

Financial Stability Report

2016:2



The Riksbank's Financial Stability Report

The Riksbank's Financial Stability Report is published twice a year. In the report, the Executive Board of the Riksbank gives an overall assessment of the vulnerabilities and risks that can threaten the stability of the financial system and evaluates the system's resilience to them. In some cases the Executive Board recommends specific measures to counteract risks and increase resilience. These recommendations may be based on the current economic situation, but they may also relate to more structural circumstances. The recommendations can be aimed at banks as well as at other market participants, or at legislators and other authorities.

The Executive Board of the Riksbank discussed the report on two occasions – on 10 and 21 November 2016. The report takes into account developments up to and including 14 November 2016. The report can be downloaded in PDF format from the Riksbank's website, www.riksbank.se, where more information about the Riksbank can also be found.

The Riksbank and financial stability

- The Riksbank defines financial stability as the financial system being able to maintain its three basic functions – the mediation of payments, the conversion of savings into funding and risk management – as well as being resilient to shocks that threaten these functions.
- The financial system plays an important 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 risks leading to extensive economic and social costs.
- The Riksbank has a mandate from the Riksdag (the Swedish parliament) to promote a safe and efficient payment system. In practice, this task means that the Riksbank is responsible for promoting financial stability.
- The Riksbank is also the authority with the capacity to grant liquidity support to individual institutions if problems arise that threaten financial stability. To be able to do this effectively, the Riksbank needs to have a high level of preparedness in the form of an efficient crisis organisation.
- The Riksbank shares responsibility for promoting financial stability with Finansinspektionen (the Swedish financial supervisory authority), the Ministry of Finance and the Swedish National Debt Office. The Ministry of Finance is responsible for regulating financial undertaking corporations. Finansinspektionen is responsible for microprudential policy and has the main responsibility for macroprudential policy. The Swedish National Debt Office is, in turn, a support and resolution authority. The interaction between the authorities is important both in the preventive work, for example in the Financial Stability Council, and in the event of crisis management. The same also applies internationally, as financial enterprises increasingly operate across national borders.
- The Riksbank analyses the financial system's stability on a continuous basis for the early detection of risks and vulnerabilities that could lead to socioeconomic costs. The Riksbank publishes the results of its analysis in various publications. By doing this, the Riksbank not only brings attention to and warns against things that may pose a threat to the financial system but also contributes to the debate on this subject.

Contents

CHAPTER 1 – Assessment of current situation 4

CHAPTER 2 – Vulnerabilities and risks in the financial system 8

Vulnerabilities and risks associated with international developments 8

Vulnerabilities and risks associated with low interest rates 10

Vulnerabilities and risks linked to household indebtedness 13

Vulnerabilities and risks in the Swedish banking system 14

Vulnerabilities and risks linked with the financial infrastructure 17

ARTICLE – Short-term liquidity risks in significant currencies 18

CHAPTER 3 – Recommendations 23

Measures are required to strengthen resilience in Swedish banks and reduce the risks linked to household indebtedness 23

RECOMMENDED MEASURES 27

Recommendation regarding the mandate for macroprudential policy 27

Recommendation on measures to reduce risks linked to household indebtedness 27

Recommendations regarding banks' capital levels 29

Recommendations regarding the major banks' liquidity risks 30

ARTICLE – The IMF assessment of the Swedish financial sector 32

ANNEX 34

GLOSSARY 35

SUMMARY

Structural vulnerabilities in the Swedish banking system

The major banks in Sweden have good profitability, low credit losses and are cost-efficient. At the same time, however, there are a number of structural vulnerabilities in the Swedish banking system that make the financial system and Sweden's economy sensitive to shocks. The banking system is large, concentrated, interconnected, exposed to liquidity risks and increasingly exposed to the housing market.

Banks are exposed to liquidity risks

Banks' liquidity risks can be divided up into two categories, structural and short-term. Structural liquidity risks are posed by maturity mismatches on banks' consolidated balance sheets. They arise because banks borrow money at short-term maturities, and then lend at longer-term maturities. This means that a bank's funding is due for payment before it recuperates the money it has lent. The bank must therefore renew its funding several times during the loan's maturity period. Short-term liquidity risks arise if the banks encounter problems with repaying their near-term liabilities. To reduce these short-term liquidity risks, there are global regulations requiring banks to have a liquidity reserve so that they can operate during a 30-day stress period. This applies for all currencies in aggregate, and as far as Sweden is concerned, there are also specific requirements for euros and US dollars.

Short-term liquidity risks in different currencies

However, the major Swedish banks are also exposed to short-term liquidity risks in other currencies as they have substantial cross-border operations, mostly as a result of their presence in the Nordic Region, the Baltic countries and the United Kingdom. The four major Swedish banks have large liquidity reserves in US dollars and euros to cope with a stress situation, but small liquidity reserves in the other currencies to which they are exposed (see the article "Short-term liquidity risks in significant currencies").

The banks normally satisfy their liquidity needs in these currencies on the foreign exchange swap market, where they exchange, for example, US dollars for the desired currency. This often works well and has proven beneficial to the banks. But there are risks associated with relying on the foreign exchange swap market. If a bank's ability to repay is brought into question by its counterparties or if the foreign exchange swap market is working less effectively than usual in a stress situation, the bank may find it difficult to acquire a desired currency in this way. The fact that the major Swedish banks are closely interconnected and have similar

exposures means that liquidity problems at one bank can quickly spread to other banks.

Liquidity Coverage Ratio requirements in significant currencies

The Riksbank deems there to be short-term liquidity risks in the banking system that, in the long run, can pose risks to financial stability. There is therefore reason to implement measures in order to strengthen banks' resilience to these risks. It is important that banks primarily manage their short-term liquidity risks themselves. The Riksbank is therefore of the opinion that Finansinspektionen (FI) should set Liquidity Coverage Ratio (LCR) requirements in all significant currencies. According to international agreements, a currency that makes up more than five per cent of a bank's total liabilities is considered to be a significant currency for that particular bank. This means that there should be an LCR requirement in some of the Nordic currencies and sterling for the banks that have a significant funding in these currencies.

The Riksbank also thinks that the major Swedish banks should disclose publicly their LCRs in all significant currencies. By doing this, the banks would give a clearer picture of the liquidity risks to which they are exposed in different currencies.

The LCR refers to the management of a specific and limited scenario where there is a liquidity constraint. LCR is not intended to cover all risks and if the stress were to become more extensive, for example as a result of much more substantial bank runs than assumed by the LCR scenario, it is not certain that banks' liquidity buffers would even last as long as 30 days. In such situations, the Riksbank has the option, if deemed justified, to provide liquidity in foreign currency. Limitations are set by the size of the foreign currency reserve. There may also be a need, therefore, to review the Riksbank's capacity to provide liquidity support.

The banks should reduce their structural liquidity risks

For some time, the Riksbank has been of the opinion that the major Swedish banks are taking significant structural liquidity risks. These arise mainly as a result of the banks having a large proportion of mortgages with long maturities on the asset side, while they have a comparatively high proportion of short-term wholesale funding on the liability side. A large proportion of the funding has a maturity of just over one year. Only around 10 per cent of the banks' outstanding issued securities have a maturity of over five years.

A measure used internationally to measure structural liquidity risks is the Net Stable Funding Ratio (NSFR). A problem with this measure is, however, that it treats all funding that has a maturity of more than one year as stable, and hence does not fully capture a bank's structural liquidity risks. The fact that the major Swedish banks have a collective NSFR in excess of 100 per cent is positive. The Riksbank however does not deem this to be sufficient and believes that the banks should continue to reduce their structural liquidity risks.

More capital is needed in the Swedish major banks

Given the vulnerabilities in the Swedish banking system, it is also important for the banks to have a sufficient amount of capital. For some time now, the Riksbank's assessment has been that the major banks have had too little capital in relation to their assets, and that their resilience to shocks is therefore too low. It is therefore positive that FI has taken measures to increase the capital requirements for banks. There are also international plans that may lead to additional capital requirements for some banks in the period ahead. To ensure that the banks have sufficient capital, the Riksbank believes that a leverage ratio requirement should be introduced as soon as possible as a complement to the risk-weighted capital requirements that are already in place. The requirement should be set at 5 per cent from 2018 onwards. Introducing such a requirement is also supported by the International Monetary Fund (IMF).

Housing prices and household indebtedness still rising

For a long time, the Riksbank has also been highlighting the risks associated with high and rapidly rising housing prices and household indebtedness. The upturn is partly a result of the prevailing low interest rate environment but, above all, there are several structural factors contributing to the development. During the spring, housing prices rose more slowly than previously but seem thereafter to have started to rise more quickly again. The growth in credit to households also continues to be high and their debt is still rising more quickly than their income. This, in combination with the fact that more and more households are choosing adjustable interest rates on their mortgages, makes them vulnerable. Several international organisations, including the IMF and the European Commission, have also highlighted the risks associated with Swedish household indebtedness.

Further measures are needed

For some time, the Riksbank has been highlighting the need to take measures to reduce the risks associated with housing prices and household indebtedness. This is particularly important in the current situation characterised by low interest rates that is contributing to ever-rising

housing prices and household indebtedness. The Riksbank's assessment is that a combination of different measures is required – in several different policy areas – to reduce the risks. In particular, measures are needed to deal with the reasons why indebtedness is rising. Measures are therefore needed that improve the functioning of the housing market. A holistic approach is needed and a review of housing taxation is also required. A potential macroprudential policy measure is to introduce a debt-to-income limit that restricts how much a household may borrow in relation to its income. Even if such a limit were to be set at a relatively high level so that many households remained unaffected, debt in relation to income would be prevented from continuing to grow unchecked.

International risks

There are also risks associated with international developments. For example, the situation in the European banking sector is still uncertain and it is unclear what the consequences will be of the United Kingdom's withdrawal from the European Union. The low interest rate environment can also lead to excessive risk-taking where assets may become overvalued and risks may be incorrectly priced. Many asset prices have also risen quickly and are high in a historical perspective, including equity prices and commercial property prices. This may cause a build-up of risks that can threaten financial stability.

CHAPTER 1 – Assessment of current situation

The American presidential election in November, as well as the outcome of the United Kingdom's referendum in June, in favour of the country leaving the European Union, led to turbulence on the financial markets. On both occasions, however, the turbulence subsided quickly. Compared to June, financial market participants now expect low interest rates for a longer period to come. Concern remains regarding the health of the European banking. The major Swedish banks continue to report good profits. Growth in the Swedish economy has been revised down somewhat but is still healthy and is expected to continue to be so in the period ahead.

Increased uncertainty in connection with the UK referendum and the US presidential election

On 23 June, the United Kingdom voted to leave the EU. The days after the announcement were fraught with turbulence and increased uncertainty on the financial markets. Global stock markets fell (see chart 1:1), sterling weakened dramatically and government bond yields decreased. The prices of high-risk assets such as equities recovered quickly, however, following the announcement of support measures from the Bank of England and the European Central Bank (ECB).¹

In the months following, developments on the financial markets stabilised. Equity prices rose to a level that, in many cases, was higher than before the referendum.

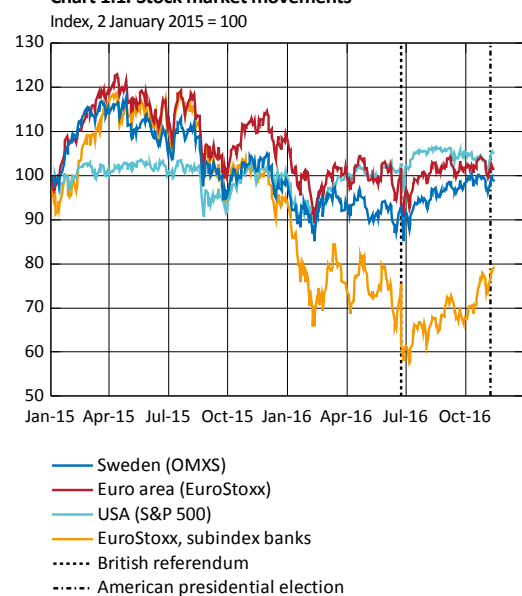
Prior to the US presidential election on 8 November, stock markets fell once again (see chart 1:1). The election result initially led to strong market reactions with equity prices and interest rates falling even further and a weaker US dollar. During the day, the situation changed, however; equity prices picked up, the dollar strengthened and US government bond yields rose. The Riksbank's stress index in connection with the turbulence surrounding both the UK referendum and the US presidential election rose and is now on a slightly higher level than at the beginning of June (see chart 1:2).

Low interest rates for a longer period to come

Interest rates are low in an historical perspective. This is primarily due to structural factors that have increased global saving faster than investments, thereby driving down the trend in global real interest rates. The low interest rates are also due to the highly expansionary monetary policy that many central banks have conducted for several years. With the help of low policy rates and other unconventional monetary policy measures, they have supported economic development.

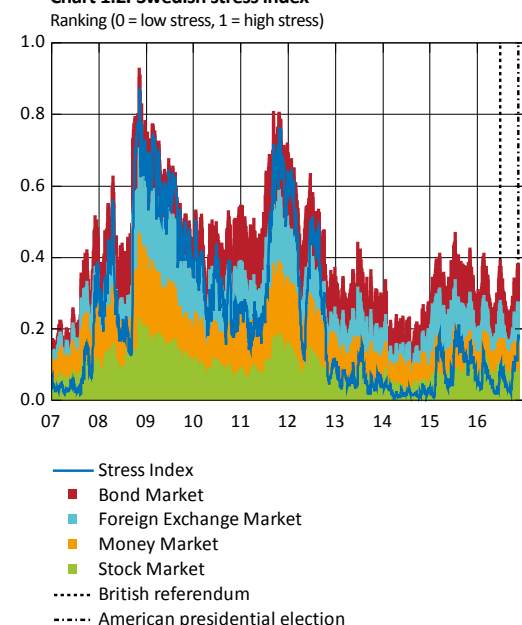
¹ See the Appendix for additional charts on developments in the financial markets as well as the situation in the major Swedish banks and among the banks' borrowers (www.riksbank.se).

Chart 1:1. Stock market movements



Sources : Macrobond and Thomson Reuters

Chart 1:2. Swedish stress index



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, T. and Bonthron, F. (2013), Further development of the index for financial stress in Sweden, *Economic Review*, 2013:1. Sveriges Riksbank.

Sources: Bloomberg and the Riksbank

Since June, the market's expectations of interest rate rises in the United States, United Kingdom and Sweden have shifted downwards. In the United States, expectations of rate rises in the longer term have shifted upwards somewhat after the outcome of the presidential election. The Riksbank has postponed planned rate rises and the Bank of England has cut the policy rate. The period has also been characterised by shifts in the market's view of the rate at which the Federal Reserve will raise the US policy rate, which is now expected to be increased in December, followed by four more rate hikes in 2017-2019. Financial market participants are expecting further monetary policy easing from the ECB and the Riksbank, among others.

Uncertain situation in the European banking sector

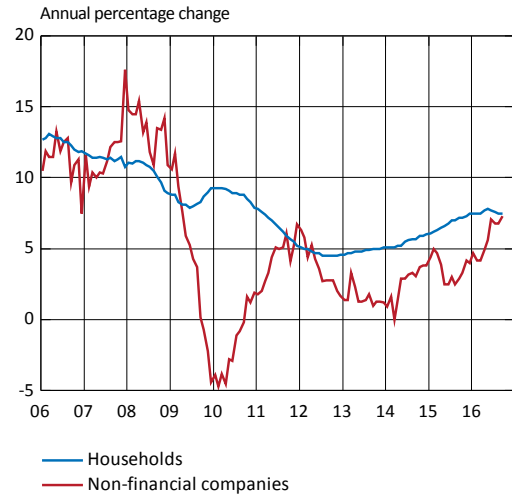
European bank equity prices fell sharply in connection with the result of the UK referendum and have developed significantly weaker than other equity prices during 2016 (see chart 1:1). Despite bank equity prices having risen since June, there is still concern over the health of the European banking sector. Several banks have a problem with low profitability, a large amount of non-performing loans and weak growth in lending. Many of the banks are also poorly capitalised. At the same time, Germany's largest bank, Deutsche Bank, has received a larger claim for damages than expected from the United States, related to the bank's sales of mortgage bonds prior to the financial crisis in 2008. The bank is now in a process of negotiating the fine of USD 14 billion with the US Department of Justice.

