



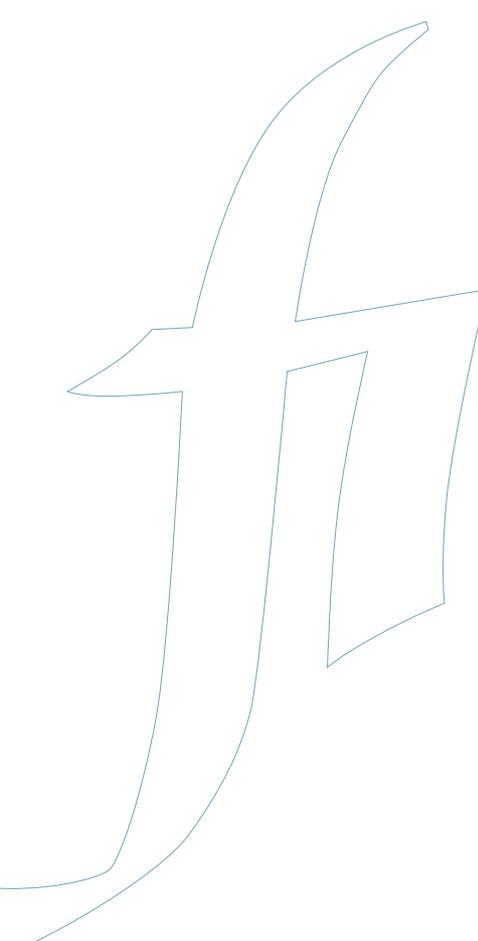
**FINANSINSPEKTIONEN**

# Stability in the financial system

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**10 DECEMBER**





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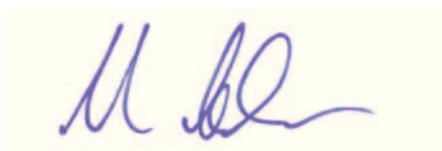
## Foreword

In the stability report, Finansinspektionen (FI) provides its assessment of stability in the financial system and any financial imbalances in the Swedish economy. We present our view of the vulnerabilities in the Swedish system and how such vulnerabilities may pose problems to financial and economic stability. Furthermore, we describe the measures we have taken to reduce the vulnerabilities and what might need to be done ahead.

Financial stability is about the financial system's ability to uphold its fundamental functions and it also being resilient to shocks. FI has solid fundamentals for detecting vulnerabilities and taking measures to increase resilience when needed. FI has also been given a responsibility for counteracting unbalanced developments on the credit market.

Concurrently with publishing this report, FI publishes a memorandum describing our view of financial stability and our role in this work. Here, we also expand on how we view our extended mandate, which largely entails preventing shocks or imbalances in the financial system from having negative consequences elsewhere in society.

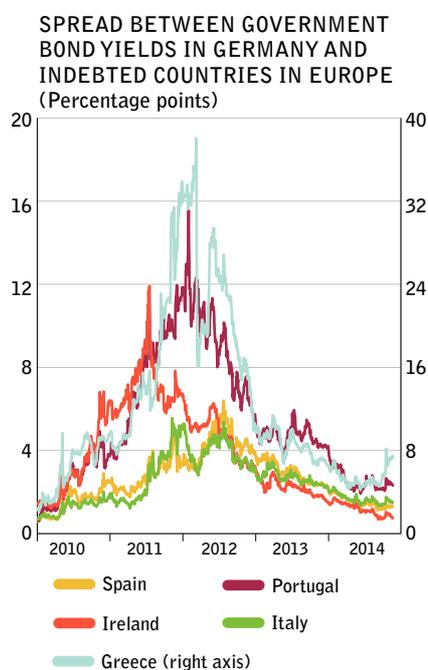
Stockholm, 10 December 2014



Martin Andersson  
Director General

## Summary

In Finansinspektionen’s (FI’s) opinion, resilience in the financial system is currently satisfactory. FI’s increased capital requirements have helped improve the resilience of banks. At the same time, the banks’ need for market funding makes the financial system vulnerable to shocks. FI finds that the increasing indebtedness of households linked to rising house prices is a cause for concern, and that this trend may reduce stability in the economy. In order to reduce this vulnerability, FI will introduce an amortisation requirement for new mortgage holders.



Source: Thomson Reuters Ecowin

In the past six months, the gradual economic recovery abroad has continued, albeit unevenly. Growth in the euro area came to a halt in the second and third quarter this year, while it was strong in both the US and UK. Growth in Sweden is restrained by the subdued trend in neighbouring regions. Inflation remains low and, since the end of October, the repo rate in Sweden has been zero per cent. The main risk to economic outlook in Sweden is a further deterioration of the economic situation in the euro area and hence a further drop in demand for Swedish exports.

The state of financial markets has been somewhat more uncertain in the past six months compared with the first half of the year. Markets have been affected by various conflicts around the world and uncertainty about the economic outlook, has led to heightened fears about a protracted recession. However, the risk appetite of investors is still relatively high and spreads between safe and riskier assets are, in a longer-term perspective, at low levels (see diagram).

Because of the economic trend abroad and the state of financial markets, combined with the fact that house prices in Sweden have risen sharply over a long period of time, risks to financial stability and the Swedish economy are present. Table 1 shows FI’s assessment of the main risks that could lead to financial and economic instability.

TABLE 1. FI’s risk assessment

Risks	Development last six months	Risklevel
International financial turbulence	↗	Considerable risk
Weaker macroeconomic development of the euro area	↗	Considerable risk
Drop in house prices	↗	Risk

In FI’s opinion, the Swedish financial system works well and its resilience is currently satisfactory. Swedish banks meet FI’s new capital requirements, which has helped further bolster resilience. At the same time, there are a number of vulnerabilities that make the Swedish financial system and Swedish economy sensitive to shocks. Sweden has a large, inter-linked financial system, so problems at one firm can quickly spread to other entities and markets, and can affect confidence in the entire financial system. Also, the major banks in Sweden have a great need for market funding. This makes them reliant on smoothly functioning funding markets and sustained investor confidence. Furthermore, FI sees the high household indebtedness as a vulnerability that renders the Swedish economy sensitive to shocks. The structural vulnerabilities could lead to financial and economic instability if the risks in table 1 materialise or other shocks occur.

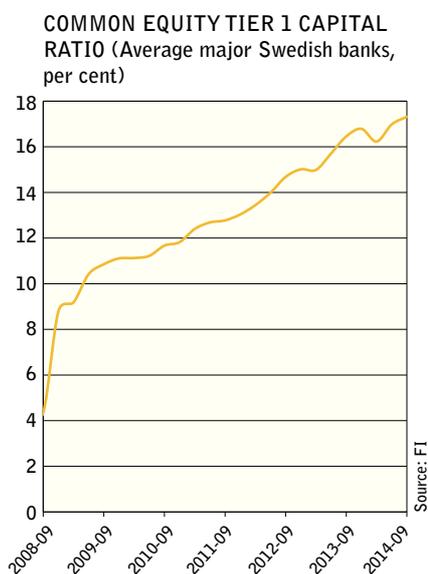
## LARGE AND INTERLINKED SYSTEM

Sweden has a large and interlinked financial system that is dominated by four major banks. The size of the system is due to the need of households and corporations for financial services, the major banks' operations abroad, and the fact that Sweden is an advanced economy. Interlinkage is necessary in all financial systems, but entails vulnerability as it implies that problems in one firm may spread to other entities and markets in a crisis. This can ultimately threaten financial stability. Contagion can occur in many different ways, with direct exposures being the most obvious channel of contagion. Similar entities being suspected of having similar problems, or counterparties or markets potentially disappearing, are other less obvious yet no less important channels of contagion.

In order to manage counterparty risks and contagion effects on the derivatives market, new regulations have given central counterparties a greater role than before. It means that counterparty risks, which were previously difficult to identify and assess, are concentrated to a single company. In 2015, FI will look more closely at the question of managing central counterparties in difficulty, and will participate in work on European stress tests.

## SOUND RESILIENCE

Swedish banks have sound access to funding and ability to supply society with credit. In September this year, FI decided on new capital requirements for Swedish banks, which are already fulfilled by the major banks (see diagram). In FI's opinion, in light of the European Banking Authority's (EBA's) and FI's own stress tests and asset quality review, the banks are currently satisfactorily capitalised and resilient to shocks. On the 8th of December FI decided that the countercyclical buffer should remain at a level of 1 per cent.



The banks' capital in relation to their total assets, known as the leverage ratio, is at a level exceeding the Basel Committee's proposal regarding binding requirements from 2010 of 3 per cent. FI deems that a leverage ratio serves the purpose of a back-stop, setting a floor to how low risk-weighted assets can fall. A higher leverage ratio requirement would however potentially disable the current risk-weighted capital requirements, thus increasing the incentive for the banks to take on risk. Hence, FI finds it reasonable for Sweden to introduce a leverage ratio requirement of 3 per cent in 2018, in line with the requirement of the Basel Committee and EU. The continued work on strengthening the banks' resilience should primarily be conducted by developing the risk-weighted capital framework. Such work is already in progress internationally.

Sound capital buffers are also important in reducing the vulnerability linked to the banks' need for market funding. Due to the limited savings of households and corporations in deposit accounts, Swedish banks are largely in need of market funding. This makes them reliant on constantly functioning funding markets in order to renew their funding when it matures, hence making them vulnerable to weakened market confidence. International financial turbulence can cause shocks on the banks' funding markets and is one of the risks that FI deem a treat to the financial stability. Because Swedish banks have a great need to obtain funding on an ongoing basis on both Swedish and foreign markets, events leading to increased turbulence in the global financial system can affect both the cost of funding and the banks' access thereto.

In a short-term perspective, liquidity risks for the major Swedish banks have decreased in recent years, linked to FI's liquidity requirements. At the same time, the maturity of the banks' funding is still much shorter than that of their assets. In order to reduce the risks in the banks' maturity transformation, the Basel Committee has decided on a risk measure that places the banks' stable funding in relation to illiquid assets. The risk measure will be a minimum requirement in 2018. FI does not intend to introduce the requirement before 2018, but Swedish banks should, already today, allow for forthcoming European regulation and continue to extend the maturity of the funding of illiquid assets.

In order to further strengthen resilience in the banking system, the regulations addressing bank recovery and resolution will be put in place in 2015. For a failing bank, there will hence be greater possibilities than before for authorities to take action, without allowing the bank to enter normal insolvency proceedings or by bailing it out. The regulations also involve requirements for bail-in-able debt at the banks. In FI's opinion the requirements should not be equated to the minimum capital requirements according to the capital adequacy regulations.

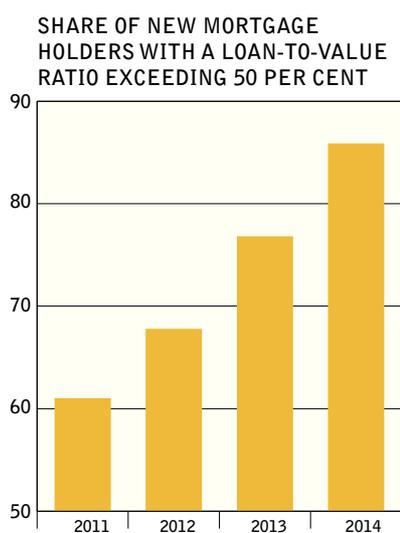
The insurance sector too has sound resilience and is not currently assessed to pose a threat to financial stability. However, the insurance undertakings are facing major changes and need to be able to cope with lower interest rates, new regulations and other factors in their business environments.

