1 capital and risk exposure amount are expressed according to Basel II up to 2013 and thereafter according to Basel III.

Sources: Bank reports and the Riksbank.

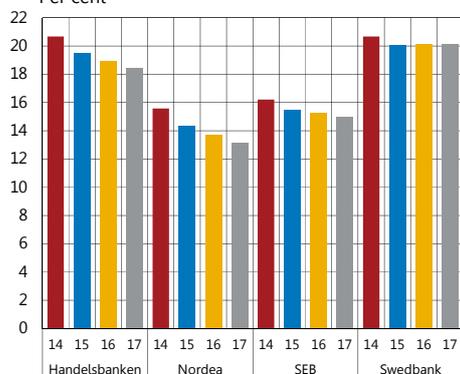
Chart 4:8 Changes in the major Swedish banks' CET 1 capital ratios in the stress test
Percentage points



Note. CET 1 capital ratios in accordance with Basel III.

Sources: Bank reports and the Riksbank

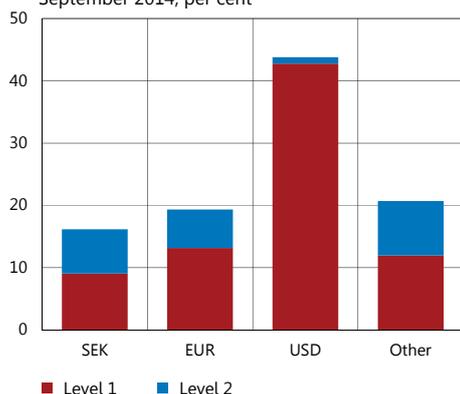
Chart 4:9 CET 1 capital ratios according to Basel III, initially and in the stress test
Per cent



Note: The chart shows the CET1 capital ratios in the third quarter of each year.

Sources: Bank reports and the Riksbank

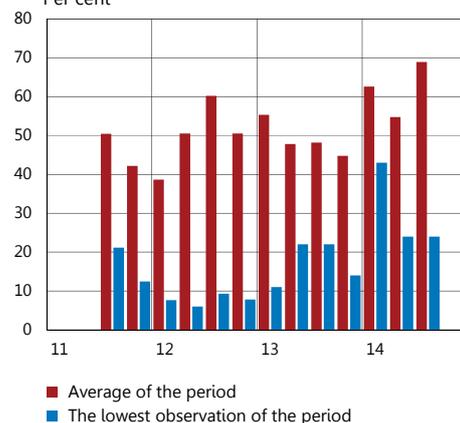
Chart 4:10 Breakdown of the major Swedish banks' liquidity buffers
September 2014, per cent



Note. Level 1 assets consist mainly of government bonds and deposits in central banks. Level 2 assets consist mainly of covered bonds. When the LCR is calculated, Level 2 assets may form no more than 40 per cent of the total liquidity buffer. The Level 2 assets that may not be included in the LCR when it is calculated per currency have therefore been excluded from the chart. According to Finansinspektionen's definition in FFFS 2012:6.

Sources: Finansinspektionen and the Riksbank.

Chart 4:11 The major Swedish banks' average and lowest LCR levels in Swedish kronor
Per cent



Note. The red bars show the major banks' average LCR levels and the blue bars the lowest measured LCR level among the major banks. According to Finansinspektionen's definition in FFFS 2012:6.

Sources: Finansinspektionen and the Riksbank.

in which GDP falls at the same time as unemployment and interbank rates rise over a period of three years (see table 4:2).⁸⁶

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/ percentage points)		
	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 refer to Germany and the United Kingdom.

Source: The Riksbank

The Riksbank's stress test results in a fall of the major banks' CET 1 capital ratios by an average of two percentage points (see charts 4:8 and 4:9). The major banks' total loan losses during the three-year period amount to SEK 280 billion, which is equivalent to 44 per cent of their total equity. However, the effect of the loan losses on the banks' CET 1 capital ratios is to a large extent counteracted by the fact that the banks' profits before loan losses are assumed to remain high during the stressed period (see chart 4:8).