Continued high growth in loans to households and companies

Since the beginning of June, the growth forecast for the Swedish economy has been revised down somewhat, but growth is nevertheless good and is expected to continue to be so in the period ahead. Swedish banks' lending is hence expected to continue to grow in coming years. Lending is also being stimulated by the very low interest rates offered to households and companies.

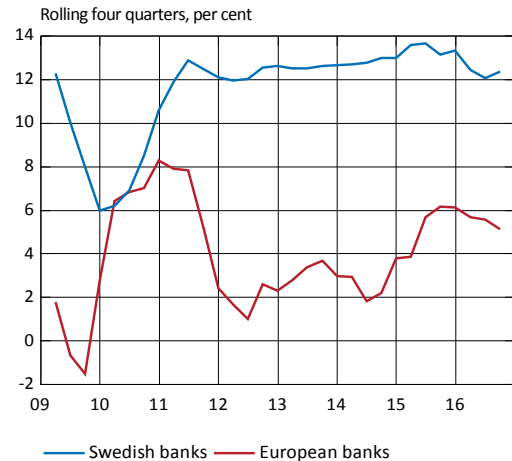
The growth in loans to non-financial companies is rising increasingly rapidly and is approaching the same rate as growth in loans to households (see chart 1:3). Above all, companies are increasing their borrowing with different types of housing and property as collateral. Some large companies are also issuing corporate bonds, but this type of borrowing is increasing more slowly than bank funding. Growth in lending to households is still high and comprises mostly loans with apartments and houses as collateral. Credit growth has dampened somewhat during the year, however, as prices on

Chart 1:3. Loans to households and non-financial companies in Sweden



Note. Refers to loans from monetary financial institutions (MFIs).
Source: Statistics Sweden

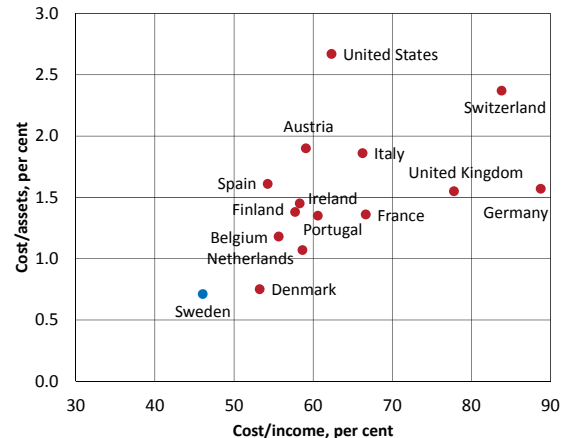
Chart 1:4. Return on equity



Note. Unweighted average. The red line represents a sample of European banks.²

Sources: SNL Financial and the Riksbank

Chart 1:5. Cost structure of banks in different countries



Source: *Global Financial Stability Report*, October 2016. International Monetary Fund (IMF).

² The peer group consists of BBVA, Banco Santander, Barclays, BNP Paribas, Commerzbank, Crédit Agricole, Credit Suisse, Danske Bank, DNB, Erste Bank, BPCE, HSBC, Intesa Sanpaolo, KBC, Lloyds, Raiffeisen, RBS, Société Générale, UBS and UniCredit. Each observation from the peer group consists of an average where the single highest and single lowest observation have been excluded.

the Swedish housing market have developed slightly slower. After the summer months, however, housing prices have increased more rapidly.

Still good profitability in the major Swedish banks

In October, a new regulation on some US money market funds came into force. Many investors believe that the new regulation makes it less attractive to invest in these funds. This has caused large-scale outflows from the funds, leading to a reduction in their capital under management. This means that the funds cannot invest as much as previously in Swedish and other banks (see the fact box on this page). As a consequence of this, the bank's cost of short-term funding in US dollars has risen slightly. So far, however, the new regulation is deemed not to have had any major impact on the major Swedish banks' ability to obtain funding.

Half the major Swedish banks' funding comes from wholesale funding and half via deposits from the general public. Since the beginning of 2015, the banks' deposit rates have remained unchanged around zero per cent despite an increasingly expansionary monetary policy with a negative repo rate. So far, therefore, the banks have refrained from introducing negative deposit rates for households and most companies, which has made this type of funding relatively more expensive. This has squeezed the banks' profitability somewhat but, by increasing the lending margins on mortgages, they have been able to maintain high profitability (see chart 1:4). The high profitability is also due to the fact that the major Swedish banks have low credit losses and are more cost-efficient than many other banks in the world (see chart 1:5). This has helped the major Swedish banks to continue to report healthy profits. Profits have also been maintained with the help of relatively high credit growth, above all with housing and property as collateral.

Difficult to find clear signs of a deterioration in market functionality

Among the market participants who responded to the Riksbank's risk survey during the autumn, opinions differ regarding the overall risk level in the Swedish financial system.³ About the same number of participants felt that the risk level was high, average and low respectively. The participants are primarily concerned about low global interest rates possibly leading investors to turn to increasingly high-risk investments or that risks are not being fully priced. Other sources of concern highlighted by the participants were household indebtedness and how financial markets will react when interest rates start to rise.

Opinions also differ among the participants as regards how the Swedish financial markets are functioning. 36 per cent of them were of the view that the markets are

³ Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets, November 2016. Sveriges Riksbank.

New regulations for US money market funds

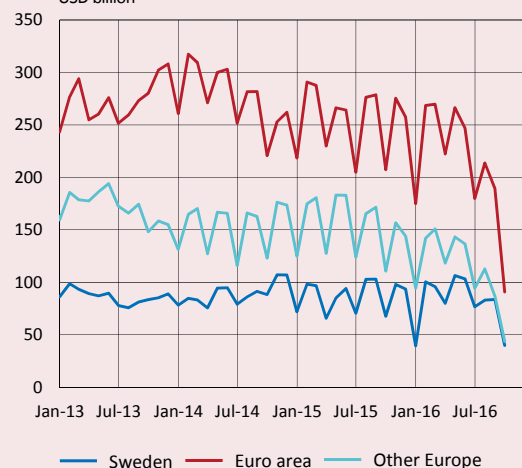
On 14 October 2016, new regulations came into force for US money market funds, which primarily affects funds that invest in banks. They do this by, for example, purchasing securities issued by banks. The new regulations are aimed at reducing the risks of these funds and forcing them, under certain circumstances, to introduce restrictions on redemptions. As a result of this and other parts of the new regulations, many investors consider it to be less attractive to invest in funds that in turn invest in banks. As a result, these funds have had substantial outflows this year. Since the beginning of the year, their managed assets under management has decreased by almost USD 900 billion, a reduction of around 70 per cent.

In May, around 10 per cent, or the equivalent of about USD 100 billion, of these funds' investments were in Swedish banks. This corresponds to just over five per cent of the major Swedish banks' total funding and almost 40 per cent of the banks' funding in US dollars. Since then, the US money market funds' investment in Swedish banks has decreased, but to a lesser extent than for other European banks (see chart 1:6). In September, investments by these funds in Swedish banks amounted to about USD 40 billion, which is a reduction of USD 60 billion since May. As a result, these investments made up a slightly smaller proportion of Swedish banks' funding, both in total and in US dollars, compared to previously.

The major Swedish banks' lending in US dollars corresponds to only a small part of their dollar funding. Instead of lending dollars, the banks primarily use this money as an inexpensive way of funding their liquidity reserves in dollars and other currencies (see the article "Short-term liquidity risks in significant currencies").

So far, the new regulations for US money market funds have not had any major impact on Swedish banks. This is in part due to new investors, e.g. bond funds, now investing in securities issued in dollars by Swedish banks and, to a certain extent, having thereby replaced the US money market funds. The costs for Swedish and other banks' short-term funding in dollars have risen, however, as a result of the new regulations. The major Swedish banks' reliance on short-term wholesale funding in dollars is also considerable, which can make them vulnerable to rapid changes in the supply of such funding.

Chart 1:6. The investments of US money market funds in the Swedish and other European countries' banks
USD billion



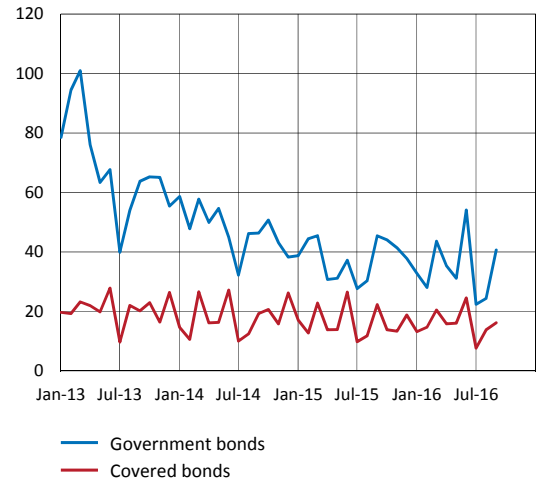
Note. The investments are in the form of holdings of bank certificates and deposits. The last data outcome in the chart is for September.

Sources: ICI and the Riksbank

functioning poorly, 22 per cent that they are functioning well and the remaining 42 per cent had no firm opinion on the subject. Participants were, however, more in agreement about how the Swedish financial markets are functioning now compared to six months ago. All in all, about half of them were of the view that the markets are not functioning as well as six months ago and they thought that this was mainly due to market liquidity having deteriorated. According to participants, this is partly due to financial regulation making securities trading more expensive for market makers and also to the Riksbank's purchases of government bonds.

In the previous stability report, the Riksbank examined how market liquidity on the Swedish bond market had developed since the financial crisis.⁴ A review of different indicators provided a mixed picture of developments and it was therefore difficult to draw any unequivocal conclusions about how market liquidity had changed. Since then, the various indicators have not moved in any particular direction, see, for example, the ratio of turnover to outstanding volume (see chart 1:7). The Riksbank's previous assessment that the Swedish bond markets seem to be functioning relatively well is still valid. The outstanding volumes of bonds issued by both banks and non-financial companies have, for example, increased after the financial crisis. Neither are there any signs of any substantial sales pressure on bonds. The risks to financial stability in Sweden associated with market liquidity are not deemed to have increased at present and market functioning does not appear to have significantly deteriorated. Conditions on the financial markets can change rapidly, however, and it is therefore important to keep track of how they are functioning.

Chart 1:7. Bond turnover relative to outstanding volume
Per cent



Note. Refers to turnover per month.

Sources: Macrobond, the Riksbank and the Swedish National Debt Office

⁴ See also Market liquidity on the Swedish bond market and its importance for financial stability. Article in *Financial Stability Report 2016:1*. Sveriges Riksbank.

CHAPTER 2 – Vulnerabilities and risks in the financial system

The Riksbank deems that there are structural vulnerabilities making the Swedish financial system and the Swedish economy sensitive to shocks. These vulnerabilities are primarily linked to the Swedish banking system's structure and to the high levels of indebtedness amongst Swedish households. The banking system is large, concentrated, interconnected and increasingly exposed to the housing market. The major banks also have a small proportion of capital in relation to their assets and are exposed to liquidity risks due to a large gap between the maturities of their assets and liabilities. In addition, the current situation in which interest rates are expected to be low for a longer time to come will increase the risk that balance sheets will become inflated and that assets will become overvalued. A sharp, unexpected rise in market rates could make prices fall. A severe fall in prices could have major repercussions for the Swedish economy, leading to considerable economic costs. Historically, severe falls in asset prices combined with extensive private indebtedness have contributed to deep and persistent economic downturns.

Vulnerabilities and risks associated with international developments

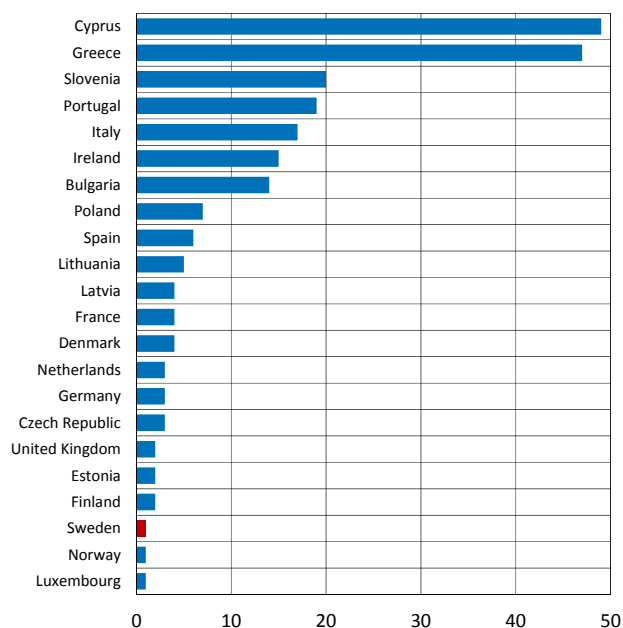
Sweden is a small, open economy with a business sector that is dependent on good economic growth abroad. Weaker than expected international economic ability would therefore inhibit demand for Swedish goods and services. If international growth remains weak for a long time or if the weakening is severe, this may have major repercussions for the Swedish economy, partly due to the effects that may arise on the financial markets. Swedish banks and companies are highly dependent on these markets for their funding and risk management.

Risks linked to developments in Europe

The situation in the European banking sector remains uncertain (see Chapter 1). Banks in several countries are suffering from weak profitability and have a large proportion of non-performing loans (see chart 2:1). Many European banks are also poorly capitalised. A worsening of the banks' problems could lead to the already weak lending in Europe being tightened further. This could impede the economic recovery in Europe and thus also Swedish exports. In a really adverse scenario, for example if investors were to lose confidence in the European banking sector, high levels of stress may arise on the financial markets. At the same time, fiscal and monetary policies have limited chances of parrying such a shock as the public finances in several European countries remain weak and monetary policy is already very expansionary with policy rates close to or below zero and other measures such as asset purchases already being implemented in several countries.

Chart 2:1. Non-performing loans at European banks

Non-performing loans as a percentage of total lending, March 2016



Note. Non-performing loans are defined by the European Banking Authority (EBA) as loans in which the borrower has paid neither interest nor amortisations in the last 90 days.

Source: EBA

In addition, the economic effects of the British withdrawal from the EU remain uncertain.⁵ The considerable fluctuations on the financial markets following the referendum have subsided since the summer, but unease may return when more information regarding the withdrawal negotiations between the United Kingdom and the EU becomes available. There is also uncertainty about the political situation in Italy, above all in connection with the approaching referendum on reforms to the Italian constitution.

Furthermore, growth in Europe is being restrained by structural factors such as weak productivity growth, high unemployment and high private and public indebtedness in many countries. These are factors that are also obstructing the prospects for global growth and that may also affect financial stability.

Structural factors are also hampering economic development in Finland, which, similar to the Baltic countries, is being negatively affected by the geopolitical situation in Russia and Ukraine. So far, however, this development has not led to higher loan losses for the major Swedish banks. In Norway and Denmark, housing prices are rising rapidly, especially in Oslo and Copenhagen. After having stagnated in 2015, housing prices in Oslo have risen by over 22 per cent in the past year. As there is considerable financial integration in the Nordic-Baltic Region, shocks in one of the countries can also lead to negative contagion for Swedish companies and banks.

Increased stress may arise on the financial markets

Other factors may also increase stress on the financial markets. For example, growth in China, and thus world trade, may be worse than expected. Another example would be if investors were to suddenly amend their expectations of monetary policy in the United States. There is also uncertainty about the long-term effects of the result of the US presidential election.

Regardless of origin, these are unexpected events not reflected in the present pricing or in expectations of future trends. Such unexpected events could lead investors to revalue their holdings of assets and to quickly decide to sell them. In such a situation, markets that have previously benefited from large capital inflows, such as markets in emerging economies or markets for corporate bonds in a number of countries, could be impacted by large capital outflows. Low liquidity in these markets may also accelerate such a development. In a situation in which many investors

⁵ The result of the United Kingdom referendum on the EU creates uncertainty. Article in *Monetary Policy Report*, July 2016. Sveriges Riksbank.

⁶ See for example Dermiani, E. Lindé, J. and Walentin, K. (2016), Is a bubble forming in Swedish house prices?, *Economic Review*, 2016:2. Sveriges Riksbank. and Turk, R. (2015), Housing price and household debt interactions in Sweden, IMF Working Paper WP/15/276.

⁷ See, for example, Emanuelsson, R. (2015), Supply of housing in Sweden. *Economic Review* 2015:2 Sveriges Riksbank.

Why have housing prices risen?