### THE MACROECONOMIC VULNERABILITY HAS INCREASED

FI's extended responsibility for stability includes analysing financial imbalances among corporations and households, and their consequences for the economy. Indebtedness is a natural phenomenon in a modern economy. However, high indebtedness may increase the vulnerability for both lenders and borrowers.

In FI's opinion, the liabilities of non-financial corporations do not currently constitute a vulnerability that risks leading to problems in terms of financial stability or the Swedish economy. FI's analysis also shows that households in general have sound resilience. FI is therefore of the opinion that the household debt is not currently a threat to the financial stability. However, FI finds that the macroeconomic vulnerability associated with household indebtedness are on the rise.

International experience suggests that highly leveraged households tend to tighten their consumption sharply in economic shocks, such as a drop in house prices. In this way, their behaviour could amplify cyclical fluctuations. FI judge the risk of a significant fall in house prices to be limited, although the risk is considered to have risen somewhat during the last six months. In Sweden, the percentage of households granted loans at over 50 per cent of the value of the home is on the rise (see diagram). Because of this, FI finds that the macroeconomic vulnerability linked to household indebtedness are currently increasing. FI's amortisation requirements aim to curb this trend by reducing indebtedness among heavily mortgaged households.



Note. Share in per cent.

Source: FI:s Mortgage survey (2011, 2012 och 2013) och FI:s Mortgage questionnaire (2014)

## FI and the stability of the system

Financial stability is about the financial system's ability to uphold its fundamental functions, even when it comes under strain. This requires resilience to shocks to be in place. FI has also been given broadened responsibility in terms of counteracting unbalanced developments on the credit market. The purpose of FI's work is, in both cases, to prevent problems and shocks in the financial system from having substantially negative consequences elsewhere in society, or to prevent the financial system from amplifying and aggravating shocks that have emerged elsewhere in the economy.

### FINANCIAL STABILITY – IN THE PUBLIC INTEREST

Financial stability is about the financial system functioning even when it comes under strain, because the financial system provides services that are crucial to a modern economy – such as payment intermediation, credit supply and risk management.

Financial systems tend to be vulnerable. For example, a bank meets the requirement of depositors to have their money readily and rapidly available for withdrawal. At the same time, it meets the requirement of borrowers to borrow money in the longer term. This function – known as maturity transformation – is of great value to the economy, but it also poses a risk. If depositors (and other financiers) start to distrust the bank, e.g. due to the bank sustaining credit losses, major liquidity problems can rapidly arise, even for a bank that is fundamentally profitable. In addition, the different parts of the system are closely interlinked with each other – the banks borrow/lend money from/to each other, and do business with each other on the securities and foreign exchange markets, etc. Because of this, problems arising in one part of the system can quickly spread to others. This can put crucial civil functions out of action.

### SOUND RESILIENCE TO SHOCKS IS NEEDED

A shock can for example consist of the economy, or part thereof, suddenly performing worse than expected, or of a major bank for some reason suffering acute liquidity problems that threaten its survival. The shock can thus both hit the financial sector from the outside, and arise from within it. The financial sector can thus amplify and aggravate existing problems in the real economy.

Major shocks in the financial system can extensively damage growth, employment and public finances. Although financial firms have a vested interest in allowing for shocks that could arise, they often lack the possibility and motive to identify and take account of the contagion effects that problems at their own firm can trigger for other entities. Such systemic risks require the active involvement of the government.

However, the latest financial crisis showed that, in many respects, it does not suffice only to ensure that the fundamental financial services are in place and functioning. Negative effects for the economy can arise and be amplified by the financial sector, even if the basic functions are upheld. Therefore, the Government recently bestowed upon FI what

can be described as an extended mandate, expressed as FI being responsible:

*“...for taking measures to counteract financial imbalances with the purpose of stabilising the credit market, but taking into consideration the effect of the measures on economic development.”<sup>1</sup>*

Such an example is the costs that ensue from excess investment and excessive indebtedness in some part of the economy, and the subsequent restructuring of balance sheets forced by this sooner or later.

Unlike supervisory authorities in many other countries, FI has long had an explicit role to promote stability in the financial system as a whole. The broadened responsibility for stability entails that the traditional objective of safeguarding stability in the financial system has been supplemented by a further objective – stabilising the credit market. Hence, FI can take measures despite there not being any direct threat to financial stability, in the sense of the financial sector’s function capacity. A relevant example is the risks associated with high household indebtedness. In FI’s opinion, such debts do not currently pose a threat to financial stability. Nevertheless, FI has taken measures to limit the macroeconomic vulnerability associated with indebtedness.

Financial markets are also associated with other risks and problems than the risk of a systemic collapse or macroeconomic shocks, i.e. matters pertaining to the position of consumers. Many financial services provided are complicated and difficult for consumers to judge. However, these matters will not be further discussed herein.<sup>2</sup>

## THE ROLE OF FI AND OTHER AUTHORITIES

One difficulty in the added objective is in the boundary with other policy areas. When FI takes measures with the purpose of stabilising the credit market, such measures will often have broad economic effect and also effects in terms of redistribution policy. The boundary between traditional stabilisation and redistribution policy has thus become vaguer. At the same time, FI’s margin of discretion is limited insofar that FI regulates, monitors and can direct measures at financial firms, but not households, other authorities or non-financial corporations. Hence, it is through the financial firms that FI can influence other parts of the economy. While this provides FI’s work with a clear-cut focus, it also naturally poses a limitation. FI has a number of tools that can be used to influence developments, but FI’s tools are not always the most appropriate; rather, they might very well fall within the bounds of the operations of another institution. For example, FI has no control of taxation rules. Neither can FI provide any form of financial support, which can be crucial to safeguarding stability in certain circumstances.

Although FI has long had an explicit responsibility for promoting financial stability, other authorities also have important roles to play – a factor that is becoming even clearer with the extension of the stability objective. A concrete expression of this is in the operations within the framework of the Financial Stability Council, which is comprised by the Ministry of Finance, FI, the Swedish National Debt Office and the Riksbank. Financial stability, in a narrower or broader sense, thus requires cooperation

<sup>1</sup> See sections 1, 3p of Finansinspektionen’s Instructions Ordinance (2009:93).

<sup>2</sup> In FI’s yearly report “Consumer protection on the financial market”, these matters are discussed in more detail.

between different authorities and different policy areas. In turn, effective cooperation requires a clear, and clearly communicated, allocation of responsibilities which creates accurate and realistic expectations about what FI can and should do.<sup>3</sup>

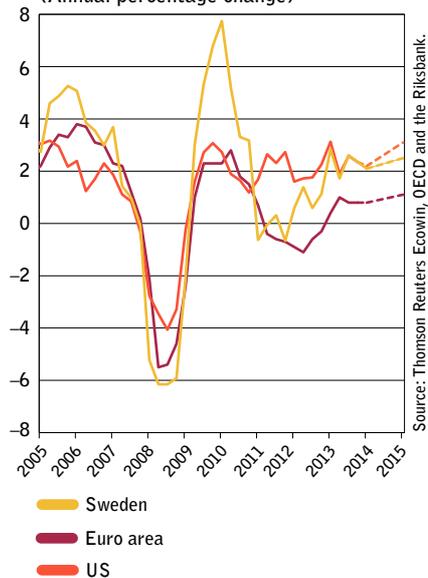
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<sup>3</sup> For more information about how FI views financial stability and its role, see (in Swedish) [FI and financial stability], <http://www.fi.se/Tillsyn/Skrivelser/Listan/FI-och-finansiell-stabilitet/>

## The state of the economy

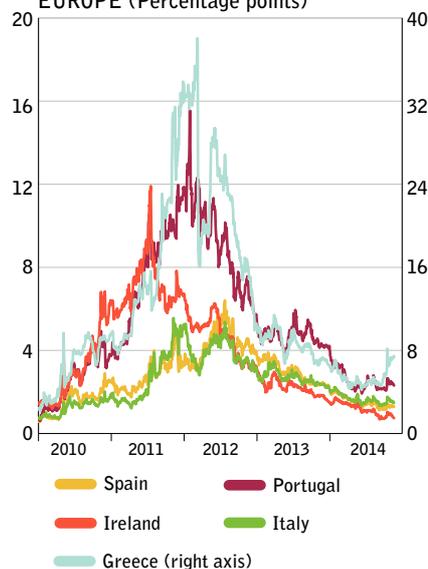
The state of financial markets is somewhat more uncertain than it was six months ago. At the same time, the status of the banks' funding markets remains sound. The gradual recovery abroad has continued, albeit unevenly. Growth in Sweden has been negatively affected by the weak European recovery. In FI's opinion, the principal risks for the Swedish financial and economic stability is international financial turbulence, a worsening outlook in Europe, and a drop in house prices.

### 1. REAL GDP GROWTH (Annual percentage change)



Note. The broken lines show the Riksbank's and OECD's forecasts in October and November respectively for real GDP growth for the 2014 and 2015 full years.

### 2. SPREAD BETWEEN GOVERNMENT BOND YIELDS IN GERMANY AND INDEBTED COUNTRIES IN EUROPE (Percentage points)



Source: Thomson Reuters Ecowin

### DIVIDED GLOBAL RECOVERY

In the past six months, the gradual recovery abroad has continued, albeit at an uneven pace. Growth in the euro area came to a halt in the second and third quarter of this year, and the annual growth rate was only 0.8 per cent for the third quarter (diagram 1). At the same time inflation is falling, and the risk of deflation is on the rise. The poorer growth in Europe is partially due to the fact that the conflict in Ukraine has affected exports. However, the greatest impact of the conflict is believed to be on confidence in the economic recovery, which curbs household consumption and the investment appetite of corporations. In November 2014, OECD projected that growth in the euro area will accelerate slightly ahead as lending to households and corporations increases and demand from abroad gradually strengthens in the next few years. GDP in the euro area is expected to grow 1.1 per cent in 2015.

Unlike the trend in Europe, the US and UK economies have made greater progress than expected. Growth in both the US and UK was strong in the third quarter (diagram 1) and labour markets of both of these economies has further improved compared with six months ago. OECD forecasts that US labour and housing markets will continue to strengthen in the next few years. Growth in the US is estimated at 3.1 per cent in 2015.

Fears of a fall in house prices in China due to an overvalued housing market have intensified recently. However, the risk is probably limited<sup>4</sup>, while at the same time the Chinese authorities have a substantial margin of discretion should problems arise. Because of the limited linkage of the Chinese financial sector with other countries, any contagion risks from the financial market are considered low. Given reduced activity in the real estate sector and subdued credit growth, OECD expects the Chinese economy to grow somewhat more slowly over the coming years.

Global central bank policy rates are at record-low levels, but the expansive monetary policy is counteracted by the fact that inflation too is very low. On the whole, the picture remains in place of a gradual global recovery, but the risks of deterioration in the economic trend have increased somewhat compared with six months ago.

The poorer state of the euro area economy is partly to blame for weak Swedish exports, which has dampened Swedish GDP growth. Growth was 2.1 per cent year-on-year in the third quarter of 2014, driven by sustained strong domestic demand, while net exports kept a lid on the trend (diagram 1). Despite the somewhat weaker growth, employment growth was relatively strong. At the same time, Swedish inflation has remained very low, leading to the Riksbank cutting the repo rate in two stages,

4 IMF, World Economic Outlook (WEO) October 7, 2014

first from 0.75 to 0.25 per cent in July, and then to zero per cent at the end of October. It is judged that the repo will remain at this low level until inflation has clearly picked up. At the end of October, the Riksbank projected that Swedish growth will strengthen as demand from abroad recovers, and expects Swedish growth to increase 2.5 per cent in 2015. The greatest single risk to the Swedish economy is a sustained deterioration of the macroeconomic development of the euro area, resulting in reduced demand for Swedish exports.