However, the stress test does not fully capture the negative consequences that may arise from a significant deterioration in the real economy. It does for instance not take into account the fact that the major banks' credit ratings could be lowered in the event of a substantial increase in their loan losses. A lowered credit rating could in turn lead to higher funding costs and thus to further increases in the banks' loan losses. Nor does the stress test capture the contagion risks that arise because the banks are so closely inter-linked. For example, the banks own a large proportion of each other's covered bonds. As the value of these bonds probably would fall if a major bank was to report large loan losses, the other major banks could suffer losses on their holdings of these bonds.

The results of the Riksbank's stress test are in line with those of the stress test conducted by the European Banking Authority (EBA). In the EBA's stress test, which was published in October 2014, the major banks' CET 1 capital ratios fell by an average of 1.8 percentage points. The stress test was also preceded by an asset quality review in which Finansinspektionen and other national supervisory authorities examined the banks' balance sheets to ensure that their assets were correctly valued when the stress test began. This review resulted in a further average fall in CET 1 capital ratios of 0.3 percentage points.

⁸⁶ In order to calculate the banks' capital ratios in the stress test, the Riksbank makes the following assumptions: (1) Profits before loan losses are 20 per cent lower than the banks' reported profits per the third quarter of 2014 (most recent four quarters). It is assumed that this result will then remain constant during the stressed period; (2) the banks' lending will grow by five percent in the first year and then be unchanged in the remaining years; (3) the banks' average risk weights for credit risk increase by five per cent per year; (4) the banks pay no dividends and conduct no share repurchases; (5) the banks do not try to reduce their risk-weighted exposures, bring in new capital or change their operations in any other way; (6) the respective banks' largest counterparties, 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.

LIQUIDITY RISKS

The major banks still have substantial liquidity buffers in euros and US dollars.

This is largely due to the fact that the banks are subject to liquidity coverage requirements in these currencies, as well as the fact that they are still able to access inexpensive funding at short maturities in both euros and dollars. The borrowed funds are, among others, deposited at the ECB and the Federal Reserve to act as liquidity buffers. As investments with central banks are among the most liquid assets according to the LCR regulations (so-called Level 1 assets), the banks' LCR are high in these currencies and in all currencies together (see chart 4:10).

On the other hand, the liquidity buffers in Swedish kronor are relatively low in relation to the banks' cash outflows in kronor.⁸⁷

Together with the fact that only a small part of the banks' buffers consist of the most liquid assets, that is Level 1 assets, this means that their liquidity coverage ratios in Swedish kronor at times have been very low (see chart 4:11). In certain circumstances, this could lead to the banks facing liquidity problems.⁸⁸

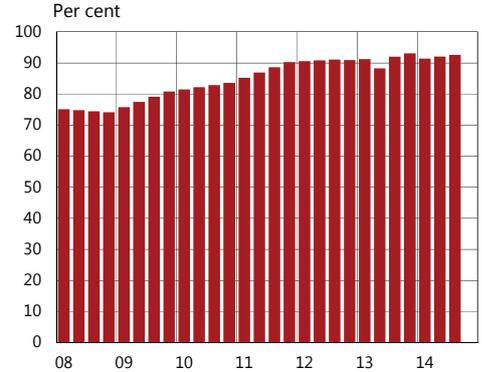
The major banks still have substantial structural liquidity risks.

This can be illustrated using the Riksbank's structural liquidity measure, which shows a bank's stable funding in relation to its illiquid assets. In simple terms, stable funding refers to all funding at maturities longer than one year, while illiquid assets are all assets that do not mature and, it is assumed, cannot be sold within one year.⁸⁹ The banks improved on this measure between the end of 2008 and the end of 2011 by increasing the proportion of stable funding to a greater extent than the proportion of illiquid assets. Since then, the banks' results have however remained relatively unchanged (see chart 4:12).