Since the mid-1990s, real housing prices in Sweden have risen by over 200 per cent. The price rise has been particularly pronounced for tenant-owned apartments, particularly in Stockholm, where prices have increased by over 600 per cent (see chart 2:2).

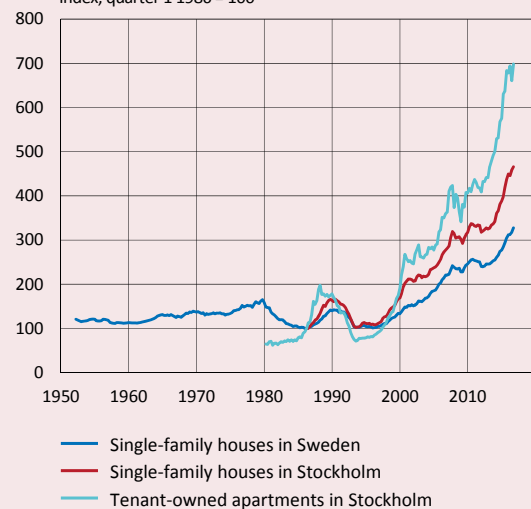
Empirical studies show that there are several factors that, in combination, can explain this price rise.⁶ For example, Swedish households have experienced sharp increases in disposable incomes and financial wealth. The nominal interest rates have also fallen to historically low levels. In combination with the low property charges and the right to deduct a generous percentage of interest expenditure, which makes it more beneficial, in tax terms, to take on debt, these factors have contributed towards a successive fall in households' user costs (see chart 2:6).

Housing prices have also increased due to structural factors that are restricting the supply of housing. These include both the low level of housing construction and the failure to efficiently use existing housing. The low level of construction is due to factors including weak competitiveness in the construction sector, an insufficient supply of land for new construction and extensive and complex planning procedures. At the same time, a high degree of rent control and the current rules for the taxation of capital gains on property sales are decreasing households' propensity to move. This, in turn, is contributing towards the existing housing stock not being utilised more efficiently.⁷

These structural factors have contributed towards a widespread housing shortage. In the most recent housing market survey from Boverket (the National Board of Housing, Building and Planning) from 2016, 240 of the country's 290 municipalities reported a shortage of housing, primarily rented accommodations. The lack of rented accommodations, above all in metropolitan areas, is contributing to a situation in which households may feel forced to buy a home even at stages of their lives when ownership and a mortgage may entail taking a major risk. Such imbalances on the housing market are contributing to higher housing prices and thereby also to higher indebtedness among households.

Chart 2:2. Real housing prices in Sweden

Index, quarter 1 1986 = 100



Note. Housing prices have been deflated by the CPI.

Sources: Statistics Sweden, Valueguard and the Riksbank

wish to sell assets, low market liquidity may therefore create increased stress on the financial markets.⁸

Vulnerabilities and risks associated with low interest rates

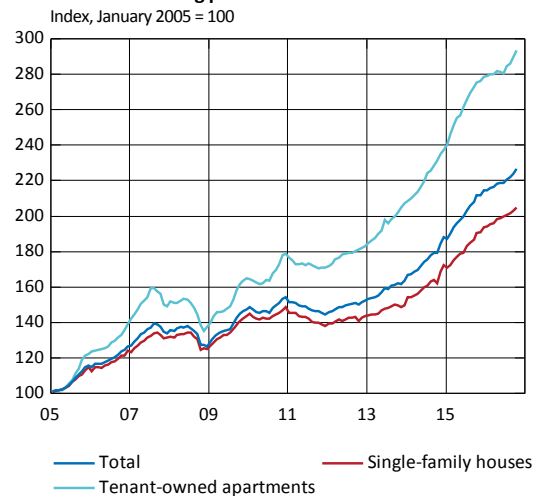
Interest rates are expected to continue to be low in the years ahead, among other factors due to the expansionary monetary policy being conducted in Sweden and elsewhere. The central banks' low policy rates and asset purchases are aimed at stimulating economic growth and counteracting the risks of excessively low inflation.⁹ However, a low or, in certain cases, negative interest rate environment may also provide the participants with the incentive to take excessive risks to gain sufficient yields. Even if an increased risk-taking is partly an intended effect of the monetary policy being conducted, it may increase the vulnerability of the financial system, which may ultimately threaten financial stability. This would particularly be the case if risk-taking were to become excessive without being counteracted by measures within other policy areas. For example, excessive risk-taking may lead to assets becoming overvalued and risks incorrectly priced.

Low interest rates contribute to higher housing prices

Housing prices in Sweden have been rising rapidly for a long time (see chart 2:2) and Swedish homes are highly valued from a historical perspective.¹⁰ The rate of increase in housing prices slowed down in the spring, but prices have again increased rapidly in recent months (see chart 2:3). There are several factors that may explain the price development for the country as a whole (see the fact box on page 9). There is a substantial shortage of housing, and in particular of rented accommodation, across the country. In addition, the low level of interest rates has made it cheaper for households to borrow money to buy a home (see chart 2:6). Households have also benefitted from significant rises in real wages and tax cuts, which have increased their disposable income.

The fact that the price trend can be explained by different factors, however, does not rule out the possibility of a fall in housing prices. Prior to the global financial crisis, for example, it was widely claimed that the prices on the US housing market were motivated by fundamental factors.¹¹ A few years later prices fell sharply. It is hence important to remember that the factors driving price trends can change. This is particularly true if the factors themselves are not in long-term

Chart 2.3. Housing prices in Sweden



Note. Seasonally adjusted housing prices.

Sources: Valueguard and the Riksbank

Commercial properties and financial stability

Historically, commercial properties have often played a significant role in larger financial crises, both in Sweden and abroad. During the crisis of the 1990s, problems in the commercial property market contributed to large-scale loan losses and serious difficulties for the Swedish banking system, which required extensive government support to avoid collapse.

On the whole, the price of a property is determined partly by the net operating income of the property, which is to say rents minus operational and maintenance costs, and partly by the required rate of return of the investors. A high required rate of return means that the investors will demand a high direct yield requirement that is the net operating income in relation to the value of the property. This means that, for given rents, the value of the property falls when the direct yield requirement rises and vice versa. If rents instead rise while the direct yield requirement remains unchanged, the property value will also rise.

Low direct yield requirements have historically been an indicator of approaching price falls on the property market. These low direct yield requirements may be due to speculation over rising rents and property prices in the future or they may be due to demands from investors for low levels of compensation for the risk in the investment. But low direct yield requirements may also be a consequence of low risk-free interest rates.

High property prices are therefore often due to low funding costs, high rents or expectations of rising prices in the period ahead. If these factors rapidly change, a risk of falling prices will arise.

In a situation with plunging rents and property values, there will be a risk that property companies cannot repay their loans. At the same time, there will be a risk that the value of the property, pledged as collateral for the loans, will fall below the amount of the loan. Such a development could also cause loan credit losses for the lenders and, additionally, create further price falls on the property market if properties are forced to sell rapidly. Combined with the relatively high proportion of loan financing in property companies when compared with other non-financial corporations, this means that there is a risk that falling commercial property prices may have significant consequences for financial stability.

⁸ Bonthron, F. Johansson, T. and Mannent, J. (2016), Market liquidity on the Swedish bond market and its importance for financial stability. *Economic Commentary* no. 3, 2016, Sveriges Riksbank.

⁹ *Monetary Policy Report*, October 2016. Sveriges Riksbank.

¹⁰ Giordani, P. Grodecka, A., Kwan, S., Morales, P., Ölcer, D. and Spector, E. (2015), Asset valuation and financial stability, *Economic Commentary* no. 15, 2015. Sveriges Riksbank.

¹¹ Gerardi, K. Foote, C., and Willen, P. (2010), Reasonable people did disagree: optimism and pessimism about the U.S. housing market before the crash, *Public Policy Discussion Papers*, No 10-5, Federal Reserve Bank of Boston.

equilibrium, for example, if interest rates are much lower than normal. If interest rates in Sweden were to rise sharply, with increased interest expenditure as a result, there is a risk that Swedish housing prices will fall. Such a fall could be considerable, if households expect interest rates to remain low and don't leave themselves a good enough margin for higher rates when they purchase a home.

High level of activity on the commercial property market

Low interest rates also affect commercial property prices and property companies (see the fact box on page 10). For example, the low interest rates have pushed funding costs and yields down at the same time as low vacancy rates have resulted in rising rents. Together, these factors have contributed towards rising commercial property prices, which, in 2015, had the fastest rate of increase since 2007 (see chart 2:4).

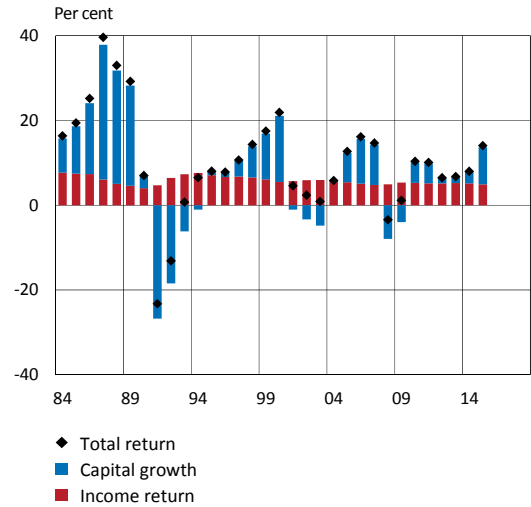
Swedish banks lend significant amounts to property companies, and about 40 per cent of their lending to non-financial corporations has property as collateral. This means that banks are directly affected by developments on the commercial property market and among property companies, both as regards earnings and potential credit losses. Apart from bank loans, Swedish commercial property companies also use bonds and certificates to obtain funding. Their proportion of the total outstanding volume of such securities has increased in recent years. This means that the market for corporate bonds and certificates as a whole can be affected by the development of the commercial property market.

The current economic conditions for property companies are good. Although the yield is relatively low, it is still significantly higher than the risk-free interest rate. This was not the case in the early 1990s, when very low direct yields were driven by speculation about future increases in value. If property prices continue to rise, however, risks may build up in the event of a rapid change in the economic conditions for property companies. Several participants in the Riksbank's risk survey during the autumn also expressed unease over high valuations on the commercial property market.¹²

Reduced holdings in money market funds

There are signs that demand for higher-risk financial assets in Sweden has increased slightly over the last six months. For example, Swedish households' holdings of higher-risk funds, such as equity funds and corporate bond funds, have become slightly larger (see chart 2:5). At the same time, households have reduced their holdings in lower-risk funds, such as money market funds, which find it difficult to generate yield when interest rates are low. The higher demand for more high-risk investments has contributed towards the relatively strong development of the Swedish stock market during the

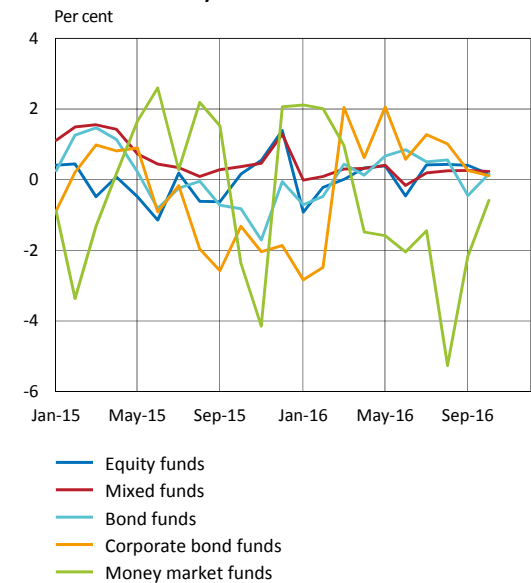
Chart 2:4. Yield on commercial properties



Note. Income return is defined as rental income minus operating and maintenance costs.

Source: MSCI

Chart 2:5. Monthly net flows in relation to fund wealth



Note. The fund flows refer to Swedish investors. Households are responsible for around 80 per cent, either directly or via pension savings, of Swedish investors' fund holdings.

Source: The Swedish Investment Fund Association

¹² Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets, autumn 2016. Sveriges Riksbank.

autumn (see chart 1:1 in Chapter 1) and valuations are high from a historical perspective. The larger holdings of higher-risk financial assets means that Swedish households are more exposed towards falls in prices for these. In turn, higher valuations increase the probability of a fall in prices.¹³

Low interest rates are making banks and insurance companies more vulnerable

If interest rates remain low for a longer period, banks and insurance companies may want to compensate for lower nominal yields by taking greater risks.¹⁴ For example, the banks could start lending money to higher-risk borrowers, which increases the risk of loan credit losses. They may also choose to increase their lending volumes. Over the last six months, lending by the banks has increased, above all for loans with housing and other property as collateral. This means that the banks are even more exposed towards the housing market.

Since the start of 2015, the repo rate has been negative. This could lead to the banks choosing to introduce negative deposit rates in order to reduce their funding costs. However, negative deposit rates could lead to customers moving their deposits to higher-risk forms of saving or withdrawing their money. This would contribute towards a fall in the banks' stable funding. If the deposits were to be moved at a fast rate and to a great extent, without the banks having an alternative source of funding, this may jeopardise financial stability. For example, individual banks could be exposed to liquidity stress, which could damage confidence in the Swedish banking system. At present, however, the banks have chosen to only introduce negative interest rates for a smaller part of their deposits and only for financial institutions, certain companies and municipalities.

A long period of low interest rates could also make it more difficult for life insurance companies to fulfil their partly nominal commitments to policyholders, as they receive a lower return on their investments in fixed income assets such as bonds. However, due to their large equity holdings, Swedish life insurance companies have benefited from the increase in equity prices caused by falling interest rates. At the same time, these large holdings make them vulnerable to greater fall in prices on the stock market. The low interest rates may also lead life insurance companies to invest to a greater extent in high-risk assets instead of in low-return fixed income assets, in the hope of increased yield.¹⁵ This would make the Swedish life insurance companies even more vulnerable. However, there are, at present, no clear signs that

¹³ For more information see Giordani, P. Grodecka, A., Kwan, S., Morales, P., Ölcer, D. and Spector, E. (2015), Asset valuation and financial stability, Economic Commentary no. 15, 2015. Sveriges Riksbank.

¹⁴ See also How do low and negative interest rates affect banks' profitability? Article in *Monetary Policy Report*, April 2016. Sveriges Riksbank.

¹⁵ For a more in-depth description of how low interest rates affect insurance companies, see Gibas, N., Juks, R. and Söderberg, J. (2015), Swedish financial institutions and low interest rates, *Economic Commentaries* no. 16, 2015. Sveriges Riksbank.

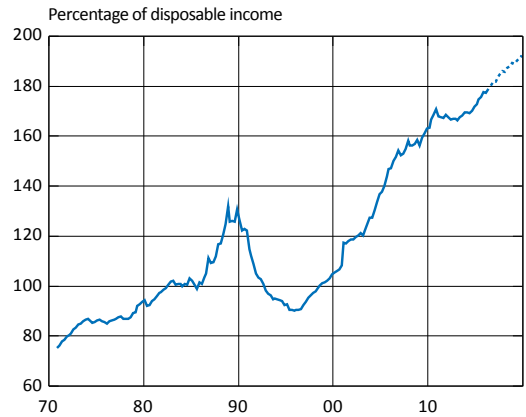
Chart 2:6. User cost for Swedish housing



Note. The user cost is estimated as a nominal mortgage rate adjusted by actual inflation, tax relief on interest expenditure and property charges. Short rate refers to 3-months maturity and long rate refers to 8-years maturity.

Sources: Statistics Sweden and the Riksbank

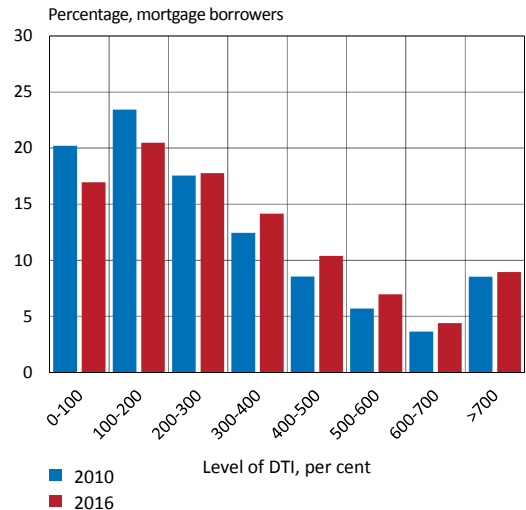
Chart 2:7. Household debt-to-income ratio in Sweden



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

Sources: Statistics Sweden and the Riksbank

Chart 2:8. Distribution of debt-to-income ratios for Swedish households with mortgages, 2010 and 2016



Source: The Riksbank

overall risk-taking among Swedish life insurance companies has increased, even if it cannot be ruled out that certain individual companies may have increased their risk-taking.