### HEIGHTENED UNCERTAINTY ON FINANCIAL MARKETS

Persistently low interest rates have continued to imply greater risk appetite among investors in their search for yield. The differences in return between safe and riskier assets are still low, and volatility on financial markets is very low. For example, spreads between the government bonds of European highly indebted countries and Germany have dropped further from the low levels measured six months ago (diagram 2). Although risk premiums on the corporate bond market have risen in the past few months, they are still at a low level compared with the historical average.

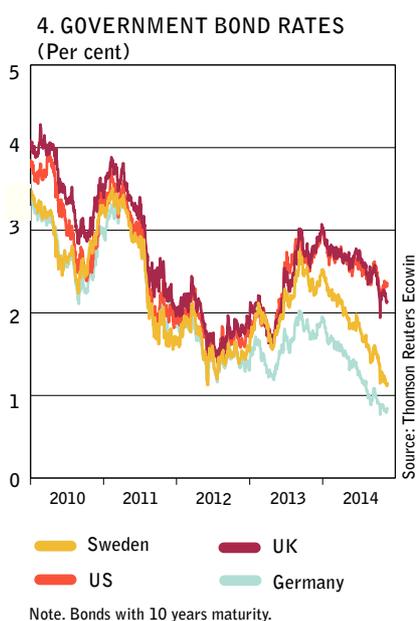
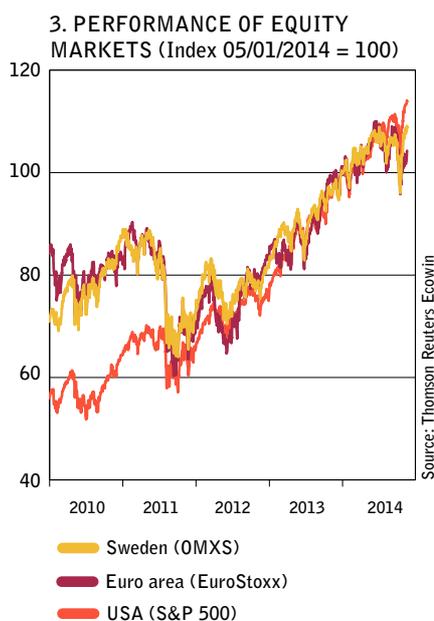
At the same time, financial markets have featured generally higher uncertainty in the past six months. Current conflicts in different parts of the world have been partly to blame for heightened financial stress and periodically poorer sentiment among market participants. Deterioration in global economic outlook has also reduced demand for riskier assets in places. The heightened uncertainty on markets has manifested itself in periodically bearish stock markets and declining government bond yields (diagrams 3 and 4). Since the end of June, the oil price has dropped around 25 per cent, which could underpin the recovery of oil-importing countries. Though the declining oil prices dampen inflation globally, these effects are expected to be temporary.

The different rates of recovery in the US and euro area have led to a divergence in US and European monetary policy and monetary policy expectations ahead. While the US is normalising its monetary policy, the opposite is occurring in the euro area, which still features very low inflation. European interest rates are thus expected to be very low for a long period ahead, while US interest rates are instead expected to rise in the coming years. This divergence has resulted in widened spreads between US and German government bonds (diagram 4). In the autumn, new lows were recorded for German government bond yields of many different maturities. Sustained expansive monetary policy globally adds to keeping interest rates at very low levels.

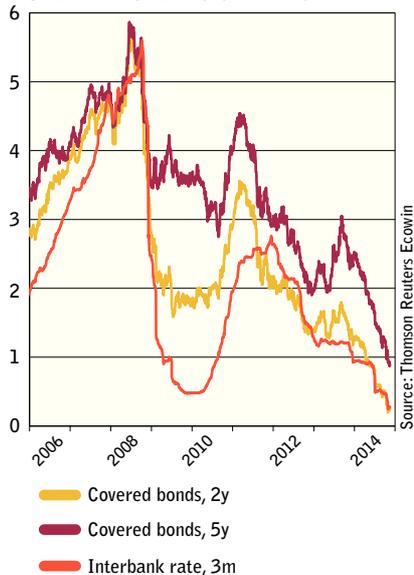
In Sweden, interest rate movements have largely been affected by international rates, mainly German but also US, and the trend has continued downwards (diagram 4). Swedish government bond yields with shorter maturities have dropped more than their German equivalents, due to the Riksbank's rate cuts being greater than those of the ECB.

#### The banks' funding

Even though the uncertainty on the financial markets has increased somewhat Swedish banks currently have sound access to funding at a low cost. Covered bond yields, which are crucial to the funding cost of banks, have been on a downward trend since the beginning of 2011 and are currently at very low levels (diagram 5). The interest rate that the



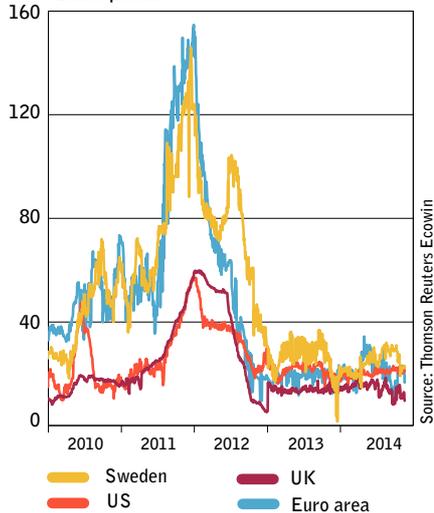
### 5. BANK FUNDING (Per cent)



banks pay to borrow from each other, the interbank rate, has also dropped further in the past six months. The low repo rate and highly expansive monetary policy abroad are factors that have caused this. The high confidence in the Swedish banking sector has also led to a reduction in the banks' funding costs.

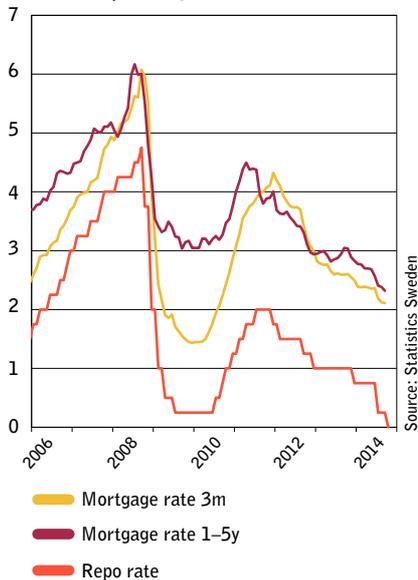
Another indicator that reflects confidence in the banks is the TED spread, which measures the risk premium on loans to banks compared to loans to the Government. The TED spread is currently low, which applies to the Swedish market and international markets alike (diagram 6). However, these low levels are not only a result of high confidence in the banks; they also reflect the high liquidity following the central banks' stimulus measures, which helps keep a lid on risk premiums. The TED spread also reflects the implicit government guarantee which the market assumes the banks have (see also the box Too big to fail – the implicit Government guarantee for systemically important banks).

### 6. TED-SPREADS (Basis points)



Note. TED spread is the difference between interbank rate and a treasury bill with 3 months maturity.

### 7. HOUSEHOLD MORTGAGE RATES (Per cent, new agreements)



## DEVELOPMENTS ON THE CREDIT MARKET

Just like the banks' funding rates, interest rates on the mortgages of households have continued to decline in the past six months, but not to the same extent (diagrams 5 and 7). The same trend can be seen for interest rates on small and large loans to non-financial corporations (diagram 8). The difference in the interest rate on small and large loans, which indicates the difference in borrowing expenses between small and large corporations, has narrowed since the end of 2012 but has been relatively constant in the past year (diagram 8).

### Lending to households and corporations

Lending to Swedish households continues to rise. Since the end of 2012, the growth rate has been on a slightly rising trend and at the end of the third quarter of 2014 the growth rate was 5.7 per cent. In the euro area lending to households is instead in decline, and has been so since the beginning of 2013 (diagram 9). ECB has made several attempts to boost lending by introducing monetary policy stimulus measures that have helped increase liquidity supply. Thus far, however, this has not had any major impact on lending volumes.

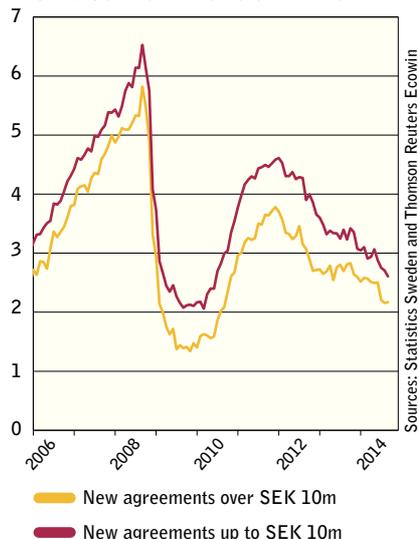
Lending to Swedish non-financial corporations has increased since the end of 2010, but at a still moderate rate. At the end of the third quarter, the lending growth rate was 3.2 per cent. This is in contrast to the euro area, where lending to non-financial corporations has declined since the beginning of 2012 (diagram 10).

Financing terms for Swedish non-financial corporations have improved in recent years.<sup>5</sup> After several years of gradually poorer financing terms, terms have improved, including for non-financial corporations in the euro area in the past six months, following e.g. an increase in the supply of bank loans. However, financing terms are still tight in a historical perspective. Also, terms diverge from country to country; lending rates for corporations in indebted countries are higher.<sup>6</sup> Small corporations also perceive obtaining loans more difficult. Demand for bank loans among

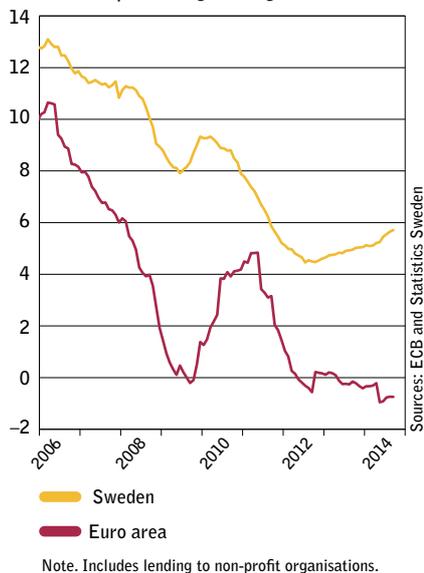
5 National Institute of Economic Research's Economic Tendency Survey, October 2014, and the Almi loan indicator, Q3 2014.

6 ECB, The euro area bank lending survey, October 2014. The survey reports the difference between the share of banks that responded that funding terms have deteriorated and improved, respectively.