There is also a significant imbalance in maturities between the banks' assets and liabilities at maturities of more than one year.

This is not captured by the Riksbank's structural liquidity measure, in which most of the assets with maturities exceeding one year are treated as illiquid and all funding with maturities longer than one year are treated as stable – regardless of the exact maturity. The major banks' imbalances are largely due to the very long maturities of the mortgages they grant, at the same time as these are funded, to a large extent, by covered bonds with an average maturity of just under three years (see chart 4:13). Compared with many European banks, the major banks' total funding is also short-term. For example, the share of funding exceeding five years is relatively small (see chart 4:14).

Chart 4:12 The Riksbank's structural liquidity measure



Note. The measure compares a bank's stable funding with its illiquid assets. The higher a bank's results in the measure, the lower its structural liquidity risks.

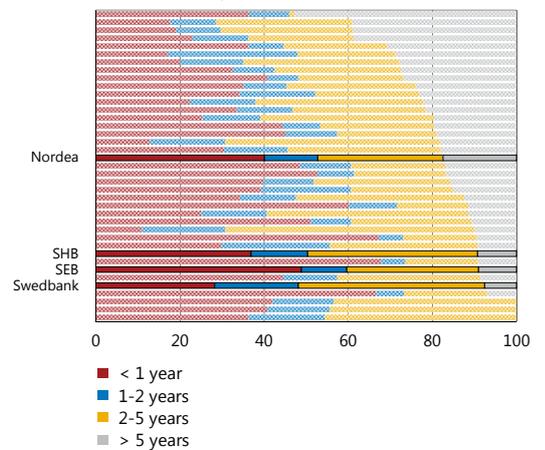
Source: The Riksbank

Chart 4:13 Average maturity of issued Swedish covered bonds



Sources: The Association of Swedish Covered Bond Issuers

Chart 4:14 Bank funding broken down in terms of maturity
December 2013, per cent



Note. Refers to outstanding securities excluding subordinated debt. The shaded bars show a sample of European banks for comparison.

Sources: Liquidatum and the Riksbank

⁸⁷ See also the box Liquidity coverage ratios in Swedish kronor, Financial Stability Report 2014:1, Sveriges Riksbank, and Jönsson, Björn (2014), A survey of the liquidity coverage ratio (LCR) in Swedish kronor, *Economic Commentary* no. 6, 2014. Sveriges Riksbank.

⁸⁸ For a more detailed description of the risks associated with too low LCR levels in Swedish kronor see the box LCRs in Swedish kronor, *Financial Stability Report 2014:1*. Sveriges Riksbank. See also Jönsson, Björn (2014), A survey of the liquidity coverage ratio (LCR) in Swedish kronor, *Economic Commentary* no. 6. Sveriges Riksbank.

⁸⁹ The Riksbank's measure has been designed so that it is similar to the first version of the Basel Committee's Net Stable Funding Ratio (NSFR).

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.

Default rate: Number of bankruptcies as a proportion of the number of companies.

Discretionary income calculation: Used by the banks in credit assessments to see how much money a household will have left to live on after housing costs and other living costs have been paid.

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.

Interest ratio: Household interest expenditure, after tax, as a percentage of disposable income.

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 loss: 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 provisions for anticipated and actual losses that have a negative impact on the banks' profits. Secondly, the item also consists of recoveries of previous actual losses and reversals of earlier provisions which have a positive impact on profits. Together, these components thus add up to the total loan losses.

Loan-to-value ratio (LTV): 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.

Net wealth: Household assets minus household debts.

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.

Saving ratio: Household savings as a percentage of disposable income.

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.

Sveriges Riksbank
SE-103 37 Stockholm

Tel +46 8 787 00 00
Fax +46 8 21 05 31
registratorn@riksbank.se
www.riksbank.se



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