Vulnerabilities and risks linked to household indebtedness

Households more vulnerable to disruptions in the economy

A long period of low interest rates also entails a greater risk for rising indebtedness in the household sector. The growth in credit remains high and household debts are continuing to increase more rapidly than household incomes. The debt-to-income ratio amounts to almost 180 per cent, which is a high level from a historical perspective (see chart 2:7). Statistics at the household level also show that the average debt-to-income ratio for households with mortgages increased from 338 to 343 per cent between 2015 and 2016. The percentage of households with high debt-to-income ratios has also increased in recent years (see chart 2:8). Almost 618,000, or 30 per cent, of the households with mortgages now have a debt-to-income ratio in excess of 400 per cent and over 270,000 households, or 13 per cent, have a debt-to-income ratio in excess of 600 per cent.¹⁶

The fact that interest rates are historically low means that households' housing expenditure is very low (see chart 2:6). The generous right to deduct tax for interest is further reducing housing expenditure (see the fact box on page 9). Households are thereby in a very good position to repay their loans currently.

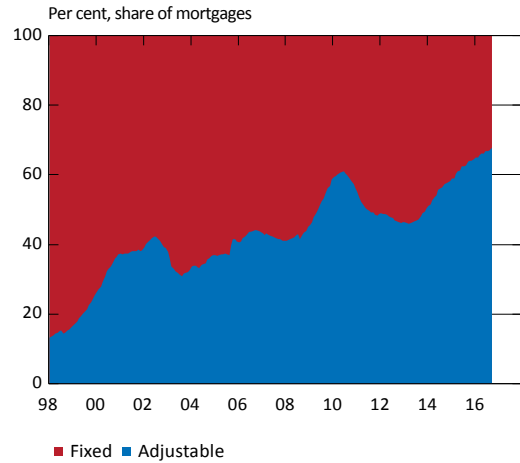
High indebtedness entails risks for the Swedish economy

An increasing number of households have chosen adjustable-rate mortgages (see chart 2:9). Combined with higher debt-to-income ratios, this has made households more sensitive to changes affecting their finances. Interest rates and the interest ratio are expected to remain low in the years ahead (see chart 2:10), but if interest rates rise to more normal levels, it will have a major impact on households' interest expenditure.¹⁷ For example, the interest ratio will then rise to a level that have not been observed since the crisis of the 1990s. It is therefore important for households to be aware that their incomes and expenditures may eventually change and to plan for this. Of course, a high aggregated saving ratio indicates that the household sector in general has built up buffers that can be used in the event of various types of shock. But there is a lack of new information on how saving

¹⁶ Because of a new household definition the number and proportions differs compared to previous figures the Riksbank has published, see Van Santen, P. and Ölcer, D. (2016), The indebtedness of Swedish households: Update for 2016, *Economic Commentaries* no. 5, 2016. Sveriges Riksbank.

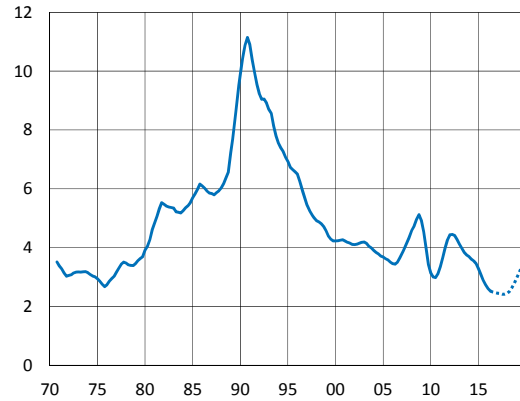
¹⁷ There is considerable uncertainty as regards what can be considered long-term normal interest rate levels, see for instance Armelius, H. Bonomolo, P. Lindskog, M. Rådahl, J. Strid, I. and Walentin, K. (2014), Lower neutral interest in Sweden?, *Economic Commentaries* No. 8, 2014. Sveriges Riksbank.

Chart 2:9. Rate fixation periods for the mortgage stock in Sweden



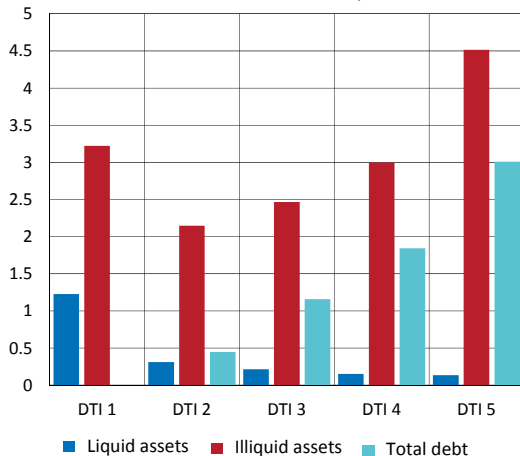
Note. Adjustable rate refers to rate fixation periods up to 3 months. Fixed rate refers to rate fixation periods above 3 months.
Source: Statistics Sweden

Chart 2:10. The Swedish households' interest ratio



Note. The dashed line represents the Riksbank's forecast.
Sources: Statistics Sweden and the Riksbank

Chart 2:11. Household assets and debt, average 2002-2007



Note. DTI 1-DTI 5 refers to quintiles of total debt in relation to disposable income.

Source: Flodén, M. Kilström, M. Sigurdsson, J. and Vestman, R. (2016), Household debt and monetary policy: revealing the cash-flow channel.

and assets are allocated between different households. It is therefore not possible to see whether it is the most indebted households that have the greatest buffers. However, statistics from 2002-2007 show that households with the highest debt-to-income ratios have on average larger illiquid assets than other indebted households. This is because highly indebted households often buy a home financed by a mortgage. Statistics show, however, that the most highly indebted households also have the least liquid assets (see chart 2:11).¹⁸ If the household is unable or does not wish to sell its home in a stressed scenario, this indicates that the most highly indebted households have relatively small buffers to cope with unexpected economic shocks.

High indebtedness may thus be particularly problematic if economic growth should become significantly less positive than expected. Highly-indebted households may then reduce their consumption, particularly if housing prices also start to fall. Waning consumption may in turn reduce the profitability of Swedish companies and lead to higher unemployment, which may ultimately lead to increased credit losses for the banks. Confidence in the banks could weaken in such a situation, which could also affect both access to and the cost of the banks' funding. There is thus a risk that the economy will enter a negative spiral with serious consequences for both financial and macroeconomic stability.¹⁹

The Riksbank continues to deem that households' high and rising indebtedness entails considerable risks for the Swedish economy. This assessment is shared by other authorities in Sweden, as well as by international agents such as the IMF (see the article "The IMF assessment of the Swedish financial sector"), the OECD and the European Commission.²⁰ Participants on the Swedish financial markets also deem that the risks linked to households' high indebtedness could have major negative consequences for the economy, should they be realised.²¹

Vulnerabilities and risks in the Swedish banking system

As described above, there are several different vulnerabilities and risks that may threaten the Swedish financial system and the Swedish economy. At present, these are primarily linked to international developments, the low level of interest rates and Swedish households' high indebtedness. These risks may, in turn, lead to shocks in the Swedish banking system. The

¹⁸ Flodén, M. Kilström, M. Sigurdsson, J. and Vestman, R. (2016), Household debt and monetary policy: revealing the cash-flow channel.

¹⁹ Emanuelsson, R., Melander, O. and Molin, J. (2015), Financial risks in the household sector, *Economic Commentaries* no. 6, Sveriges Riksbank.

²⁰ See, among others, *Stability in the Financial System*, May 2016. Finansinspektionen. *Country Report Sweden*, 2016. European Commission. *Article IV Consultation with Sweden - Concluding Statement of the IMF Mission*, September 2016. International Monetary Fund (IMF).

²¹ *Market participants' views on risks and the functioning of the Swedish fixed-income and foreign exchange markets*, November 2016. Sveriges Riksbank.

Structural vulnerabilities in the Swedish banking system

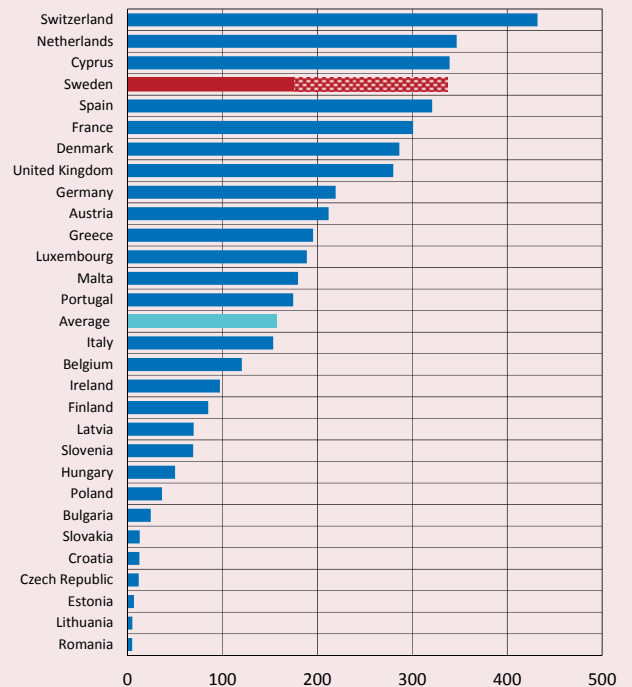
The Swedish banking system is large in relation to the Swedish economy. At the end of 2015, the size of Sweden's banking sector amounted to 340 per cent of Sweden's gross domestic product (see chart 2:12). The four major banks; Handelsbanken, Nordea, SEB and Swedbank, together account for approximately 78 per cent of lending and receive 67 per cent of the deposits in Sweden.

The major banks also have significant exposures towards each other as they own each other's securities. Currently this ownership amounts to over 30 per cent of the major banks' total equity. Problems at one of the major banks can thereby rapidly spread to other banks and markets, and thereby damage confidence in the entire financial system. This also means that any problems in the banks may be very expensive for the government to deal with.

In addition, the major banks have large amounts of loans with homes and other types of property as collateral on their balance sheets. At present, these loans amount to around 70 per cent of total lending. This means that they have significant exposures towards the housing market and the commercial property market.

Banks fund approximately half of their lending via securities and half via deposits. Furthermore, about two-thirds of their market funding is in foreign currency. This means that the banks are sensitive to both shocks on the global financial markets and to impaired confidence in the Swedish banking system.

Chart 2:12. The banks' assets
Percentage of GDP, December 2015



Note. Banking assets includes all of the assets of the national banking groups that is both foreign and domestic assets. The banks' insurance operations are, however, excluded. The shadowed part of the red bar shows the four major banks' assets in foreign subsidiaries and branches abroad in relation to Sweden's GDP.

Sources: ECB, Swiss Bankers' Association, Swiss Statistics, bank reports and the Riksbank

impact of such shocks will depend, for example, on the banks' exposure to these risks and the resilience of the banking system as a whole.

Since June, the major Swedish banks have continued to report good results. The major banks are profitable, have low loan credit losses and are more cost-effective than many other banks in the world (see Chapter 1). However, the Riksbank deems there to be significant risks in the Swedish banking system and that its structure makes it sensitive to shocks. The banking system is large, concentrated, interconnected and increasingly exposed to the housing sector. Furthermore, the major banks have a high proportion of wholesale funding, a large proportion of which is in foreign currency (see fact box on page 14).

The major banks are exposed to liquidity risks

Liquidity risk is a part of banks' operations since they are normally funded at short maturities and lend at longer maturities. It is therefore important that the Swedish banks have sufficient accessible funds to be able to manage their liquidity risks (see fact box on this page).

Over the last six months, the major banks have continued to maintain the size of their liquidity buffers in US dollars and euros. This has resulted in liquidity coverage ratios (LCRs) that exceed, by a good margin, the minimum requirements determined by FI (see chart 2:13). Some of the major banks sometimes have low liquidity coverage ratios in Swedish kronor and in other significant currencies. This means that the banks have greater short-term liquidity risks, measured in terms of the LCR, in these currencies (see the article "Short-term liquidity risks in significant currencies"). This means that the banks have bigger short-term liquidity risks, as measured by LCR, in these currencies.

For some time, the Riksbank has been of the opinion that the major Swedish banks also have significant structural liquidity risks.²² This is partly due to persistent maturity mismatches between the banks' assets and liabilities. On the asset side, Swedish banks have a large proportion of mortgages with long maturities, while on the liabilities side, they have relatively short-term wholesale funding (see chart 2:14). The average remaining maturity of Swedish covered bonds is only about three years, which is significantly shorter than the maturity of the mortgages they fund. Furthermore, only around 10 per cent of the Swedish banks' outstanding issued securities have a maturity in excess of five years, which is low from a European perspective (see chart 2:15).

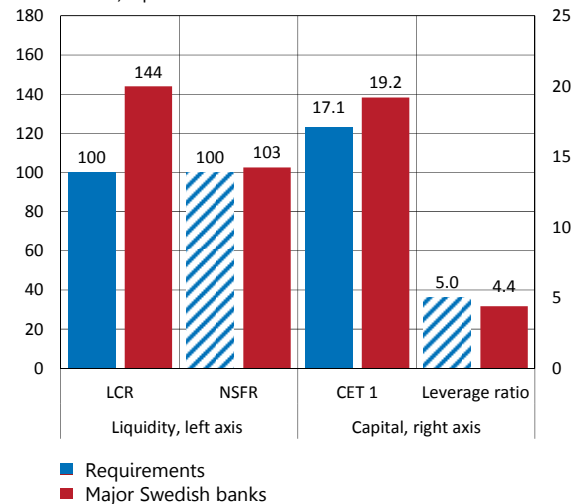
One way of measuring structural liquidity risks is by calculating the relationship between that part of the bank's funding that is expected to be available in one year's time and the assets expected to require funding in one year's time. This is known as the Net Stable Funding Ratio (NSFR). The average

Liquidity risks in the banking system

Liquidity risks can be divided up into short-term and structural liquidity risks. Short-term liquidity risks mean that a bank would be unable to repay the liabilities that mature in the near term if it were to have difficulty renewing its funding (see the article "Short-term liquidity risks in significant currencies"). Structural liquidity risks instead mean maturity imbalances between a bank's assets and liabilities at longer maturities. Even if a bank's short-term liquidity risks are small, it is also important that the structural liquidity risks are not too high. This is because the maturity mismatches a bank has at present for longer maturities will affect its resilience against funding stresses (and thereby short-term liquidity risks) in the future. In addition, short-term liquidity risks say nothing about how the bank would cope if funding stresses were to persist for a longer period.

Chart 2:13. The four Basel ratios

Per cent, September 2016



Note. The NSFR is still not statutory within the EU. The blue-striped column refers to the Riksbank's recommendation for Swedish banks. The minimum level for the leverage ratio has not been set as yet. The chart therefore shows the level (blue-striped column) that the Riksbank recommends should apply as of 2018. CET 1 is an abbreviation of common equity tier 1 capital ratio. The minimum level is calculated as the weighted average of the major banks' total capital requirement. The major banks' capital ratios are given as weighted averages.

Sources: Bank reports, BIS and the Riksbank

²² Structural liquidity risks in the major Swedish banks, *Riksbank Studies*, November 2016. Sveriges Riksbank.

NSFR of Swedish banks currently stands at 103 per cent. At the end of 2015, it was 101 per cent, while the corresponding figure for an average of European banks was 107 per cent. A large share of the major Swedish banks' funding has a maturity of just over one year, however. As the NSFR considers all funding over one year to be completely stable, this means that the major banks' structural liquidity risks are not adequately captured by the NSFR.