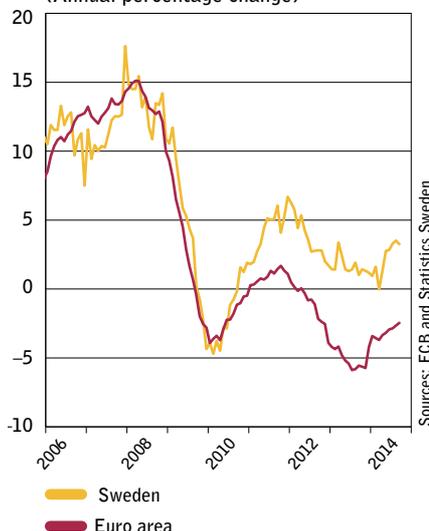
### 8. LENDING RATES TO NON-FINANCIAL CORPORATIONS (Per cent)



### 9. LENDING TO HOUSEHOLDS (Annual percentage change)



### 10. LENDING TO NON-FINANCIAL CORPORATIONS (Annual percentage change)



non-financial corporations is rising slightly in the euro area from a low level.<sup>7</sup>

In recent years, Swedish corporations have, to an increasing extent, obtained funding by issuing interest-bearing securities, such as corporate bonds and certificates.<sup>8</sup> Both the total issue volume<sup>9</sup> of corporate bonds and the number of issuers have risen. At the end of the second quarter of 2014, market financing amounted to just over 20 per cent of total corporate financing, equalling an increase of around 4 percentage points compared with two years ago. One reason for this development is that it has become cheaper for corporations to issue interest-bearing securities because investor interest in riskier assets – including corporate bonds – has increased. Demand for corporate bonds has also increased on corresponding international markets, such as that of Europe.<sup>10</sup>

## RISKS TO FINANCIAL AND ECONOMIC STABILITY

The recovery in Sweden is cautious and largely dependent on developments abroad. The Swedish financial system too is affected by events outside Sweden and the periodically uneasy sentiment on global financial markets in recent months has shown that developments are volatile.

In FI's opinion, there are currently a number of risks to financial and economic stability. If these risks materialise, the structural vulnerabilities that exist in the Swedish financial system and which are mentioned in this report, can lead to problems that affect the financial and economic stability.

### International financial turbulence

There are fears that the currently low risk premiums rest on unrealistic expectations about the quality of riskier assets. If such expectations were to change for some reason, this could cause a sharp upswing in risk premiums and financial turbulence.

Most conflicts around the globe have been a feature of this year. The high level of uncertainty inherent in the conflicts has caused periodic increases in the stress level on financial markets. An aggravated situation in the conflict-stricken countries could trigger a clear rise in financial stress and lower risk appetite among investors. Such a situation could thus trigger a rapid, sharp upturn in risk premiums.

The low central bank policy rates, combined with high confidence in the Swedish economy and the Swedish banking sector, are partly why the Swedish banks' funding costs are low. Because Swedish banks have a great need to obtain funding on an ongoing basis on both Swedish and foreign financial markets, events leading to increased turbulence in the global financial system can affect both the banks' access to funding and the price thereof (see chapter The banks' funding).

7 ECB, Survey on the access to finance of enterprises in the euro area, April 2014 – September 2014.

8 Certificates account for about 4 per cent of corporate financing.

9 Refers to the nominal value at the time of issue.

10 Bonthron (2014) Utvecklingen på den svenska marknaden för företagsobligationer [Developments on the Swedish corporate bonds market], Ekonomisk kommentar nr 7 2014, The Riksbank.

### **Weaker macroeconomic development of the euro area**

The euro area has developed weaker than expected in the past six months and the risk of the region once more ending up in recession has increased. The poorer growth is to a certain extent due to the conflict in Ukraine, which has affected the exports of euro countries, but mainly the confidence of households and corporations. Low growth makes it harder for the indebted countries in Europe because, for example, confidence in their countries wanes. If in addition households and corporations expect falling prices, the situation will be even more problematic. A protracted period of falling prices cause corporations and households to shelve their planned investments due to expectations about sustained falling prices. Besides the contractionary effects such a deflation scenario would have on demand, it would also lead to an increase in the debt burden in Europe, which in turn would further aggravate the situation.

The economic development in Sweden would be negatively affected by a poorer euro area economy. Poorer Swedish growth would in turn affect confidence in the Swedish economy and Swedish banks, which would risk worsening the banks' funding terms.

A drop in confidence and worsened economic outlook in the euro area could also have a negative impact on the risk appetite of investors and lead to heightened financial stress on financial markets. Such a development would probably also affect the funding markets of banks. Poorer funding terms for the banks can spread to households and corporations through higher lending rates. Hence, funding problems for the banks can have repercussions both on financial stability in Sweden and the Swedish economy.

### **Drop in house prices**

House prices have risen rapidly in Sweden in recent years. Although the upswing can largely be explained by demographics, decent income and low interest rates, there are risks of a drop in house prices.<sup>11</sup> Such drops can easily turn out to be major when the expectations of households are affected.

A fall in house prices could have an impact both on the financial system and the national economy at large. Declining house prices can damage confidence in Swedish banks, partly because of their extensive lending to the housing sector, and partly because they rely on funding through covered bonds. Confidence problems could, at worst, lead to investors reducing their demand for the banks' securities and hence to the banks experiencing funding problems.

In FI's opinion, however, a more probable consequence of a drop in house prices would be reduced household consumption and hence lower growth. As shown in the previous stability report<sup>12</sup>, such a course of events would have significant repercussions on the economy. Also, the dip could be even steeper if many households are highly mortgaged (see the chapter Indebtedness and the Swedish economy).

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11 See for example Report to the Swedish Fiscal Policy Council, 2013/5, Birch Sörensen, The Swedish housing market: Trends and risks.

12 <http://www.fi.se/Folder-EN/Startpage/Supervision/Other-reports/Listan/Stability-in-the-financial-system/>

## The structure and interlinkage of the system

Sweden has a large and interlinked financial system that is dominated by four major banks. The banks are interlinked because, for instance, they own each other's securities. Interlinkage is necessary in all financial systems, but can increase the vulnerability of the financial system. An increased use of central counterparties has led to a reduction in systemic risks, while giving rise to new risks at the same time.

As in many advanced economies, the Swedish financial sector is large in relation to GDP. The structure of the financial system largely follows from the need of Swedish households and corporations for financial services. The various participants and markets of the system are interdependent. The interlinkage is beneficial in normal market conditions, but can also spread and amplify the effects of unforeseen events. In the work with financial stability, it is important to identify systemic risks, i.e. critical entities and markets, as well as channels of contagion.

### THE STRUCTURE OF THE SWEDISH FINANCIAL SYSTEM

#### The need of Swedish households and corporations for financial services

The Swedish financial sector mirrors the need of Swedish households and non-financial corporations for financial services. The financial system converts savings into financing, and enables households and corporations to manage risks and carry out payments.

In Sweden, many people own their homes and prices of single-family dwellings and tenant-owned apartments are high. The majority of households need to borrow money to finance their home purchase. Mortgages therefore make up a large part of the lending of Swedish banks.

Because the savings of households largely consist of various pension solutions, savings have a long investment horizon and largely consist of equities and funds. The majority of funds in pensions – occupational pensions – are managed by insurance undertakings in the life insurance sector. In an international comparison, Sweden, like large parts of Western Europe, has an advanced welfare system. Because households have solid protection in the event of e.g. unemployment or illness, their need to save large sums in deposit accounts as a contingency buffer decreases.

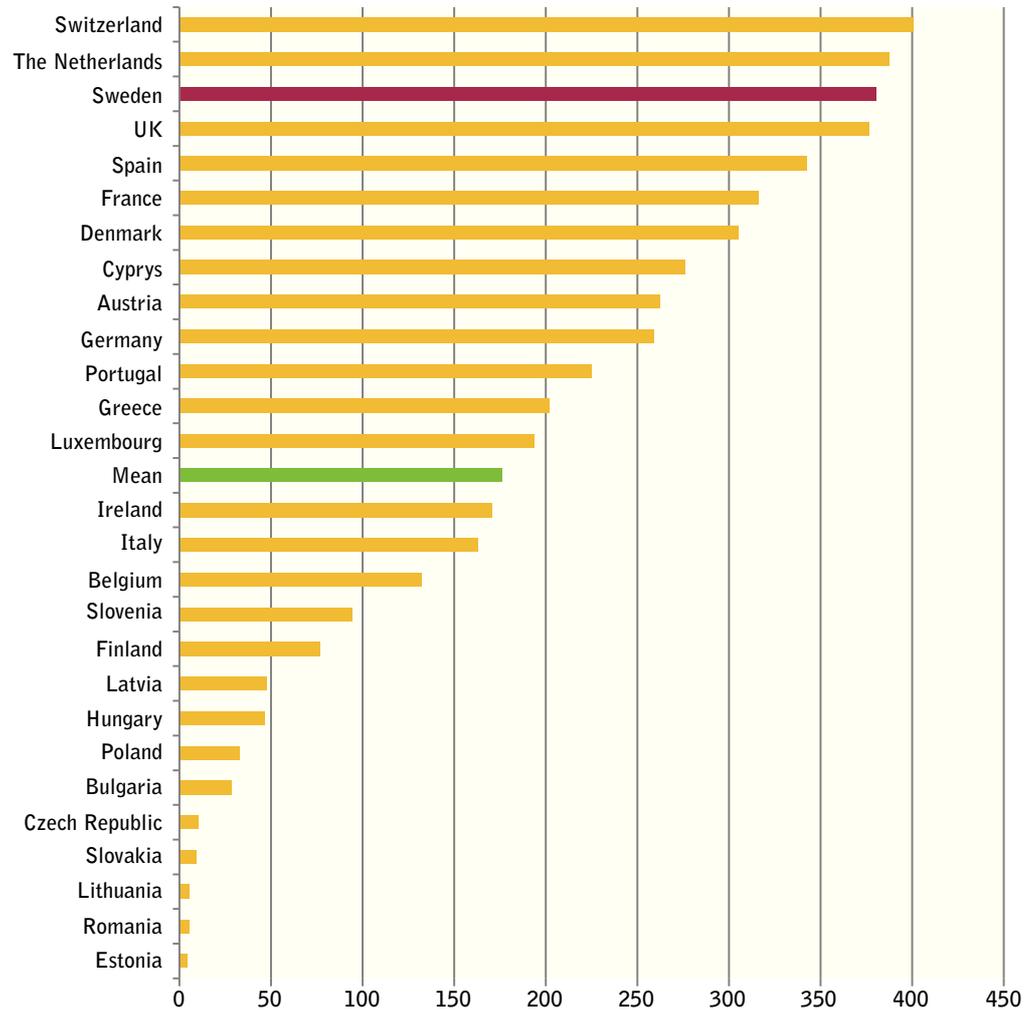
One of the most important tasks of financial markets is to supply corporations with capital for investment. The banks also provide services for carrying out payments, managing liquidity and risks. For example, they can help export corporations to manage their foreign exchange risks, or help major borrowers, such as capital-intensive industries and real estate corporations, to manage their interest rate risks using derivatives.

#### A large banking sector reliant on market funding

The needs of households and corporations for financial services, and the fact that Sweden is an advanced economy, give rise to a large banking sector (diagram 11). It should be noted that the operations of the major banks in Sweden's neighbouring countries are a big reason for the size of the banking sector.

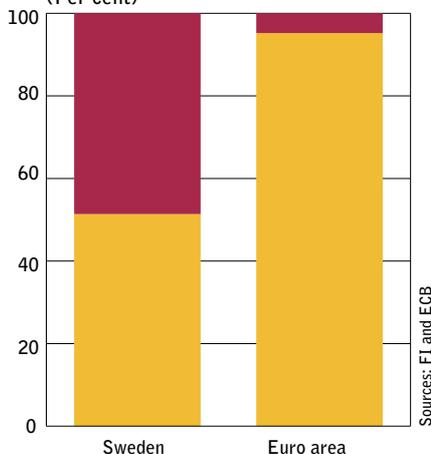
### 11. Large banking sector

December 2013



Note. The diagram shows the consolidated assets of the banking sector in relation to domestic GDP. Definition of the banking sector based on the domiciliation of the parent bank. Source: The Riksbank

### 12. DEPOSIT DEFICIT (Per cent)



Sources: FI and ECB

Legend:  
■ Deposit as a share of lending  
■ Deficit

Note: The diagram shows deposits as a share of lending.