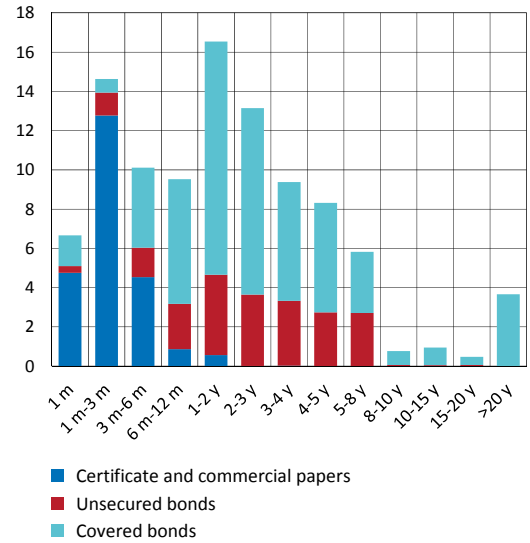
The major banks have low leverage ratios

Given the vulnerabilities in the Swedish banking system, it is important for the banks to hold a sufficient amount of capital. Over the past six months, the banks' core tier one (CET 1) capital ratio has increased slightly and the levels are high in comparison with other banks in the world. If the non-risk-weighted capital measure leverage ratio is examined instead, the major banks have relatively little capital in relation to their total assets, for example in comparison with other European banks (see chart 2:16). The major banks' leverage ratio is currently below the level that the Riksbank has recommended that the banks should maintain as of January 2018 (see chart 2:13 and Chapter 3).²³

The fact that the major banks still have high CET 1 capital ratios is largely dependent on them having low risk weights on their assets. This can partly be explained by that the risks in the banks' lending having decreased. For example, the proportion of corporate loans having decreased in favour of mortgages. The most important reason for the high CET 1 capital ratios is, however, that the banks have increasingly begun to use internal models to calculate their risk weights. While this is in accordance with the regulations, it may also mean that the risk weights do not fully reflect the risks in lending by the banks. For example, the internal models are largely based on historical data. It is therefore uncertain whether they fully capture the risk of future losses. In addition, the models are focused on each individual bank and therefore do not necessarily capture structural vulnerabilities and risks that may exist in the banking system as a whole.

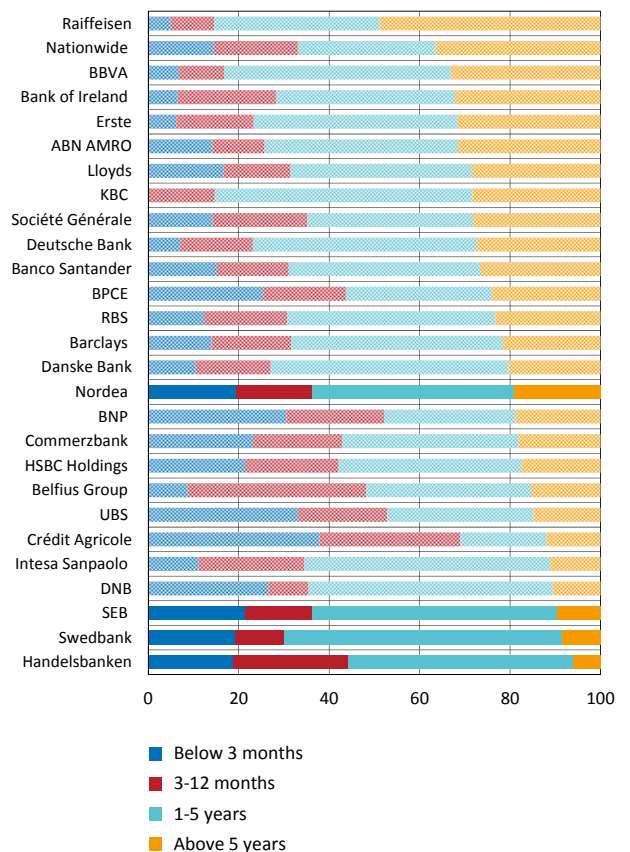
All in all, for example, the banks' liquidity imbalances in certain currencies and the low leverage ratio mean that the risks remain high in several areas. Together with other structural vulnerabilities of the Swedish banking sector, this entails increased sensitivity for shocks to the financial system.

Chart 2:14. The major banks' outstanding securities distributed by remaining term and type of security
Percent of the outstanding volume, December 2015



Sources: Liquidatum and the Riksbank

Chart 2:15. Bank funding distributed in terms of maturity
Per cent, December 2015



Note. Refers to outstanding securities excluding subordinated debt.
Sources: Liquidatum and the Riksbank

²³ See also Need for a leverage ratio requirement for the major Swedish banks, article in *Financial Stability Report 2016:1*, June 2016. Sveriges Riksbank.

Vulnerabilities and risks linked with the financial infrastructure

It is also important that the financial structure is stable, secure and efficient. The Riksbank therefore oversees several different infrastructure systems in order to safeguard financial stability.²⁴

The assessment is that the financial infrastructure continues to consist of safe and efficient systems. However, work has been underway for some time on replacing Euroclear Sweden's technical system for securities settlement. Such a project is innately associated with risks. Operational risks in the infrastructure will therefore remain heightened until the system replacement has been completed.²⁵

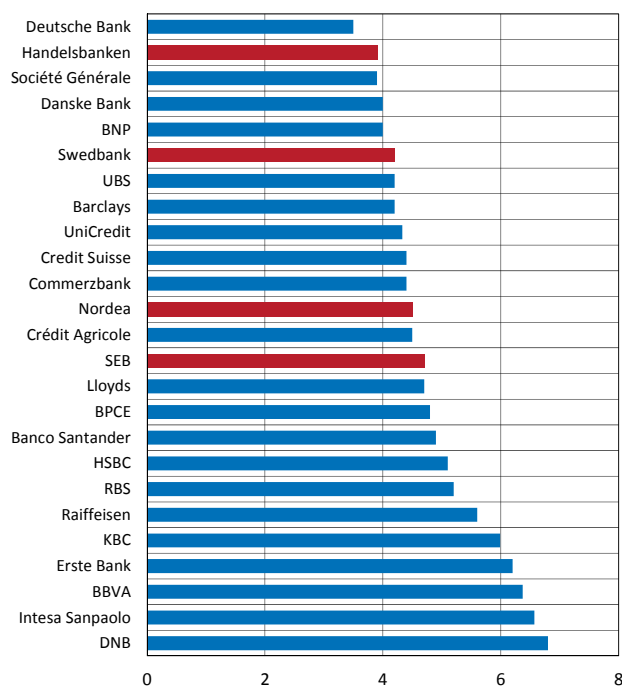
A cyberattack may threaten financial stability

Another risk is linked to the fact that the financial systems are increasingly dependent on IT systems that, in turn, are becoming increasingly interconnected. This development is increasing both vulnerability and the potential negative effects of a comprehensive cyberattack, for example.²⁶ A number of authorities, including the Riksbank, have made a joint statement on the importance of the participants using the global messaging system SWIFT actively working to strengthen the financial system's resilience towards cyber threats.²⁷ This is in light of the cyberattacks that have taken place and which have involved SWIFT messages.

The application of CPMI-IOSCO's guidelines for cybersecurity has been discussed over the past six months within the collaboration forum FSPOS (a group for private-public cooperation in the financial sector). Both authorities and private participants take part in FSPOS.²⁸ The guidelines concern central components that are necessary in order to build up good resilience against cyberattack: the importance of clear governance on cybersecurity and commitment from the highest level in an organisation; operative arrangements for preventing, detecting and tackling cyberattack; as well as active business intelligence, information exchange and collaboration regarding cybersecurity.²⁹ The Riksbank expects all Swedish infrastructure systems under the Riksbank's oversight to follow these guidelines. The Riksbank also urges banks and other financial participants that are using SWIFT to use these guidelines in their work on cybersecurity.

Chart 2:16. The leverage ratio in various banks

Per cent, June 2016



Note. Calculated according to the applicable definition in Basel III.

Sources: SNL Financial and the Riksbank

²⁴ The Swedish infrastructure systems this concerns are the Riksbank's payment system for account transfers RIX, Euroclear Sweden AB's settlement system for securities (the VPC system), Nasdaq Clearing AB's central counterparty system for financial derivatives, commodity derivatives and repos, and Bankgirocentralen BGC AB's payment system for clearing retail payments.

²⁵ *Financial Infrastructure Report*, april 2016, Sveriges Riksbank.

²⁶ Cyber threats in the financial system. Article in *Financial Stability Report 2016:1*, June 2016. Sveriges Riksbank.

²⁷ *Reinforcing Cyber Resilience of the Financial Ecosystem*. National Bank of Belgium.

²⁸ Guidance on cyber resilience for financial market infrastructures, June 2016. CPMI-Iosco.

²⁹ Cyber threats in the financial system. Article in *Financial Stability Report 2016:1*, June 2016. Sveriges Riksbank.

ARTICLE – Short-term liquidity risks in significant currencies

The major Swedish banks have extensive cross-border operations. Their balance sheets therefore consist of assets and liabilities in several different currencies. In addition to Swedish kronor, US dollars and euros, a significant proportion of the major banks' funding is made up of sterling, Danish kroner and Norwegian kroner, while their liquidity reserves consist mainly of dollars and euros. Below, we describe the potential short-term liquidity risks in various currencies and how exposed Swedish banks are to these risks. The analysis shows that there is reason to take action to reduce banks' short-term liquidity risks and increase resilience in the financial system. Primarily, banks should themselves ensure that they are adequately insured against the liquidity risks they take in their operations.

A central component of a bank's operations is borrowing money at short-term maturities and then lending it at longer maturities. This is known as implementing maturity transformation and means that the bank is exposed to liquidity risk. This risk arises because the bank's funding is due for payment before it recuperates the money it has lent. The bank must therefore renew the funding several times during the bank loan's maturity period. If its ability to repay were to be questioned by investors on any of these occasions, there would be a risk of the bank having to renew the funding at a higher price or of not being able to renew it at all. As a result, the bank risks becoming illiquid.

Liquidity risks can be divided up into two categories, structural and short-term. Structural liquidity risks are posed by maturity mismatches on banks' balance sheets (see fact box on page 15). Short-term liquidity risks relate to the risk of a bank not being able to repay liabilities that mature in the near term if the bank's ability to renew its funding were to be limited. Short-term liquidity risks therefore depend on how large the bank's liquid assets are in relation to the difference between expected out- and inflows from liabilities and assets during this period. This article focuses on the short-term liquidity risks of Swedish banks.

Bank regulation

Bank deposits are protected by the so-called deposit guarantee. In addition to this, very large banks have sometimes felt that they are implicitly protected by the government due to their size, interconnection and significance for the economy. The European Bank Recovery and Resolution Directive (BRRD)³⁰ which

includes the bail-in tool³¹, is aimed at reducing this implicit protection. The regulatory framework is relatively untested in practice, however, and is yet to be evaluated. Both explicit and implicit guarantees incentivise banks to take greater risks than they would have done without these guarantees. To mitigate these risks, imposing special regulation on banks is therefore justified.

To reduce the bank system's short-term liquidity risks, global requirements have been introduced obliging banks to hold liquidity reserves that allow them to cope with a stress situation for 30 days. They must have a certain "Liquidity Coverage Ratio" or "LCR". The aim of the LCR is that banks, to a greater degree themselves, have adequate insurance against short-term liquidity risks so that they are more resilient. A liquidity reserve also gives the banks and the authorities more time to make better decisions in a stress situation.

Minimum LCR requirements also help to reduce the incentive for excessively short-term funding. Of course, they do not eliminate all liquidity risks, but they do reduce the risk of liquidity stress requiring public intervention.

The major Swedish banks operate in several currencies

The balance sheets of the major Swedish banks consist of assets and liabilities in several different currencies. They implement liquidity and maturity transformation in all these currencies. This is because they have large-scale cross-border operations, mainly as a result of their presence in the rest of the Nordic Region, the UK and in the Baltic States. In addition, they have a substantial amount of short-term funding in foreign currencies such as US dollars and euros.

³⁰ Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms.

³¹ The bail-in tool provides a resolution authority with the right, in combination with other measures, to write down a bank's debts to cover losses or to convert the debts into equity to recapitalise the bank in accordance with a special order of priority.

What is a Liquidity Coverage Ratio (LCR)?

$$LCR = \frac{\text{Liquidity reserves}}{\text{Net cash outflow during 30 days}}$$

The LCR is constructed like a stress test intended to reflect tough but realistic conditions under severe liquidity stress lasting for 30 days. Calculation is based upon the bank's balance sheet and certain off-balance-sheet items such as credit and liquidity facilities. By weighting the various items in relation to their liquidity risk, the ratio tries to capture what a bank's liquidity position would look like in a scenario lasting several months when, for example, the bank's wholesale funding cannot be renewed and some of its deposits disappear. At the same time, the bank has assets that generate a cash inflow and counteract the outflows, to a certain extent. The difference between the weighted cash outflows and the weighted cash inflows is called a stressed net cash outflow. In turn, the LCR is calculated as the ratio of liquid assets (the liquidity reserve) to the net cash outflow (see the equation above). If this ratio exceeds 1, that is 100 per cent, the bank fulfils the minimum requirement.

Swedish kronor, US dollars and euros make up the three largest currencies in which Swedish banks obtain funding. In addition, they obtain funding in currencies such as Danish and Norwegian kroner and sterling (see chart 2:17). Henceforth, the concept of *significant currencies* is used for currencies that constitute more than five per cent of a bank's total liabilities. In the Basel Accord and the European Commission's Delegated Regulation 2015/61 on LCR, significant currencies are defined as exactly such currencies that constitute more than five per cent of a bank's total liabilities.³² It is important to remember that the proportion of funding in a specific currency can vary over time as can therefore the currencies that are classified as significant in accordance with the definition above. Swedish kronor, US dollars and euros are currently significant currencies for the four major banks in Sweden. In addition, sterling is a significant currency for Handelsbanken, Danish kroner for Nordea and SEB, and Norwegian kroner for Nordea (see Table 2:1).

The banks' liquidity risks differ depending on the currency

Knowing the extent of a bank's funding in different currencies is not sufficient to be able to judge the scope of the short-term liquidity risks. Information is also required as to the maturities of the bank's liabilities and assets and how liquid its assets are. The LCR is just one kind of measurement that can highlight the risks.

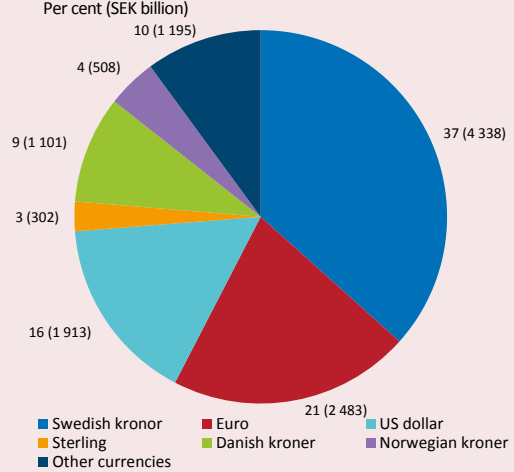
Table 2:1. Liabilities broken down by currency and bank

Per cent	SEK	EUR	USD	DKK	NOK	GBP
Nordea	17	35	18	18	7	0
SHB	48	15	21	2	4	9
SEB	45	26	17	7	2	2
Swedbank	64	18	14	0	1	2

Note. Data refers to December 2015. Figures in bold indicate currencies that constitute more than five per cent of each bank's total liabilities.

Sources: Banks' annual reports and the Riksbank

Diagram 2:17. The major Swedish banks' aggregate liabilities per currency as a percentage of total liabilities



Note. The major banks' (Nordea, Handelsbanken, SEB and Swedbank) total liabilities amounted to almost SEK 12,000 billion in December 2015, 6,700 billion of which consisted of short-term liabilities including deposits.

Sources: Bank reports and the Riksbank

It is evident from chart 2:18 that the banks have high LCRs in both US dollars and euros and for all currencies combined, but the ratio is under 100 per cent for other currencies and Swedish kronor.³³

The banks' high LCRs in euros and dollars emanate from their large liquidity reserves in these currencies compared with the stressed net cash outflows in these currencies (see chart 2:19). On the other hand, their reserves in Swedish kronor and other currencies are smaller than the stressed net cash outflows. A relatively large proportion of the reserves in these currencies is, however, made up of covered bonds (the red columns). These are normally liquid, but during a stress period, they have proven to be less liquid than government securities and central bank money. For example, a much greater price increase occurred in relation to turnover for covered bonds compared with government bonds when the

³² European Commission Delegated Regulation (EU) 2015/61 of 10 October 2014 to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for credit institutions.

³³ These other currencies are primarily Norwegian and Danish kroner as well as sterling.

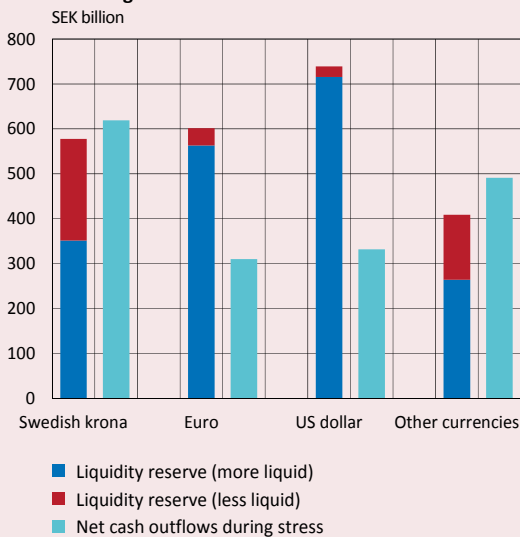
Chart 2:18. The major Swedish banks' LCR in different currencies



Note. Refers to a weighted average.

Source: Finansinspektionen

Chart 2:19. The major Swedish banks' net cash outflows during stress and their liquidity reserves in different currencies, according to LCR



Note. Refers to September 2016. The red columns refer to so-called level-2 assets that are considered less liquid than central bank money and government securities in the LCR. In practice, for Swedish banks, they primarily consist of covered bonds.

Sources: Finansinspektionen and the Riksbank

European sovereign debt crisis broke out in 2011.³⁴ Covered bonds should therefore not be considered liquid in all situations and for this and other reasons must not be fully included in the LCR.

As is also evident from chart 2:19, the total net cash outflows in the stressed LCR scenario correspond to about SEK 1,750 billion (the sum of the four turquoise columns)

³⁴ Market liquidity on the Swedish bond market and its importance for financial stability. Article in *Financial Stability Report 2016:1*. Sveriges Riksbank.

and the other currencies (mainly Danish kroner, Norwegian kroner and sterling) correspond to about a quarter of these, i.e. SEK 500 billion. The latter corresponds to about a tenth of Swedish GDP. Hence, the net cash outflows in the other currencies are significant.

The data in chart 2:19 are on the aggregate level, i.e. for all major banks, and for other currencies combined. These aggregated levels can therefore hide the fact that, for example individual banks may have very low LCRs in individual significant currencies. More detailed data from the banks, which has been analysed by the Riksbank, indicate risks in the form of mismatches in certain significant currencies for individual banks.

The banks manage some of their liquidity on the foreign exchange swap market

The banks normally satisfy their liquidity requirements in larger currencies on the money market.³⁵ As the Nordic countries do not have such well-developed money markets, Swedish banks normally use foreign exchange swaps to satisfy their liquidity requirements in the Nordic currencies. This means that Swedish banks, that holds assets in Nordic currencies, fund these in part by obtaining the desired currency by exchanging it for a currency of which they have a plentiful supply, e.g. US dollars. When the swap matures, i.e. when the exchange agreement expires, the Swedish bank gives back the Nordic currency and recuperates its dollars in accordance with the established agreement.

Swedish banks borrow primarily in dollars and then swap some of them for Nordic currencies. Some of their borrowing in dollars is also used to build liquidity reserves in dollars. Provided that the swap market is working efficiently, the banks can use these reserves during periods of stress to obtain Nordic currencies and cope with unexpected outflows in them.

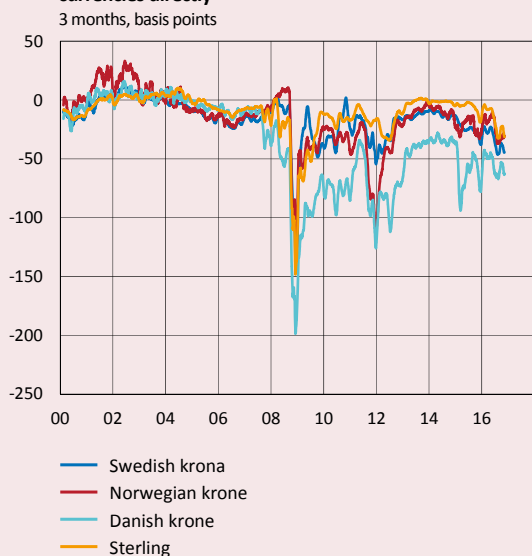
Since the financial crisis of 2008–2009, it has been cheaper for the banks to satisfy their liquidity requirements in Nordic currencies by first borrowing in dollars and then utilising the swap market rather than borrowing directly in Nordic currencies (see chart 2:20).

There are risks associated with relying on the foreign exchange swap market

There are risks associated with relying on the foreign exchange swap market for managing liquidity. A sudden shock can lead to the swap market functioning less efficiently than normal or even to a rise in prices. This happened, for example, in the autumn of 2010. This is when the extraordinary loan in Swedish kronor, issued to the banking system by the Riksbank, reached maturity.

³⁵ The money market is the market for loans that have a maturity of less than one year.

Chart 2:20. Additional cost of borrowing in USD and converting these to other currencies compared to borrowing in other currencies directly



Note. Additional cost of borrowing in USD and converting these to Norwegian, Danish and Swedish krona and sterling compared to borrowing in Norwegian, Danish and Swedish krona and sterling directly. A negative value means that it is cheaper to first borrow in dollars and convert to the other currency, compared with borrowing in the second currency directly. The series are based on 30-day averages.

Sources: Bloomberg and the Riksbank

The banks' large-scale demand for Swedish kronor caused the swap market to stop working for certain maturities and the price for obtaining Swedish kronor rose significantly.³⁶ Since the financial crisis, the foreign exchange swap market has also periodically become more volatile.

Furthermore, an individual bank may, for example, encounter problems if certain participants on the market think that an exposure to the bank involves too great a counterparty risk. In a very negative scenario, the bank might then be excluded from the market or not have the opportunity to perform transactions at their preferred maturities or at reasonable prices. This could occur if there was uncertainty surrounding the quality of an individual bank's assets. In such a case, an individual bank would encounter problems even if there was no market-wide stress.

The scenario of a bank being rapidly excluded from a market, which it normally considers is accessible and secure, became reality during the financial crisis in 2008 when Bear Sterns within a week was excluded from the repo market, from which it obtained much of its short-term funding.

The Nordic market is dominated by a small number of banking groups with cross-border operations, which poses a significant contagion risk. That is, liquidity problems in a Nordic bank can quickly spread to other banks as they are closely interconnected and have similar exposures. Liquidity problems can then be widespread and the need to swap dollars for other currencies can be considerable. Access to the swap market could then deteriorate for banks.

If the banks lost access to the foreign exchange swap market, they would be able to change dollars to the desired currency on the spot market.³⁷ However, this would expose them to a currency risk that they are not exposed to on the foreign exchange swap market.³⁸ An open currency position, i.e. funding in one currency for assets in another without hedging, can lead to major losses for banks in the event of large-scale exchange rate fluctuations. This can, in turn, have a negative effect on equity and in the long run on financial stability.

The risks posed by too much dependence on the foreign exchange swap market are also highlighted in the Basel Accord on LCR. The Accord states that banks and supervisory authorities are to be vigilant about liquidity risks in every significant currency. Neither are banks and supervisory authorities to rely on currencies being convertible in a stressed situation. The currency composition of the liquidity reserve must therefore match the bank's liquidity requirement in different currencies.

There is reason to implement further measures

FI already sets requirements for how banks are to manage their liquidity risks. For example, banks' internal liquidity ratios are to take different currencies into consideration. Banks shall also carry out regular stress tests that identify and measure liquidity risks in different scenarios. Finally, banks shall set internal limits to check their exposure and sensitivity to liquidity risk, both overall and in individual currencies. In addition, there are quantitative minimum LCR requirements in dollars, euros and all currencies combined. There is, however, a lack of transparent quantitative minimum requirements for other significant currencies which is one reason why the banks still hold relatively small reserves in other currencies than in dollars and euros. A relatively large proportion of the reserves in these other currencies is also less liquid. Net cash outflows in the other currencies are, however, large in a stressed LCR scenario. Confidential data indicates risks in the form of mismatches in certain significant currencies for individual banks. All in all, this suggests that the banks

³⁶ See Hilander, I. (2014), Short-term funding in foreign currency by major Swedish banks and their use of the short-term currency swap market, *Economic Review*, 2014:1. Sveriges Riksbank.

³⁷ On the spot market, payments are made immediately after the deal is concluded.

³⁸ In a foreign exchange swap, the exchange rate is determined at the commencement of the contract. The parties are not therefore exposed to currency risk.

have insufficient resilience to liquidity stress in significant currencies. This vulnerability can in the long run pose risks to financial stability and require the Riksbank to supply liquidity to the market. There is therefore reason to implement measures in order to strengthen the financial system's resilience in this regard. The Riksbank proposes two measures:

- Public reporting of LCRs in all significant currencies.
- Minimum LCR requirements in all significant currencies.

To begin with, it is important that there is transparency regarding the liquidity risks in all significant currencies. Several authorities, including the Riksbank, continuously monitor the banks' liquidity positions. Currently, the banks only publicly report LCRs for dollars, euros and all currencies combined. In other words, there is no public information as to the size of the liquidity risks taken by banks in other significant currencies. As there is only limited scope for assessing a bank's liquidity risks, investors may find it difficult to fully price the risk they take. It is therefore important for the major Swedish banks to report their LCRs in all significant currencies on a quarterly basis. This would make it easier for investors and other market participants to identify the liquidity risks to which Swedish banks are exposed in different currencies.

It is also of utmost importance for the banks themselves to insure against the short-term liquidity risks they take. To increase resilience in the financial system, setting minimum LCR requirements in all significant currencies is justified. If the banks hold liquidity buffers in all significant currencies, it reduces their dependence on the foreign exchange swap market and mitigates the contagion risk should a certain bank encounter liquidity problems. The LCR in all significant currencies is an important complement to FI's supervision in order to ensure that there are liquidity buffers of a reasonable size in these currencies. LCR requirements in all significant currencies will also help to give banks and authorities more time to make better decisions in times of stress.

LCR requirements should be on a level where banks do not have to rely too heavily on the foreign exchange swap market in the event of stress.

The LCR refers to the management of a specific and limited scenario where there is a liquidity constraint. LCR is not intended to cover all risks and if the stress were to become more extensive, for example as a result of much more substantial bank runs than assumed by the LCR scenario, it is not certain that banks' liquidity buffers would even last as long as 30 days. In such situations, the Riksbank has the option, if deemed justified, to provide

liquidity in foreign currency. But limitations are set by the size of the foreign currency reserve. There may also be a need, therefore, to review the Riksbank's capacity to provide liquidity support. The possibility of supplying liquidity in Swedish kronor is basically unlimited. But this does not mean that banks can dispense with self-insurance in Swedish kronor. It is reasonable for banks themselves to be able to cope with the risks inherent in its operations. The need for liquidity support from the Riksbank diminishes the more self-insurance the banks have.

CHAPTER 3 – Recommendations

There are structural vulnerabilities in the Swedish banking system that make it sensitive to shocks. Resilience must therefore be strengthened as regards both the banks' capital levels and their ability to manage liquidity risks. The latter concerns both the banks' short term liquidity risks in significant currencies and their structural liquidity risks. At the same time, additional measures in various policy areas are urgently required to reduce the risks of high and rising household indebtedness, which can threaten both financial and macroeconomic stability. It is of utmost importance to achieve a better balance between supply and demand on the housing market. A holistic approach is needed as regards tax rules for homeowners. Macroprudential policy measures that limit the risks of household indebtedness are also needed. FI's assignment and goals for macroprudential policy, and the process for allocating tools to FI, should also be clarified and set out in more detail in law.

Measures are required to strengthen resilience in Swedish banks and reduce the risks linked to household indebtedness

The Riksbank has for a long time recommended measures to reduce the risks of household indebtedness. These recommendations remain (see table 3:1 and "Recommended measures").³⁹ The recommendations are particularly important in the current low interest rate environment that is contributing to rising housing prices and increasingly high household indebtedness. In addition, the Riksbank still considers it to be of the utmost importance that FI's mandate and tools for macroprudential policy to be clarified. The political agreement reached in October 2016 regarding an extended mandate for macroprudential policy for FI will speed up the processes for the allocation of new tools to FI. But it will also mean that FI will not have a mandate to independently decide on the application of these tools.⁴⁰

For a long time, the Riksbank has also recommended specific measures to reduce the structural vulnerabilities and increase resilience in the Swedish banking system (see table 3:1). In this report, the Riksbank has chosen to deepen its analysis of the Swedish banks' capital levels and liquidity risks (see the article "Short-term liquidity risks in significant currencies"). The Riksbank has also analysed the banks' structural liquidity risks.⁴¹ These analyses have led the Riksbank to update the recommendations linked to the banks to some extent.

As before, the Riksbank considers it a matter of urgency for FI to ensure that the major banks have a sufficient amount

³⁹ For fulfilled recommendations, see Table 3:2 in the Annex.

⁴⁰ Broad political agreement on an extended mandate for Finansinspektionen, *press release*, 26 October 2016. Swedish Government.

⁴¹ The major Swedish banks' structural liquidity risks, *Riksbank Studies*, November 2016. Sveriges Riksbank.

of capital. It is positive therefore that FI has decided to tighten the requirement for the countercyclical capital buffer and has adopted measures that increase the capital requirement for Swedish banks that use internal models to calculate their risk-weighted assets for exposures to companies.⁴² In addition, there are plans on the international level for supplementary regulations that, in some cases, can impose additional capital requirements on some banks in the future. The extent to which these will increase Swedish banks' resilience is, however, uncertain. In addition to measures aimed at increasing capital requirements, action has also been taken to protect taxpayers from the costs of bank crises.⁴³

It is the Riksbank's opinion, however, that resilience in the Swedish banking system needs to be further strengthened. This is because the banking system is large, interconnected and has a high proportion of wholesale funding combined with a low proportion of capital in relation to its assets. There is a strong link between the banking system and the Swedish housing market, as the major banks have a large and rising proportion of mortgages on their balance sheets. These structural vulnerabilities make the banking system sensitive to shocks linked to e.g. household indebtedness.

Banks' short-term liquidity risks in different currencies should be managed via greater transparency and the introduction of Liquidity Coverage Ratio (LCR) requirements

During the autumn, the Riksbank has made an in-depth analysis of the banks' short-term liquidity risks in different currencies. In the Basel Accord and the European Commission's Delegated Regulation 2015/61 on LCR, significant currencies are defined as such currencies that constitute more than five per cent of a bank's total liabilities.⁴⁴ Along with Swedish kronor, US dollars and euros, which are significant currencies for all Swedish banks, sterling and some of the Nordic currencies are also significant for the banks, albeit to a varying extent.

Confidential data indicate the presence of risks in the form of liquidity mismatches in certain significant currencies for individual banks. The analysis also shows that the Swedish banks choose to maintain relatively large buffers in euros and dollars in relation to the stressed net cash outflows in these currencies. The size of the buffers in other currencies, especially Danish and Norwegian kroner and sterling, is smaller, however, compared with the stressed net cash outflows. Furthermore, a relatively large proportion of the reserves in these currencies is held in less liquid assets, such as covered bonds. As covered bonds are not considered to be liquid in all situations, these are not fully included in the LCR.

Table 3.1. The Riksbank's current recommendations

	Introduced in the report
The mandate for macroprudential policy	
The Government and the Riksdag should promptly clarify FI's mandate and instruments for macroprudential policy.	2015:1
Household indebtedness	
The Government and responsible authorities should take further measures as soon as possible to reduce the risks in the household sector. These measures should affect both the existing loan stock and new loans. Examples of measures are a reduction in the tax relief on interest expenditure, a debt-to-income limit and the introduction of sound minimum levels for the standard values that banks use in their discretionary income calculations. It is also necessary to take measures that will improve the functioning of the housing market.	2015:2 and 2014:1
Banks' capital levels	
Finansinspektionen should introduce as soon as possible a leverage ratio requirement for the major Swedish banks at the group level of 4 per cent. The requirement should be set at 5 per cent from January 2018.	2014:2
Finansinspektionen should set the countercyclical capital buffer value at 2.5 per cent with the aim of increasing banks' resilience.	2014:1
The major Swedish banks' liquidity risks	
Finansinspektionen should set Liquidity Coverage Ratio (LCR) requirements in Swedish kronor for the major Swedish banks. The requirement should be set to at least 60 per cent.	2014:1
Finansinspektionen should set Liquidity Coverage Ratio (LCR) requirements in all significant currencies for the major Swedish banks.	2016:2
The major Swedish banks should continue to reduce their structural liquidity risks and achieve a Net Stable Funding Ratio (NSFR) of at least 100 per cent.	2011:2 2016:2 rev
The major Swedish banks should report their Liquidity Coverage Ratios (LCR) in Swedish kronor and other significant currencies at least once a quarter.	2013:2 2016:2 rev
The major Swedish banks should report their Net Stable Funding Ratios (NSFR) at least once a quarter.	2013:1

Note. The recommendation on introducing sound minimum levels for the standard values that banks use in their discretionary income calculations was introduced in Financial Stability Report 2014:1. Sveriges Riksbank.