Due to the banks' scarce incentives to offer interest on deposit accounts and households' preferences for other savings, the banks have limited deposits. Because lending exceeds deposits, the banks need funding from elsewhere. They cover the deposit deficit, which is large in an international perspective, by issuing bonds and certificates on the market (diagram 12). The banks need to renew their funding on an ongoing basis when outstanding securities mature. This makes the banks reliant on a functioning market for such instruments, and on sustained investor interest (see the chapter The banks' funding).

The banks' financiers are mainly Swedish insurance undertakings and foreign investors. Through market funding, the major banks are directly interlinked with both these types of entity.

The Swedish financial system is an integral part of the global financial system. Integration with the global financial system increases the ability of the Swedish system to withstand domestic shocks, because there are more potential buyers and sellers, but also means that shocks in the global financial system directly affect Sweden.

### Systemically important firms

Features of systemically important firms are that they are large, interlinked with many other entities and can be difficult to replace in the markets on which they are active. The size of the firms can be measured in many different ways. Balance sheet, exposures, assets under management or volume of conducted transactions are all measures of size. However, the fact that a financial firm is large does not necessarily make it systemically important. Systemic importance requires problems at the firm affecting other firms, markets or the economy at large. If the firm is predominant on a market, is one of few to offer a certain service or is otherwise difficult to replace, then it can be systemically important. Finally, the extent to which the firm is interlinked with other entities in the financial system is of importance.

An assessment of systemic importance should not only be based on measures of size, replaceability and interlinkage, but be made in light of a vulnerability analysis in relation to the financial system. An entity which, in normal market conditions, is not considered systemically important may prove to be so in stressed conditions.

## SYSTEMIC RISK AND CHANNELS OF CONTAGION

The latest financial crisis showed how problems are spread and amplified through the financial markets. Contagion can occur in many different ways: through business relationships and exposures, through markets dysfunctioning or being closed down, through confidence crises on proper or improper grounds and through forced changes to portfolios that affect market prices.<sup>13</sup> All channels are relevant in the Swedish financial system.

### Direct exposures can have a domino effect

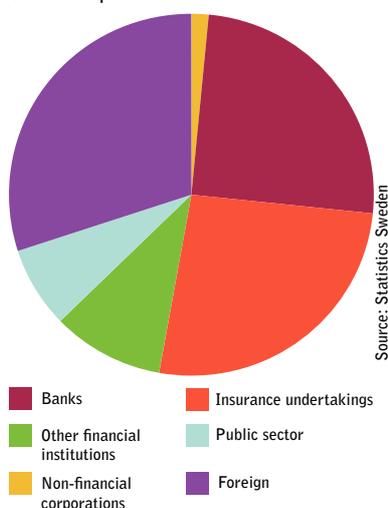
The most obvious form of the contagion of problems in the financial system arises through direct exposures between entities. The failure of one entity leads to losses being incurred by a second that is directly exposed to the first. A direct exposure occurs when an entity lends money or is counterparty in a derivatives transaction. The risk of losses through direct exposures makes banks and other firms reluctant to enter contracts with entities in which they are not fully confident.

In the Swedish financial system, the banks have mutual exposures towards each other through loans on the interbank market, derivatives transactions and cross ownership of covered bonds in liquidity buffers.

Swedish insurance undertakings have exposure to the banks through holdings in covered bonds and other securities (diagram 13), while the banks' exposure to the insurance undertakings is much lower. In this way, problems on the covered bond market can affect the solvency of the insurance undertakings.

A clear example of how direct exposures can have a domino effect is the collapse of investment bank Lehman Brothers in 2008. Many entities that were exposed to the bank suffered losses. In cases where they could not carry the losses, the shock in the system was conveyed to the counterparties of those affected.

13. OWNERS OF COVERED BONDS  
(Share in per cent)



Note: All foreign entities, be they non-financial corporations, the public sector, banks, insurance undertakings or other financial institutions, are included in the foreign category.

13 M Hellwig (2014), Systemic risk and macroprudential policy.

### Disappearing counterparties and markets

Direct exposures are a clear channel of contagion. Perhaps a less manifest, but at least equally important, type of systemic risk is when entities suddenly cannot access a market and instrument they have come to rely on. The disappearance of potential counterparties can be due to sagging confidence in individual firms, a group of firms or an entire market ceasing to function.

The need of the major Swedish banks for market funding makes them reliant on investor confidence and on the continued functioning of the markets for the funding and risk management (see the chapter The banks' funding). In the latest financial crisis, unease on international financial markets led to shocks on the Swedish covered bond market. For example, in the second half of 2007, foreign investors reduced their holdings of Swedish covered bonds by almost one third.<sup>14</sup>

### Similar entities are suspected of having the same problems

Entities in the financial system need to assess their counterparties' ability to honour entered agreements, but have limited insight into and information about the counterparties. In the absence of insight, opinions can instead be based on the financial strength of similar firms. Further information can be provided by the assessment of other entities of the financial strength of the counterparty and similar firms. It is reasonable to distrust an entity that resembles others in difficulty. It is also reasonable to distrust someone that is distrusted by others. Behaviour that can be rational for individual entities can thus lead to contagion effects between similar firms and herd behaviour on the market.

A high-profile case of how problems can spread between similar entities occurred in the debt crisis in Europe. Problems in Greece led investors to reduce their exposures to other countries in peripheral Europe which might perceivably have the same type of problems. The suspected countries did their best to buoy confidence and asserted with determination that their country "was not a Greece".

A lack of confidence in one of the major Swedish banks risks being passed on to other Swedish banks, the reason being that they have approximately the same type of exposures and similar business models. The fact that they are mutually directly exposed to each other bolsters suspicions and intensifies interlinkage.

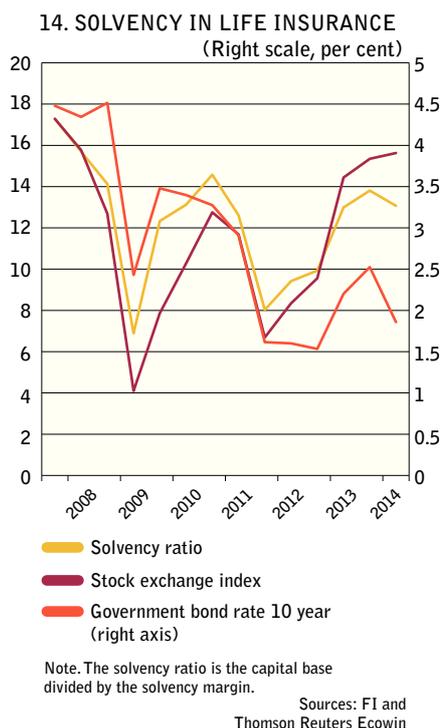
### One's transaction is another's valuation

Forced changes to portfolios can spread problems from one entity to another through the securities markets and market prices. In accounting and regulations, fair value, based on the last price traded on the market, has gained increased importance. When an entity is forced to sell major blocks of assets in a stressed market, the market price is pushed downwards. This leads to a lower valuation and weaker balance sheet for other entities with the same or equivalent assets and which recognise them at fair value. The weakened balance sheet can force other entities to take similar measures, which amplifies the market fluctuation.

Procyclical market dynamics can worsen the functioning of the market, but also ultimately lead to a financial crisis. In the Swedish financial sys-

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14 Sandström, Forsman, Stenkula von Rosen and Wettergren (2013), *Marknaden för svenska säkerställda obligationer och kopplingar till den finansiella stabiliteten* [The Swedish covered bond market and links to financial stability], The Riksbank.



tem, it is chiefly the portfolio changes of the life insurance undertakings that have given procyclical market dynamics. The guaranteed commitments of the Swedish life insurance undertakings, long maturities and valuation based on market rates, make them sensitive to interest rates. Because of this rate sensitivity, sharp declines in market rates combined with major contractions of the equity market can lead to the life insurance undertakings suffering solvency problems. This gives them strong incentives to buy long-term fixed income instruments and sell riskier assets such as equities, which leads to market rates and equity prices being pushed down further. This procyclical course of events was last seen in Sweden clearly in 2012 (diagram 14).<sup>15</sup>

Both equity prices and interest rate levels affect the aggregate solvency ratios of life insurance undertakings. Portfolio changes are most probable when equity prices and interest rates decline. In order to reduce the procyclical effects, yet nevertheless retain incentives for sound risk management at the life insurance undertakings, FI has introduced a Solvency 2-adapted discount rate curve. The interest rate curve takes into account the limited access to Swedish fixed income instruments with long maturities.<sup>16</sup>

#### Stress tests of Swedish insurance undertakings

The European insurance supervisory authority EIOPA has performed stress tests on European insurance undertakings to test their resilience.<sup>17</sup> Ten large Swedish insurance undertakings and groups that make up more than half of the Swedish insurance market participated.

At the outset the firms' solvency capital is on a par with or above the requirement of the forthcoming Solvency 2 regulations. In a scenario of e.g. a steep drop in equity prices, a number of firms no longer meet the requirement, however. Though in that case they have not had the possibility of applying all the tools allowed by the forthcoming regulations when calculating capital requirements, and which would improve the outcome.

The majority of the Swedish firms meet the solvency capital requirement in a long period of low interest rates. However, Swedish firms appear more sensitive to protracted low interest rates than European firms, which is a natural consequence of the major difference in duration between assets and commitments.

The fact that one company can experience problems in a low interest rate scenario might affect the financial markets where insurance undertakings are active, but does not pose an obvious threat to the financial stability. In FI's opinion, no individual Swedish insurance company can currently be considered systemically important. There are many insurance companies that meet the size criteria, but as a rule they are not complex and interlinked in such a way that problems would directly spread globally.<sup>18</sup> Although the effects on stability from a long period of low interest rates are probably limited, there could be a major impact on the long-term savings of policyholders, which is primarily a risk for present and future pensioners.

15 On 7 June 2012, FI announced a floor to the discount rate.

16 <http://fi.se/Regler/FIs-forfattningar/Samtliga-forfattningar/201323/>

17 <https://eiopa.europa.eu/activities/financial-stability/insurance-stress-test-2014/index.html>

18 For more information about systemic importance criteria, see Global Systemically Important Insurers: Initial Assessment Methodology, IAIS, July 2013

The insurance undertakings have complex operations, and sensitivity to financial variables is only one type of vulnerability. In general, the life insurance undertakings are of greater significance to financial stability than the non-life insurance undertakings. Both types of company face changes in the form of new regulations. The life insurance undertakings must also manage demographic challenges. In the coming years, there will be major outgoing payments because of a growing number of pensioners. This leads to shrinking balance sheets in general and, in mutual insurance undertakings, shrinking equity and risk capacity as well.

## SYSTEMICALLY IMPORTANT MARKETS

Systemically important markets are defined more or less in the same way as systemically important firms. They are markets that have to function in order for the entire financial system to function. It is primarily a case of the markets constantly used by the banks to manage liquidity, funding and risk management.