⁴² See Finansinspektionen Registration Number 16-742 (2016), and Finansinspektionen Registration Number 15-13020 (2016).

⁴³ The Resolution Act (2015:1016).

⁴⁴ European Commission Delegated Regulation (EU) 2015/61 of 10 October 2014 to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for credit institutions.

All in all, this means that the LCR levels for other currencies are less than 100 per cent. This reflects that the banks are more vulnerable to liquidity stress in these currencies.

The Swedish banks' liquidity requirements in some of the Nordic currencies and in sterling are satisfied on the foreign exchange swap market, where these currencies are exchanged for the desired currency. The banks' are therefore dependent on the efficient functioning of this market. Situations may, however, arise when the foreign exchange swap market functions less efficiently than normal, or when the market is not accessible for a certain bank.

Weak resilience to liquidity stress in significant currencies can pose risks to financial stability in the long run. It is important for the banks to insure themselves against the short-term liquidity risks they take, i.e. they must themselves be able to manage their liquidity risks in all significant currencies. The Riksbank therefore considers that FI should set LCR requirements for the major Swedish banks in all significant currencies. The Riksbank also considers that the major Swedish banks should report their LCRs in all significant currencies at least once a quarter.⁴⁵ There may also be a need, therefore, to strengthen the Riksbank's capacity to provide liquidity support.

The banks should continue to reduce their structural liquidity risks

The Riksbank has also analysed the banks' structural liquidity risks.⁴⁶ As is clear from chart 3:4, the major Swedish banks by and large fulfil the 100 per cent Net Stable Funding Ratio (NSFR) requirement, although the Riksbank's analysis shows that Swedish banks have significant structural liquidity risks.⁴⁷ This is partly due to the composition of the banks' assets and liabilities. On the asset side, the Swedish banks have a large proportion of mortgages with long maturities, while on the liabilities side, they have relatively short-term wholesale funding. A large proportion of the Swedish banks' funding have a maturity of just over one year. This is not taken into account in the NSFR, which considers all funding over one year to be completely stable. These structural liquidity risks are therefore not adequately captured by the NSFR measure. The Riksbank is therefore of the opinion that the major Swedish banks should continue to reduce their structural liquidity risks and achieve an NSFR of at least 100 per cent.

As regards banks' liquidity risks – both short-term and structural – it is important to remember that there were no international requirements at all prior to the financial crisis of 2008. The international LCR and NSFR requirements

Which regulatory frameworks are applicable as regards LCR requirements?

In accordance with FI regulation 2012:6, Swedish banks' LCRs shall amount to at least 100 per cent in US dollars, euros and all currencies combined. In parallel, there are LCR requirements in the European Commission's Delegated Regulation 2015/61, which is being phased in gradually. The requirement in it shall, however, be applied in full from the beginning of 2018. According to the delegated regulation, banks' LCRs shall amount to at least 100 per cent in all currencies combined. It follows from this that any LCRs in individual currencies must be introduced as so-called Pillar 2 requirements, i.e. as part of FI's supervisory review. FI's regulations will cease to apply as from 2018.

⁴⁵ For a brief overview of the regulatory frameworks that apply to LCR, see the fact box on this page.

⁴⁶ See The major Swedish banks' structural liquidity risks, *Riksbank Studies*, November 2016. Sveriges Riksbank.

⁴⁷ The NSFR is an internationally agreed measurement that sets a minimum level for the liquidity risk that can be accepted for global banks. NSFR is not yet required by law in the EU.

developed since then, or currently being developed, are a step in the right direction. But as these ratios do not capture all risks, banks' liquidity risks require additional management, not least on account of the structural vulnerabilities present in the Swedish banking system.

RECOMMENDED MEASURES

Recommendation regarding the mandate for macroprudential policy

The Government and Riksdag should clarify Finansinspektionen's mandate and tools for macroprudential policy without delay.

In Sweden, the Government has given FI the main responsibility for macroprudential policy.⁴⁸ It has become evident, however, that the regulations do not give FI a sufficiently clear assignment and mandate to take measures to counteract financial imbalances. This is delaying and obstructing the introduction of necessary measures that, for instance, mitigate the risks posed by household indebtedness.

The Riksbank considers that the flaws in the Swedish framework for macroprudential policy give reason to investigate this framework once again. At the same time, there is an urgent need to reduce the risks of Swedish households' indebtedness. It is therefore of the utmost importance that FI's assignment and goals for macroprudential policy and the process of allocating tools to FI be clarified and set out in law as soon as possible. The IMF also recommends that FI's mandate for macroprudential policy be clarified in law and that FI be given the tools to effectively manage systemic risks (see the article "The IMF assessment of the Swedish financial sector" and the factbox on page 29).

The Riksbank considers it should be clear that FI has the mandate to take measures to counteract financial imbalances regardless of whether these threaten financial stability or macroeconomic developments. The Riksbank further considers that FI should be able to make independent decisions on the macroprudential policy tools for which it has been given responsibility. Of course, a balance between independence and democratic control needs to be attained in macroprudential policy. However, the Riksbank considers that an appropriate way of attaining a balance is for the political sphere to determine which tools should be delegated, while the responsible authority should then independently decide on the application of these tools. Such a system would make the allocation of responsibility clear and is also in line with the ESRB's recommendation that the macroprudential policy authority should be operationally independent.⁴⁹ The

involvement of political bodies in decisions poses a risk for "inaction bias", i.e. measures that provide positive effects in the long run risk not being implemented due to the costs involved in implementing them in the short term.

The Government announced in October 2016 that a broad political agreement had been reached on an extended mandate for macroprudential policy for FI.⁵⁰ The agreement will clarify and shorten the process when macroprudential policy measures are to be implemented. Furthermore, FI will be given a formal mandate to draft proposals for measures which will then have to be approved by the Government. There is still no information as to when FI's extended mandate for macroprudential policy will start to apply. The first step is to draft a legislative proposal. The Riksbank considers it positive that the mandate is to be set out in law and that quicker processes are to be introduced for the allocation of new tools to FI. However, the Riksbank considers it unfortunate if FI is not given a mandate to independently decide on the application of these tools.

Recommendation on measures to reduce risks linked to household indebtedness

The Government and responsible authorities should take further measures as soon as possible to reduce the risks in the household sector. These measures should affect both the existing loan stock and new loans. Examples of measures are a reduction in the tax relief on interest expenditure, a debt-to-income limit and the introduction of sound minimum levels for the standard values that banks use in their discretionary income calculations. It is also necessary to take measures that will improve the functioning of the housing market.

As before, the Riksbank believes that the high and increasing indebtedness poses risks to both individual households and the economy as a whole. The measures that FI has taken so far are steps in the right direction, but are not deemed sufficient.⁵¹ If no further measures are taken, the risks linked to household indebtedness are expected to continue to increase. As before, the Riksbank's overall assessment is that the implementation

⁴⁸ See, for example, *Finansinspektionen's instruction* (SFS 2013:1111) (in Swedish only) and DN Debatt *Tuffare regler för bankerna krävs för finansiell stabilitet [Tougher rules for banks required for financial stability]* (in Swedish only), Dagens Nyheter, 26 August 2013. Dagens Nyheter.

⁴⁹ Recommendation of the European Systemic Risk Board (ESRB) of 22 December 2011 on the macroprudential mandate of national authorities (ESRB/2011/3). December 2011. European Systemic Risk Board.

⁵⁰ Broad political agreement on an extended mandate for Finansinspektionen, *press release*, 26 October 2016. Swedish Government.

⁵¹ See the ESRB's compilation of all EU Member States' national macroprudential policy measures https://www.esrb.europa.eu/national_policy/html/index.en.html Click on Overview of measures.

of measures to reduce the risks linked to household debt is of the utmost importance as these risks can result in large-scale costs for the economy should they materialise. The Riksbank's assessment is that a combination of different measures— in several different policy areas – is required to reduce the risks in an appropriate manner.⁵²

Above all, the reasons why indebtedness is rising need to be tackled. The poor functioning of the housing market is one important reason (see Chapter 2). Reforms are therefore needed on the housing market to create a better balance between supply and demand. Even if housing construction has recently shown a significant increase (see chart 3:1), the housing shortage is expected to persist and increase in many regions.^{53,54} Furthermore, the rent-setting system creates lock-in effects that make it particularly difficult for young people and those who are not yet established to find a home. Lock-in effects are also created by the current rules for the taxation of capital gains on property sales as they discourage households from moving house. It is thus very important that concrete measures be introduced, so that housing construction can increase and the existing housing stock can be used more efficiently.⁵⁵

With regard to tax regulations for home-owners, these could be designed in different ways, either by regular taxation of the actual home or by taxing their purchase and sale. In order to dampen the development of housing prices and household debt, a holistic approach needs to be taken and a review is needed of capital gains taxation when homes are sold, of property taxation and of the current tax relief on interest expenditure. The total taxation does not need to decrease, however, it should instead be redistributed to subdue the trend.

Another possible measure is the introduction of a debt-to-income limit that restricts how much a household may borrow in relation to its income – something which the IMF recommended FI to do (see the article “The IMF assessment of the Swedish financial sector” and fact box on this page).⁵⁶

FI could also reduce the loan-to-value limit, limiting the percentage of loans at variable interest rates and set requirements for banks' standard values so that households have larger financial buffers when being granted mortgages. Banks are already obliged to carry out credit assessments to ensure borrowers can fulfil their commitments. As part of these assessments, banks make

Effects of a debt-to-income limit

A debt-to-income limit could be an effective measure in reducing the risks of household borrowing and limit their indebtedness. Moreover, it could be a good complement to the loan-to-value limit and the amortisation requirement. Several banks already apply loan limits, such as debt-to-income limits, to some extent as part of their credit assessments, but this is not the same as a requirement. International analyses have also shown that a debt-to-income limit is an effective macroprudential policy tool. The Riksbank's analysis shows that a debt-to-income limit of 400 per cent and 600 per cent of disposable income respectively would mean that 45 and 17 per cent of all new mortgage borrowers respectively would not be able to borrow as much as they do now.⁵⁷ Even if a debt-to-income limit is made non-binding (so that no or only a few households are affected), it would prevent debts in relation to income from continuing to grow unchecked.

One advantage of a debt-to-income limit is that the effect is concentrated to households with large loans in relation to their incomes. According to the calculations, a debt-to-income limit of 600 per cent for new mortgages would mean that the affected households borrow on average 20 per cent less. A stricter debt-to-income limit of 400 per cent would mean that the households affected need to reduce their debts by an average of 28 per cent. The analysis also shows that the effects of the debt-to-income limit vary for individual households, depending on income, age group and region, and depending on which bank the household uses. In the longer run, the effects on the macroeconomy are assessed as limited.

FI has studied various designs of a debt-to-income limit and finds, for example, that a limit of 600 per cent, with the exception of 15 per cent of the loan, would reduce total household debt for the next ten years by about 5 per cent, while GDP would slow by about 0.5 per cent after three years and about 1 per cent after ten years. The more households that are restricted by the debt-to-income limit, the more both debt and GDP will be subdued.⁵⁸ But, on the plus side, the more the risks associated with household indebtedness will also decrease in the long run.

discretionary income calculations. Stipulating sound minimum levels for the standard values in the discretionary income calculations could ensure that all borrowers will at least be expected to cope with certain levels of lending rates, amortisation rates and living costs, regardless of which bank approves the loan.

Another option is to increase the risk-weight floor for mortgages. A risk-weight floor of, for example, 35 per cent would increase the requirement for the major banks'

⁵² For a description of how individual measures or different packages of measures affect households' aggregate debt-to-income ratio, see the *Financial Stability Report 2015:2*, Sveriges Riksbank.

⁵³ *Konjunkturläget (The Swedish Economy)*, March 2016. National Institute of Economic Research.

⁵⁴ *Monetary Policy Report*, February 2016. Sveriges Riksbank.

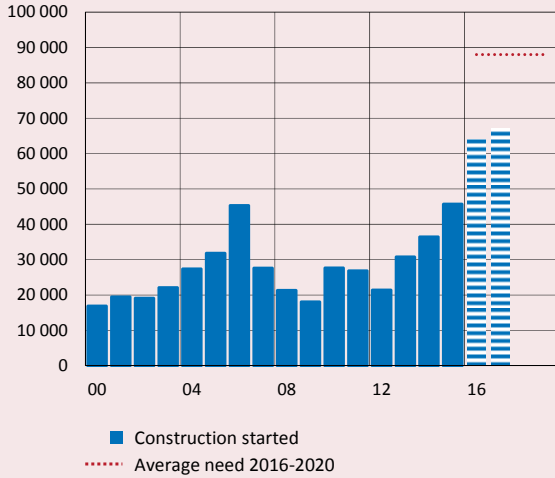
⁵⁵ On 21 June 2016, the Government put forward 22 proposals aimed at increasing housing construction. See the memorandum Summary of the Government's proposals, *Memorandum*, June 2016. Swedish Government Offices.

⁵⁶ *Sweden: Financial Sector Stability Assessment 2016*, November 2016. International Monetary Fund (IMF).

⁵⁷ *Financial Stability Report 2015:1*. Sveriges Riksbank.

⁵⁸ Macroprudential effects of a debt-to-income limit, *FI Analysis* No. 5, May 2016. Finansinspektionen.

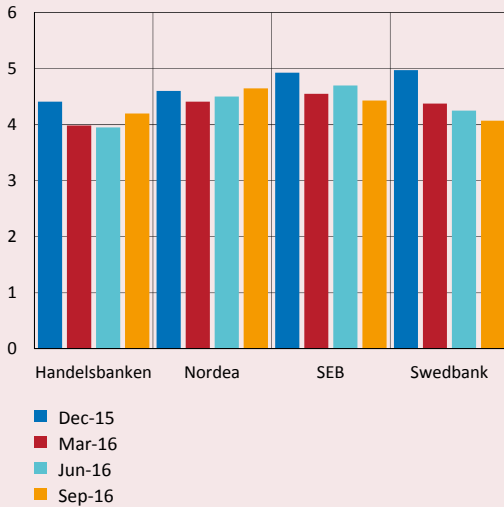
Chart 3:1. Housing construction in Sweden
Number of homes



Note. Outcome from Statistics Sweden. Forecast (blue dashed bar) for 2016 and 2017 is from the publication "Boverkets indikatorer [National Board of Housing, Building and Planning's indicators], November 2016. The red line refers to the National Board of Housing, Building and Planning's forecast in July 2016 for the average construction need in 2016-2020.

Sources: National Board of Housing Building and Planning and Statistics Sweden

Chart 3:2. Reported leverage ratios
Per cent



Note. According to the EU's capital requirements regulation (CRR).
Source: Bank reports

CET 1 capital for mortgages to the level that applied prior to 2007. This would also correspond to what already applies for banks that use the so-called standard method to calculate risk weights for mortgages.

Recommendations regarding banks' capital levels

Finansinspektionen should introduce, as soon as possible, a leverage ratio requirement for the major Swedish banks at the group level of 4 per cent. The requirement should be set at 5 per cent from January 2018.

There are a number of risks and vulnerabilities in the Swedish banking system that make it sensitive to shocks. To ensure resilience is high, it is therefore important that banks hold a sufficient amount of capital. The major Swedish banks' risk-weighted capital requirements have been increased in recent years and are currently higher than the international minimum requirements. However, there are flaws in the risk-weighted capital requirements, which in some cases can mean that banks underestimate their risks and therefore hold too little capital. The Riksbank considers it important, therefore, that a non-risk-weighted capital requirement, in the form of a leverage ratio requirement, be introduced as soon as possible for the major Swedish banks as a complement to the risk-weighted capital requirements. A leverage ratio requirement can be used to ensure that banks hold a certain volume of capital in relation to their total assets. The Basel Committee intends to introduce an international minimum leverage ratio requirement of at least 3 per cent with effect from 2018.^{59,60} However, several countries with large and interlinked banking systems have decided to introduce a leverage ratio requirement higher than this, for instance, Norway, Switzerland, the United Kingdom and the United States. Given the size and the vulnerabilities of the Swedish banking sector, the Riksbank believes that Sweden should also have a minimum leverage ratio requirement higher than the coming international minimum. The Riksbank considers that the requirement should be set at 4 per cent as soon as possible, rising to 5 per cent from 2018.⁶¹ The requirement could take the form of a minimum requirement of 3 per cent with an additional buffer requirement.⁶²

In September 2016, the major Swedish banks' leverage ratios were between 4.1 and 4.6 per cent (see chart 3:2).