In order to manage liquidity, the overnight market is particularly important. Using the overnight market, the banks can manage imbalances in incoming and outgoing payments. A condition for gaining access to the market is that the counterparties have confidence in the bank. Confidence in the bank is also important on funding markets. This applies primarily to the funding that needs regular renewal. In terms of risk management, it is primarily the foreign exchange and derivatives markets which the banks constantly need. The reason is that the risk management needs to be adjusted on an ongoing basis because the risk profile changes over time, market prices change and instruments mature.

The derivatives markets have undergone rapid expansion in the past few years and provide an important function in risk management. In the latest financial crisis, problems in the OTC derivatives<sup>19</sup> market emerged. An OTC derivative is a tailored agreement for distributing risk between two parties. The risk of inability of the other party to honour the agreement and of this giving rise to costs is known as counterparty risk. The value of a derivatives contract depends on the price development. Consequently, exposure to the counterparty also varies with the price.

One way of managing counterparty risk has been to pledge collateral equalling the market value of the net exposure. The problem with such a bilateral solution is that it creates a complex network in which no individual entity can see the big picture. In a confidence crisis, one entity does not only need to judge the counterparty, but also who the counterparty's counterparties are. Uncertainty and a lack of confidence dislodge the systemically important derivatives markets. Part of the solution is to introduce central counterparties.

### Central counterparties can reduce the contagion of problems

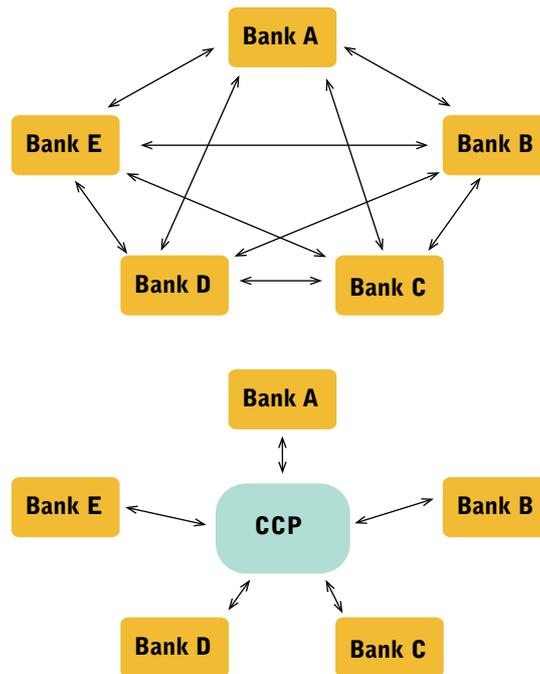
The derivatives market has been regulated by central counterparties being given a more important role. In Sweden, Nasdaq OMX Clearing AB (NOMXC) was authorised as a central counterparty under EMIR (European Market Infrastructure Regulation) earlier this year. Clearing mainly covers equity, fixed-income and energy derivatives and other commodity derivatives traded on the Nasdaq OMX Stockholm and Nasdaq OMX Oslo, but also includes OTC-traded derivatives. The reduc-

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19 OTC = Over the Counter – see glossary for definition.

tion in systemic risk is achieved by a central counterparty clearing outstanding derivatives. This leads to a reduction in the bilateral risks between different financial firms and ultimately also in the aggregate risk. In clearing through central counterparties, counterparty risks, which were previously difficult to identify and assess, are concentrated to a single firm (figure 1). Hence, counterparty risks in the derivative market are brought to the surface, which facilitates risk management of derivative contracts.

FIGURE 1. Counterparty risks are concentrated to one firm



The requirement for a clearance, which is expected to enter into force in the EU in 2015 for certain derivative contracts, is a requirement to use central counterparties. This means that all entities trading in derivatives, including Swedish entities, face greater exposure to both Swedish and foreign central counterparties. In terms of fixed income derivatives, the clearing requirement currently only applies to the EUR, USD, GBP and JPY. In FI's opinion, fixed income derivatives in SEK should also come under the clearing requirement. In FI opinion, this will take place in the near future.

*Central counterparties can also give rise to new risks*

There are many advantages in the transition from managing risks in derivative contracts bilaterally between counterparties to centralised management through clearing at a central counterparty. But this also means that the risks are concentrated to the central counterparty and creates a different type of dependence between the participating entities.

Losses and delayed deliveries at one participant can spread to other participants in an unpredictable manner and have consequences for the financial system, whether a central counterparty is present or not. However, a central counterparty is assumed to have robust systems and resources for managing the losses and demands on liquidity that arise. A central counterparty should be able to cope with a situation in which its two

largest members in terms of exposure become insolvent. By continuously marking-to-market its exposures, regularly requesting liquid collateral, maintaining access to pre-financed funds in the form of equity and contributions from participants to a default fund, there should be protection from losses. With access to liquid collateral of high quality and other liquid resources, the central counterparty should have preparations in place to meet obligations at an early stage. If the central counterparties, when competing for members, place too low requirements on marginal collateral under normal market conditions and try to compensate for this with sharp increases in collateral requirements under stressed market conditions, it could be difficult to bring in the collateral and lead to magnified market fluctuations.

Despite the significant role of central counterparties on the financial market, there are currently no specific regulations in Sweden for managing a central counterparty that has defaulted or that will probably default. In the EU, preliminary studies are currently in progress for new regulations governing the recovery and resolution of central counterparties, which will probably be presented in the spring of 2015. In 2015, FI intends to work in collaboration with the Riksbank on the matter of managing central counterparties in difficulty. FI will also participate in the joint work in the EU on stress tests on central counterparties.

## The resilience of Swedish banks

Swedish banks have sound ability to supply the economy with credit, and satisfactory resilience to shocks. This is mainly a consequence of stable earnings and sound capitalisation, driven in part by new requirements from FI in recent years. In order to further bolster resilience in the banking system, bank recovery and resolution frameworks will be introduced in 2015.

The banks form a key part of the financial system, providing lending to corporations and households. In order to offer these important services even in stressed situations, the banks must have sound, stable earnings and be well-capitalised. Healthy banks are thus fundamental to financial stability. At the same time, excessive profitability and earnings in the banking sector might indicate excessive risk-taking or poor competition.

Sound governance and risk management are equally important to healthy banking operations. Governance and risk management among financial firms have improved in the past few years, partially following new requirements, but also because of lessons learned and experiences from the financial crisis. For example, the control and knowledge of financial firms of liquidity risks have been strengthened, and their risk control functions have clearer mandates to intervene than before.

Although firms on the financial market have a vested interest in a stable financial system, they often lack incentives to fully take into consideration the systemic risks that may arise. Hence, authorities need to secure financial stability and healthy banking operations, e.g. by requiring banks to maintain a certain minimum level of equity.

### THE BANKS' OPERATIONS

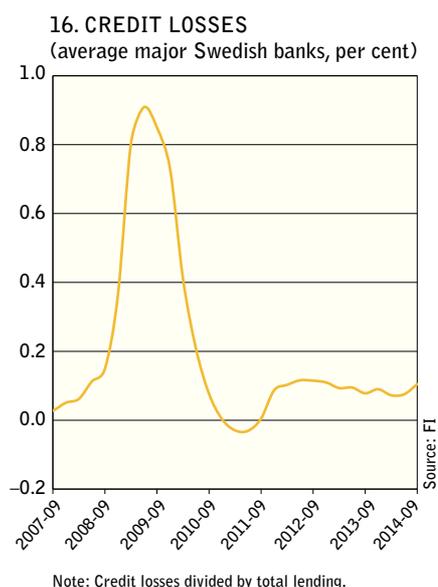
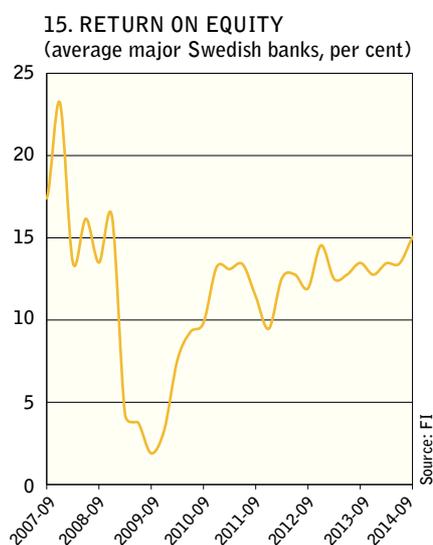
The Swedish banking system currently has sound ability to supply society with credit (diagrams 9 and 10). Growing lending has eased the recovery in the banks' profitability which, unlike for many European banks, is sound and resilient.<sup>20</sup> A measure of the banks' profitability is return on equity. The average return of major banks has been stable at between 10 and 15 per cent in recent years (diagram 15).

The banks' earnings largely consist of net interest income and net commission income. The banks' net interest income is the difference between their interest income and interest expense, and is affected both by lending volumes and the margin of the banks on their lending. Net commission income is the difference between income and expense from fee-based services, such as advisory, trade and management.

The credit losses of the major banks have been at a low, stable level since 2010 (diagram 16). The combination of low credit losses and the relatively high profitability is still a reason for the sound resilience of banks.

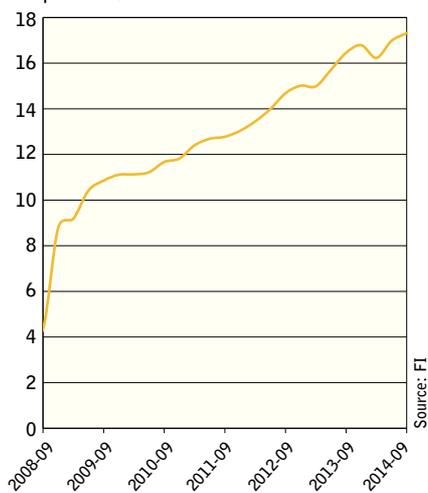
### CAPITAL ADEQUACY

The capital adequacy levels of the major Swedish banks are currently satisfactory, largely due to increased capital requirements. The new requirements, which were introduced in Sweden in 2014, also include

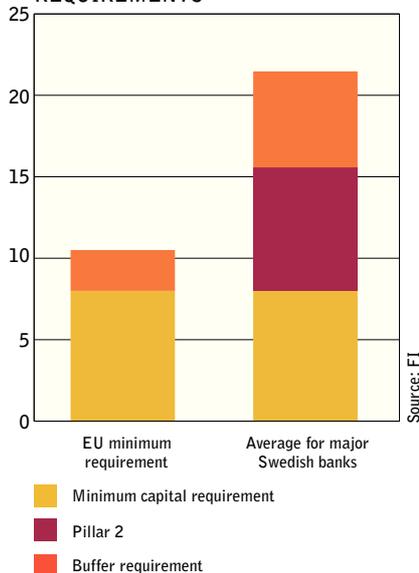


<sup>20</sup> See the section Asset Quality Review (AQR) and EBA's stress tests or <https://www.eba.europa.eu/-/eba-publishes-2014-eu-wide-stress-test-results>

### 17. COMMON EQUITY TIER 1 CAPITAL RATIO (Average major Swedish banks, per cent)



### 18. SWEDISH CAPITAL REQUIREMENTS



Note: The Pillar 2 requirements includes a risk weight floor of 15 per cent, a risk weight floor of 15 to 25 per cent, a risk weight floor for Norwegian mortgages, systemic risk in Pillar 2 and other factors Pillar 2. Other factors in Pillar 2 is an example of level, and varies in practice between the different firms. It chiefly consists of capital requirements for interest rate risk in the banking book, pension risk and concentration risk. Buffer requirements include the systemic risk buffer, the countercyclical buffer for Sweden and the capital conservation buffer (also included in the EU minimum requirements).

capital buffers. In September, FI decided on the final main elements of the EU's introduction of capital adequacy rules (CRD 4)<sup>21</sup>

The capital adequacy requirements are primarily in place to cover unexpected losses<sup>22</sup>. However, by reducing the risks of default, high capital adequacy also instils strengthened confidence in the banking system. Stable banks improve the banks' funding possibilities because the risk of losing money on lending to the banks declines the higher their capital levels. This leads to the resilience of banks being strengthened and their ability to obtain funding is improved even in times of unease, e.g. following heightened international financial turbulence.

The common equity Tier 1 capital ratios of the major banks – common equity Tier 1 capital as a share of risk-weighted assets – has continued to rise (diagram 17). This is largely because of the new capital requirements for Swedish banks, which are now double the EU minimum requirement (diagram 18), but also because of raised risk weights (see the section Risk-weighted assets and capital requirements). Sweden's ability to impose high capital requirements is important to reducing the risks to the economy and taxpayers, given the size of the banking system and the risks of contagion.

All major banks meet their total capital requirement (diagram 19). Under the new regulations, not only are the capital levels higher; the capital is also of higher quality because a higher proportion of it shall consist of common equity Tier 1 capital. Common equity Tier 1 capital can better absorb losses compared with other types of capital, such as other Tier 1 capital and Tier 2 capital.<sup>23</sup> For the six Swedish medium-sized banks<sup>24</sup>, the capital requirements and capital ratios diverge more than between the four major banks. However, all of them meet their capital requirements currently.<sup>25</sup>

#### Countercyclical buffer

The countercyclical buffer is a time-varying capital buffer which the banks must hold. The intention is that the buffer shall increase the banks' resilience in times when credit is readily available and financial risks are built up, and be zero in times when access to credit is low. The decision regarding the size of the capital buffer is taken by FI's board each quarter. On 8 December, it was decided that the buffer rate shall remain at 1.0 per cent. FI's analysis of the latest trend does not suggest that the financial imbalances and the cyclical systemic risks which the countercyclical buffer is intended to manage have changed substantially since September 2014. On the one hand, the availability of credit is growing faster than in September. On the other hand, there is a narrowing of the credit-to-GDP gap, which shows the deviation of the credit-to-GDP ratio from its long-term trend (diagram 20). In addition, FI has decided that a amortisation requirements for mortgages shall be

21 <http://www.fi.se/Press/Pressmeddelanden/Listan/Nya-kapitalkrav-beslutade/>  
<http://www.fi.se/Regler/FIs-forfattningar/Samtliga-forfattningar/201412/>

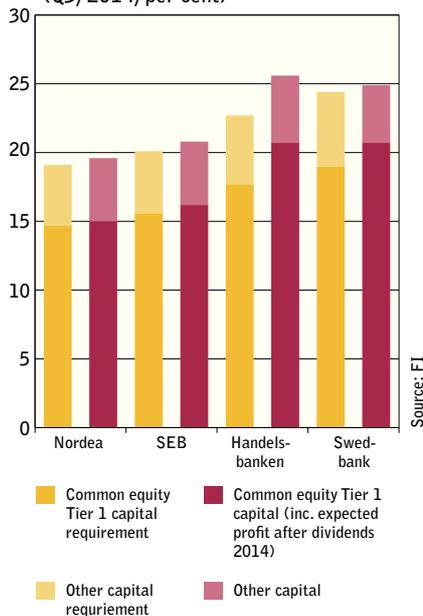
22 Losses for a normal year are usually covered by the provisions made by banks to this end.

23 See the glossary for an explanation.

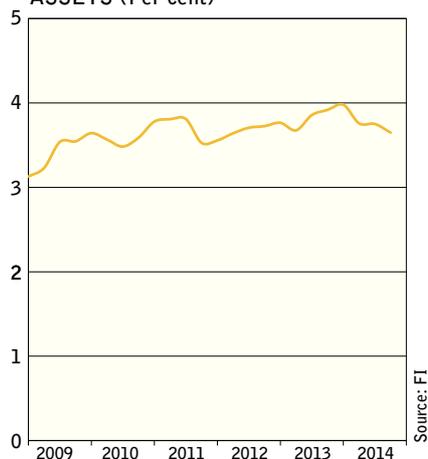
24 These are Kommuninvest, Landshypotek, Länsförsäkringar Bank, SBAB Bank, Skandiabanken and Svensk Exportkredit.

25 <http://www.fi.se/Tillsyn/Skrivelser/Listan/Kapitalkrav-for-banker-kvartal-tre/>

19. TOTAL CAPITAL REQUIREMENT (Q3, 2014, per cent)

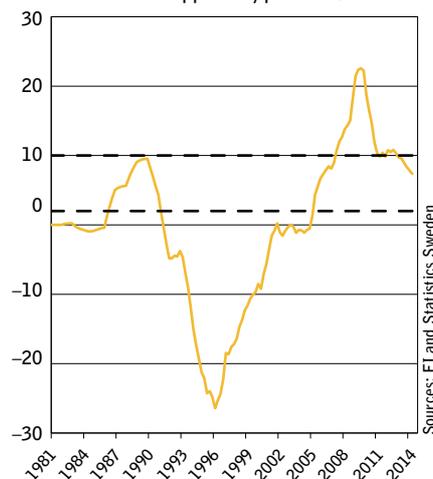


21. COMMON EQUITY TIER 1 CAPITAL IN RELATION TO TOTAL ASSETS (Per cent)



Note: Average major Swedish banks

20. CREDIT GAP (According to the standardised approach, per cent)



introduced, which is expected to have a subduing effect on households' demand for credit. On the whole, this indicates that the countercyclical buffer rate does not need to be changed. A more detailed review of the assessment is provided in the memorandum Decision regarding the countercyclical buffer rate.<sup>26</sup>

Note. The dotted lines show the thresholds (2 per cent and 10 per cent, respectively) which, under the standardised approach, are used to convert the credit gap into a buffer guide.

### Risk-weighted assets and capital requirements

A bank's capital requirement for credit risk is calculated in relation to its risk-weighted assets. Each asset is multiplied by a risk weight and the sum of the risk-weighted amount of each asset gives a total risk-weighted amount. Although capital ratios, i.e. capital divided by risk-weighted assets, have increased sharply in the past few years, the capital to total assets ratio has not increased by as much (diagram 21). The difference is due to the fact that the average risk weight for the banks' assets has dropped. This is an entirely reasonable development, provided that declining risk weights reflect declining actual risk in the assets. For example, mortgages, which tend to have low risk, now make up a larger part of the banks' assets.

#### Internal models

The average risk weight of the major banks has dropped considerably in recent years, from 47 to 23<sup>27</sup> per cent between 2006 and 2013 (diagram 22). An important matter in this context is to which degree this is due to so called risk optimisation, namely that the banks try to minimize their risk weights and hence their required amount of capital. FI has therefore analysed the causes of this drop in risk weights, and found that the drop can largely be explained by three factors:

- authorisation of internal models in connection to the introduction of Basel 2 in Swedish legislation ("Introduction of Basel 2" in diagram 22),
- authorisation of internal models<sup>28</sup> after the introduction of Basel 2 ("Introduction of new IRB models" in diagram 22), and
- that the lending has been steered to less risky segments ("Lending segment" in diagram 22).

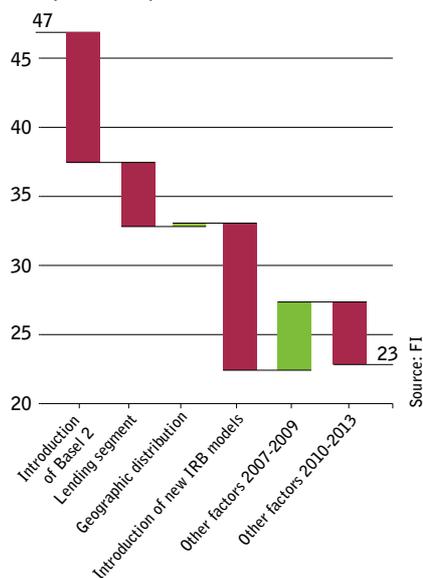
The potential effect of the banks' risk optimisation is incorporated with

26 <http://www.fi.se/Tillsyn/Skrivelser/Listan/Beslut-om-kontracykliskt-buffert-varde-/> (in Swedish)

27 Calculated without consideration of the risk weight floor. Taking into account the floor for risk weights results in a current average risk weight is 30 per cent.

28 A comprehensive review is undertaken by FI before the banks receive authorisation to use an internal model for capital requirement purposes.

22. CHANGE IN THE AVERAGE RISK WEIGHT OF MAJOR BANKS  
Q4 2006– Q4 2013



Note: The diagram is based on data reported by three of the four major banks which, at the time of publishing, had delivered data of the requested quality. Red signifies a drop in the risk weight and green signifies a rise.

Source: FI

a number of other factors in the remaining unexplained post. In FI's opinion, it was towards the end of 2009 that the stock market and hence the banks started to focus strongly on risk weight levels and to "optimise" risk weights. Other factors are therefore divided into two time intervals, 2007–2009 and 2010–2013. Between 2007 and 2009 Other factors contribute to the increase of the risk weights, whereas between 2010 and 2013 they contribute to a reduction of the risk weights by 5 percentage points (Other factors 2007–2009 and Other factors 2010–2013, respectively). The measurements taken by the banks to minimise the risk weights between 2010 and 2013 can thus at most have reduced the risk weights by 5 percentage points.<sup>29</sup>

The effect on risk weights attributed to cyclical effects are also included in the post Other factors. The risk weights are affected by which class of risk the banks' counterparts are given in the banks' internal risk classification system. The risk classes are updated annually and the classification can therefore be expected to be affected by cyclical fluctuations, which in turn lead to the risk weights rising in economic upturns and falling in downturns. FI does not have the possibility to isolate, and thereby precisely quantify, the effect of cyclical fluctuations on these changes, but a reasonable interpretation is that the economic downturn in 2007–2009 was an important factor behind the rise in the risk weights in the same period. Similarly, one could interpret falling weights in 2010–2013 largely as a result of the economic upturn. This would leave little room for risk optimisation. Another interpretation of the fall in risk weights in 2010–2013 is that it was mainly driven by risk weight optimisation and only to a small degree by cyclical fluctuations. Risk weight optimisation would then, at most, be able to explain 5 percentage points of the total decline in average risk weights, from 47 to 23 per cent since 2006.

*Leverage ratio*

The Basel 3 agreement contains a requirement for the banks' leverage ratio, capital in relation to total assets, of 3 per cent, which, according to the Committee, shall start to apply in 2018. A leverage ratio requirement has several advantages compared to a risk-weighted capital requirement, for example in terms of being easier to understand and comprise no risk of measurement error (model risk).

At the same time, a leverage ratio requirement has drawbacks. A capital requirement insensitive to risk creates incentives for the banks to increase the risks in the assets they hold and thus increasing their return on equity. One way of doing this is to remove low-risk assets, such as mortgages, from the banks' balance sheets. This so called securitisation involves the bank not keeping issued loans, but selling them on to other investors. Because the riskier assets remain with the banks, the risk level within the banks increases. At the same time, the incentive of banks to limit the credit risk of the sold securitised assets declines as they will not be accountable for the credit loss, resulting in a drop in the lending standard. The consequences of such a course of events were clearly illustrated in the US in the financial crisis, where major credit losses were incurred in securitised assets.<sup>30</sup>

29 A number of other factors also affect the post "Other factors", such as the asset quality within each segment or geography. In lack of further information it is however not possible to quantify these effects.