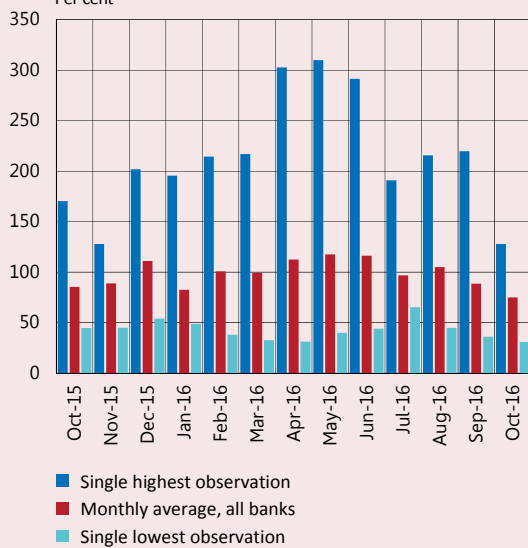
⁵⁹ Revised market risk framework and work programme for the Basel Committee is endorsed by its governing body, *press release*, January 2016. Bank for International Settlements.

⁶⁰ In addition to such a minimum requirement, there are further requirements for global systemically important banks (G-SIBs).

⁶¹ According to the Basel Committee's definition.

⁶² *Financial Stability Report 2014:2*. Sveriges Riksbank.

Chart 3:3. The major Swedish banks' daily LCR in Swedish kronor
Per cent



Note. Average daily LCR in Swedish kronor per month, and the single highest and lowest observations each month.

Source: The Riksbank

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

The countercyclical capital buffer aims to strengthen the resilience of Swedish banks when systemic risks accumulate, that is, before they actually materialise. The countercyclical capital buffer in Sweden is 1.5 per cent as of 27 June 2016. FI has decided that the buffer shall be set at 2 per cent from 19 March 2017. The Riksbank considers the gradual upward adjustment in the buffer value to be important in order to strengthen the banks' resilience. However, the Riksbank's assessment is that the countercyclical capital buffer should be set slightly higher, at 2.5 per cent, as a result of the systemic risks that have built up over several years.^{63, 64}

Recommendations regarding the major banks' liquidity risks

Finansinspektionen should set Liquidity Coverage Ratio (LCR) requirements in Swedish kronor for the major

banks. The requirement should be set to at least 60 per cent.

The major Swedish banks have periodically had relatively small liquidity buffers in Swedish kronor in recent years (see chart 3:3). The LCRs in Swedish kronor of certain banks are at times far below 60 per cent. For example, one of the banks' LCRs was 30 per cent on one particular day in October 2016, which indicates that the bank's buffers are too small to meet unexpected cash outflows. To ensure that the banks' liquidity in Swedish kronor does not fall too low, FI should set LCR requirements in Swedish kronor.⁶⁵ The requirement should be set to at least 60 per cent. There are currently LCR requirements in US dollars and euros.

Finansinspektionen should set Liquidity Coverage Ratio (LCR) requirements in all significant currencies.

According to the Basel Accord and the European Commission's Delegated Regulation 2015/61 on LCR, a currency that constitutes more than five per cent of a bank's total funding is considered to be a significant currency for that particular bank. The Basel Accord states that short-term liquidity risks in significant currencies should be monitored.

Along with Swedish kronor, US dollars and euros, which are significant currencies for all the major Swedish banks, sterling and some of the Nordic currencies are also significant for the banks, albeit to a varying extent.⁶⁶ Confidential data indicates risks in the form of mismatches in certain significant currencies for individual banks. Low resilience to liquidity stress may in the long run threaten financial stability or require the Riksbank to strengthen its capacity to provide liquidity support. It is of utmost importance for the banks to insure themselves against their short-term liquidity risks. The Riksbank recommends that FI sets LCR requirements in all significant currencies to ensure that the banks' liquidity in these currencies does not fall too low. Holding liquidity buffers in all significant currencies reduces their dependence on the foreign exchange swap market and also limits the risk of contagion should one bank encounter liquidity problems.

The major Swedish banks should report their LCRs in Swedish kronor and other significant currencies at least once a quarter.

The major Swedish banks already report LCRs for all currencies combined and separately in euros and US

⁶³ According to the Capital Adequacy Directive, FI may set a buffer value that is higher than 2.5 per cent if this is justified, but a buffer of more than 2.5 per cent will not apply to foreign companies' branches in Sweden without the prior approval of the authorities in the company's home country.

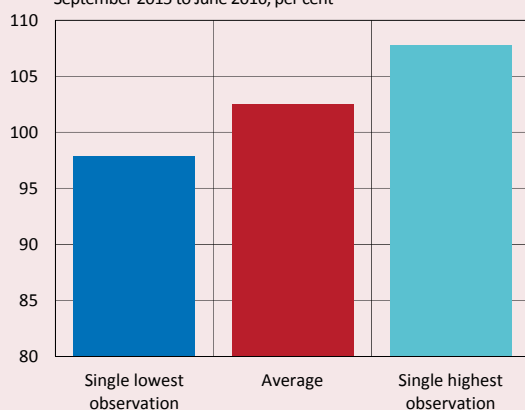
⁶⁴ According to calculations by FI, an increase in the countercyclical capital buffer by 0.5 percentage points would increase the major Swedish banks capital requirement by SEK 7.5 billion. See Finansinspektionen Registration Number 16-742 (2016).

⁶⁵ The Basel Accord states that a bank shall have liquid assets that can meet the outflows in all significant currencies in which outflows can arise.

⁶⁶ The Riksbank's calculations of which currencies constitute more than five per cent of a bank's total liabilities, and are therefore significant currencies, are based on the reporting date for this stability report, which is 31 December 2015.

Chart 3:4. The major Swedish banks' lowest, average and highest monthly NSFRs

September 2015 to June 2016, per cent



Note. Every month the Riksbank collects the major banks' NSFRs in accordance with the Basel Committee's final definition. The chart shows the average and the single highest and lowest observations for the four major banks during the period.

Source: The Riksbank

dollars, but not in other significant currencies. As this limits the possibility of assessing the banks' liquidity risks, investors may find it difficult to price the risk they take in full. It is therefore important for the major Swedish banks to report their LCRs in all significant currencies on a quarterly basis. By supplementing the present reporting with a separate report of LCRs in Swedish kronor and other significant currencies, the banks would provide a better picture of their liquidity risks in different currencies. At present, only Swedbank reports its LCR in Swedish kronor every quarter. No bank reports LCRs in all its significant currencies.

However, quarterly reporting, as done by Swedbank, disregards variations in LCR within the quarter as it only states the value on the final day of the quarter. If the banks' reporting is designed in this way, the reported value may overestimate their capacity to manage short-term liquidity stress. To ensure that the reporting provides a more truthful picture of the liquidity risks, it is therefore important to see how the LCR has developed over the course of the period in question.

The major Swedish banks should continue to reduce their structural liquidity risks and achieve a Net Stable Funding Ratio (NSFR) of at least 100 per cent.

The NSFR is an internationally agreed measurement that establishes what level of liquidity risk can be accepted for global banks. According to the Basel Committee's timetable, the banks will have to meet a minimum NSFR level of 100 per cent from 2018. However, it would be reasonable that banks with a large share of wholesale

funding already should fulfil this requirement. During the period January–September 2016, the four major Swedish banks had, on average, an NSFR of just over 100 per cent, but the lowest values for single banks observed during the same period indicate levels of less than 100 per cent (see chart 3:4).

At the same time, the NSFR does not fully reflect the banks' structural liquidity risks. The measurement makes no distinction between maturities that are just over one year and those that are, for example, five years, despite there being less of a liquidity risk associated with the latter. Thus, this means that banks can fulfil the requirement while still taking relatively substantial structural liquidity risks. In contrast to the NSFR, if one takes into account the maturity structure of a bank's funding after one year, it is clear that the major Swedish banks take considerable structural liquidity risks in a European perspective.⁶⁷ Hence, there is a reason for the major Swedish banks to continue to reduce their structural liquidity risks, for example by obtaining funding with longer maturities.

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

At present, Swedbank reports NSFR in its public income statements. In September 2016, Swedbank reported an NSFR of 104 per cent. It would be desirable for the other major banks to also increase transparency regarding their structural liquidity risks by reporting their NSFR. The Riksbank also calls on the major banks to report the structural risks they take at maturities that are longer than one year; i.e. those risks that are not captured by the NSFR. This would increase understanding, among investors and other market participants, of the structural liquidity risks to which the banks are exposed.

⁶⁷ The major Swedish banks' structural liquidity risks, *Riksbank Studies*, November 2016. Sveriges Riksbank.

ARTICLE – The IMF assessment of the Swedish financial sector

In 2016, the International Monetary Fund (IMF) conducted a special assessment of the Swedish financial sector, a so-called Financial Sector Assessment Program (FSAP). The assessment involved the IMF analysing the financial sector, authorities, legislation and supervision. The IMF's report also takes up the deficiencies and risks discovered and proposes measures to deal with them. This article presents the IMF's risk assessment and the most important recommendations under the framework of the 2016 FSAP for Sweden.

Assessment of countries' financial sectors under the framework of the FSAP

Since 1999, the International Monetary Fund (IMF) has conducted assessments of its member countries' financial sectors under the framework of the Financial Sector Assessment Program (FSAP). The aim of these analyses is to evaluate the compliance of the countries' financial systems with international standards within various areas, for example banking supervision and financial infrastructure, and to capture risks to financial stability. The assessment involves the IMF analysing the financial sector, authorities, legislation and supervision. The results of the assessment are presented in a report⁶⁸ in which the IMF also takes up the deficiencies and risks discovered and proposes measures to deal with them. Sweden has been evaluated three times under the FSAP framework. The first time was in 2001 and second time in 2011. The assessments are now conducted every fifth year.

The most important recommendations aimed at Sweden in FSAP 2016

In this year's FSAP, the IMF notes that several of the recommendations presented in the previous assessment in 2011 have been implemented, such as the introduction of the Financial Stability Council and an increase in resources for FI. At the same time, the IMF notes that the risks to financial stability have increased since 2011 against the background of rising housing prices and increased indebtedness among Swedish households. Even if the macroprudential policy measures carried out since 2011 – for example, the amortisation requirement – are a step in the right direction, further measures need to be implemented. Among such further measures, the IMF mentions a debt-to-income limit and measures to reduce incentives to borrow, such as the abolition of tax relief on interest expenditure. In addition, measures in the longer

term are needed to reduce obstacles to new construction and thereby ensure that the supply of housing can increase.

To reduce the banks' structural vulnerabilities, the IMF also recommends that a leverage ratio requirement be introduced at an early stage. To improve the supervision of the banks' liquidity risks, the IMF recommends that FI should also start to monitor the banks' liquidity coverage ratios (LCRs) in dollars and euros three months ahead, in addition to the current 30-day LCR.

The IMF emphasises the need to strengthen the framework for financial stability in Sweden. FI's mandate for macroprudential policy needs to be strengthened. The Riksbank's role within the area of financial stability needs to be clarified. The IMF also recommends that the Stability Council's role be strengthened by giving the Council the possibility of issuing recommendations. The Riksbank should be given clear responsibility for the analysis of systemic risks made under the framework of the Stability Council's work. The IMF also thinks that the Riksbank should consider extending its current range of central bank services to financial market infrastructures (FMIs), especially central counterparties' access to deposits and lending overnight. Furthermore, the IMF recommends that FI's resources should be expanded further, not least against the background of increased supervisory requirements following Nordea's planned reorganisation from subsidiary structure to branch structure in the Nordic countries. The recommendation to expand FI's resources for supervision has been a recurring theme in all three FSAPs for Sweden.

The Riksbank welcomes the IMF's recommendations

The Riksbank welcomes the IMF's assessment of the Swedish financial sector and, on the whole, shares the IMF's risk assessment and the recommendations put

⁶⁸ Sweden: Financial Sector Stability Assessment 2016, November 2016. International Monetary Fund (IMF).

forward in the FSAP. Several of the recommendations have also been included in the Riksbank's earlier Financial Stability Reports, such as the debt-to-income limit and the leverage ratio requirement. It is particularly urgent to further strengthen FI's mandate for macroprudential policy and to increase the resources used for supervision. It is also important to clarify the Riksbank's role in financial stability so as to strengthen Sweden's framework in this area. It is important that the Government and the relevant authorities follow up the IMF's recommendations at an early stage.

ANNEX

Table 3:2. Recommendations that have been fulfilled

Recommendations	Introduced in the report	Fulfilled in the report
The government and the Riksdag should urgently work to make it possible to introduce an amortisation requirement for new mortgages.	2015:1	2016:1
The major Swedish banks should report their leverage ratios at least once a quarter.	2013:2	2015:1
The risk weight floor for Swedish mortgages should be raised.	2013:2	2014:2
The major Swedish banks should ensure that they have a CET 1 capital ratio of at least 12 per cent on 1 January 2015.	2012:1	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 banks to conduct transactions at their stated bids on request.	2012:2	2013:2
The major Swedish banks should improve the transparency of their public reporting as regards information on asset encumbrance.	2012:2	2013:1
The major Swedish banks should report comparable key ratios in the form of the subcomponents of the Liquidity Coverage Ratio (LCR).	2011:2	2013:1
The major Swedish banks' Liquidity Coverage Ratios (LCR) should amount to at least 100 per cent.	2011:2	2012:2
The major Swedish banks' Liquidity Coverage Ratios (LCR) should amount to at least 100 per cent in euro and US dollars respectively.	2011:2	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.	2011:1	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.	2011:1	2012:2

GLOSSARY

Basel III: International regulatory framework for banks' capital adequacy and liquidity. Basel III will be progressively phased in by 2019.

CET1 capital ratio: Core Tier 1 capital in relation to risk-weighted assets.

Common Equity Tier 1 (CET 1): 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).

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.

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.

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

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

Debt-to-income ratio: Total household debt in relation to disposable income.

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

Equity: Item in a company's balance sheet showing the difference between assets and liabilities, including, for example, capital provided by owners, retained profits and reserves.

Income return: A property's rental income minus operating and maintenance costs.

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 in relation to disposable income.

Leverage ratio: A measure that specifies the bank's capital in relation to its total assets and off-balance-sheet commitments. The measure is used as a complement to the risk-based capital adequacy requirements.

LCR, Liquidity Coverage Ratio or liquidity 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 reserve is adequate to enable the bank to manage an unexpected liquidity outflow for 30 days.

Loan-to-value ratio: A borrower's debt in relation to the market value of the collateral for the loan. For a household with a loan where the home is pledged as collateral the loan-to-value ratio corresponds to the debt divided by the market value of the home.

Loan-to-value limit: A measure which limits how large a borrower's mortgage is permitted to be in relation to the value of the home.

Liquidity: Measure of the ability of a company or organisation to meet its payment obligations in the short term.

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.

Market liquidity: Market liquidity refers to the ability to rapidly buy or sell significant volumes of a financial instrument at a low transaction cost and with limited market price impact.

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

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

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

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

Solvency: Financial measure of a company's ability to fulfil its commitments. Also a measure of an insurance company's financial position that measures how large the companies' assets are in relation to their debts, which mainly consist of their total commitments.

Systemically important: An actor, market or part of the financial infrastructure is regarded as being systemically important if problems that arise there could lead to disruptions in the financial system that would result in potentially large costs to society.

Tier 1 capital: Equity less proposed dividends, deferred tax assets and intangible assets, such as goodwill. Tier 1 capital may also include some types of subordinated loan.

Yield: A measure of the yield from an investment. For investment in a property, this is defined as income return in relation to the value of the property.



SVERIGES RIKSBANK
SE - 103 37 Stockholm
(Brunkebergstorg 11)

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



PRODUCTION SVERIGES RIKSBANK
ISSN 1404 – 2207 (print)
ISSN 1654 – 594X (online)