30 See e.g. the official inquiry into the latest financial crisis conducted by The financial crisis inquiry commission, January 2011, <http://www.gpo.gov/fdsys/>

Therefore, in FI's opinion, a leverage ratio requirement should not be so high that it becomes the binding capital requirement, but at a level where it can serve as an important back-stop. This back-stop then provides a floor to how low the risk-weighted capital adequacy measure can be in relation to the banks' gross assets. At present FI therefore find it reasonable for Sweden to await the leverage ratio requirement of 3 per cent planned to be introduced by the EU in 2018.<sup>31</sup>

In the Basel Committee, work is also in progress to develop new standardised approaches for the risk-weighted capital requirement. The new standardised approaches are intended to form the basis of a new permanent capital floor, also for banks that uses an internal model.<sup>32</sup> This new floor will replace the present Basel 1 floor which is based on the capital requirement under the Basel 1 regulations.<sup>33</sup> The capital floor is intended bolster confidence in the risk-weighted capital requirements by counteracting measurement errors in internal models and ensures that the capital levels calculated using internal models do not fall beneath a certain level. It also aims to increase comparability between the banks' capital adequacy.

Depending on how the requirements are devised, they can further increase the capital requirements for all banks using internal models. FI believes a standardised capital floor for the capital requirement could be necessary to handle model risk and other problems linked to internal ratings models. FI has within the Basel Committee pushed for the capital floor to be devised in a manner so that the capital requirement remains sensitive to risk, thus giving the banks sound incentives to preserve a high quality level on their assets. To achieve this it is important that the final calibration of the levels of both the capital floor and the standardised approach are well-balanced.

### New transparent methods in Pillar 2

Pillar 2 is the name of the rules that supplement the capital requirement calculations regulated in detail by ordinance and regulations, which are often called Pillar 1. In the framework of Pillar 2, FI performs an assessment of individual banks' capital need, which results in a specific own funds requirement. The specific funds requirement is an increase to the minimum capital requirement, and thus shifts the combined buffer requirement upwards.

Because the specific own funds requirement has not been made public by FI or the banks, it is difficult for investors to know when the banks fall below the buffer requirements. In order to make the specific own funds requirement more transparent, FI has developed a standardised calculation methodology for Pillar 2. This methodology will be submitted for consultation in December 2014. The methodology addresses the most significant risks in Pillar 2<sup>34</sup> and will thus significantly increase transpa-

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pkg/GPO-FCIC/pdf/GPO-FCIC.pdf

31 For more information about the leverage ratio, see <http://www.fi.se/Folder-EN/Startpage/Supervision/Miscellaneous/Listan/Leverage-ratio-requirement-for-Swedish-banks/>

32 <http://www.bis.org/bcbs/publ/d298.htm>

33 The Basel 1 floor is a back-stop for the lowest level of the own funds requirement that was implemented in conjunction with the transition from Basel 1 to Basel 2. According to the Basel 1 floor, prevailing capital requirements must amount to a minimum of 80 per cent of the capital requirement calculated in accordance with the Basel 1 regulatory framework.

34 Pension risk, interest rate risk in the pass book and concentration risk are in-

rency into the Pillar 2 requirement and hence the level at which firms reaches the buffer requirements. The transparency improves investors' understanding of the risks they take and hence helps increase stability on financial markets. Already today, FI publishes on a quarterly basis the effects of the measures taken within the framework of Pillar 2 for the 10 largest institutions at consolidated level.<sup>35</sup>

### **Too big to fail – the implicit state guarantee for systemically important banks**

The four major Swedish banks have such a predominant position in the Swedish economy that they are considered systemically important. It is difficult to believe that such systemically important institutions would be allowed to go bankrupt; and there is an expectation that, in that case, the state would intervene to prevent downright default. In such a situation, it is probable that the bank's equity capital would be eliminated, but that most bank creditors would not suffer write-downs. This involves a type of implicit state guarantee for creditors, which in turn leads to lower funding costs for the bank than it would otherwise have to pay. By estimating the value of this guarantee, one can measure the extent to which additional capital requirements and other regulations imposed on systemically important banks reduce or eliminate the value of the implicit guarantee.

In a recent study, the value of the implicit guarantee was estimated using three different methods.<sup>36</sup> On the whole, the interest rate discount for the four largest Swedish banks (i.e. the value of the guarantee) is estimated to amount to SEK 6–14 billion annually on average.<sup>37</sup> Adding to this, the guarantee only measures a part of the economic costs linked to risks in the banking sector, because the guarantee only measures bank-specific effects. Hence, costs linked to systemic risks are not covered. The results for the systemically important Swedish banks are in line with the results for the equivalent European systemically important banks.<sup>38</sup>

These calculations thus imply that the major Swedish banks, even following the introduction of additional capital requirements, still enjoy an implicit state guarantee. Hence, further measures to reduce the subsidy might be justified. Further regulation that will probably reduce the guarantee will be implemented, however, such as the Bank Recovery and Resolution Directive

cluded in the standardised methods.

35 <http://fi.se/Tillsyn/Skrivelser/Listan/Kapitalkrav-for-banker-kvartal-tre/>

36 All three methods estimate the implicit guarantee as a reduction in banks' lending costs. The first method is based on credit rating institutions Standard & Poor's and Moody's estimations of how the credit rating of systemically important banks is affected by the implicit government guarantee. This estimation can be converted into an interest rate effect. The second method is based on a statistical analysis (probit model) in which variables that control for other effects that can affect the calculation of the interest rate discount are included. The third method is based on options pricing analysis and calculates how much the probability of default changes due to the government guarantee. This calculation too can be converted into an interest rate effect. For further information see Nilsson, "Den implicita statliga garantin till systemviktiga banker" [The implicit state guarantee to systemically important banks], FI, to be published in the beginning of 2015.

37 The difference in the result is due to how the interest rate effect is assumed to affect different parts of the yield curve and is estimated based on data from July 2014. The higher estimate corresponds to a parallel shift of the yield curve while the lower corresponds with a steepening of the yield curve.

38 IMF, Global Financial Stability Report, April 2014, Chapter 3.

(BRRD) (see the section Further steps to bolster the banking system). In FI's opinion, it is currently too early to assess whether any further regulation to reduce the implicit subsidies is needed.]

## STRESS TESTS

### Asset Quality Review (AQR) and EBA's stress tests

In October 2014, FI presented the results of two extensive studies, the Asset Quality Review – AQR (credit portfolio survey in which FI reviewed the banks' lending portfolios and assessed the quality of their assets) and EBA's stress tests. AQR formed part of an extensive review performed by ECB ahead of assuming supervisory responsibility on 4 November 2014 for the largest banks in the euro area. AQR is based on a recommendation from EBA, entailing that non-euro countries too underwent the survey. The result of AQR was in turn used for EBA's stress tests, which were published at the same time.

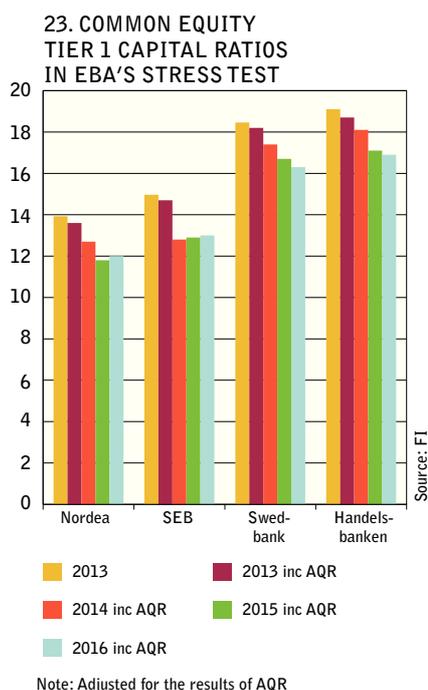
In Sweden, AQR covered an analysis of the quality of a large sample of the credits of the four major banks. FI's analysis shows that the credit quality in the studied portfolios is sound, but that the level of both non-performing loans and write-downs was slightly higher than those recognised in the banks' public financial statements. This difference is because FI's assessment within the bounds of AQR and the stress test is more conservative than that of the banks. However, it does not involve any requirement for the banks to amend their public financial statements.<sup>39</sup>

All Swedish banks did well in EBA's stress test, despite the Swedish banks being put under higher stress levels than the average European bank. Common equity Tier 1 capital ratios dropped by 1.8–1.9 percentage points at most in the stressed scenario (diagram 23). In absolute numbers, AQR and EBA's stressed scenario on the whole led to common equity Tier 1 capital ratios which at a minimum dropped to between 11.8 per cent and 16.9 per cent for the major Swedish banks, which can be compared with a drop from 11.1 per cent to 8.5 per cent for the average European bank.

### FI's own stress tests

FI also uses stress tests in its supervision of the banks, both in order to assess the banks' resilience, but also for FI's annual supervisory review and evaluation process of the banks' capitalisation. FI's method differs from EBA's stress test in that it is not based on a forecast based on the present state of the economy. FI bases it on public information and does not distinguish between the banks in terms of e.g. earnings stability or the credit quality of the various segments. FI assumes a schematic drop in earnings and a standardised progression in credit losses in various segments and markets. Unlike EBA's stress test, in which the calculations are done by the banks themselves, FI performs these stress tests without involving the banks.<sup>40</sup>

FI's stress test also shows that the major banks have satisfactory resilience to a severely negative scenario. The aggregate credit losses of the four major banks are estimated to a total of approximately SEK 256 bil-



39 For more information, see (in Swedish) <http://www.fi.se/Tillsyn/Skrivelser/Listan/Svenska-banker-klarar-europeiskt-stresstest/>

40 For more information about the stress tests, see Finansinspektionen's stress tests of the major Swedish banks, published concurrently with this report.

lion. The risk-weighted assets are furthermore assumed to increase in the scenario, so the overall effect would equal a deterioration in common equity Tier 1 capital ratios of between 1.1 and 2.5 percentage points per bank. Altogether, FI judge the four major banks to be satisfactorily capitalised and to have a satisfying resilience in a scenario with strongly deteriorating business conditions.

## FURTHER STEPS TO BOLSTER THE BANKING SYSTEM

Although several measures have been taken to strengthen the resilience of banking systems in recent years, the work continues.

### New bank recovery and resolution rules

The default of major financial firms has historically involved substantial negative consequences for the economy. In turn, this has often led to the government and taxpayers stepping in with financial funds and bailing out banks in trouble. The fact that governments bail out banks in serious difficulty is considered problematic, because it involves transferring value from taxpayers to private firms, partly because expectations about government bail-outs create misguided risk-taking incentives among financial firms (see the box Too big to fail – the implicit state guarantee for systemically important banks).

In order to attempt to resolve this, international regulations have been developed which address bank recovery and resolution. In normal times, banks and authorities must prepare by developing recovery and resolution plans and creating buffers for potential crises. For a failing bank, there will hence be greater possibilities than before for authorities to take action, without allowing the bank to enter normal insolvency proceedings or bailing it out. This new procedure is known as resolution, and involves in practice the ability of authorities, without the consent of creditors, to write down a bank's liabilities, after eliminating the value of the shares, in order to recapitalise it. This should preferably be done without delay in order to avoid problems spreading to other firms and so that the bank may uninterruptedly continue to conduct critical functions such as lending and payment intermediation.

In Europe, this framework has been introduced through an EU directive<sup>41</sup>, coming into effect on 1 January 2015. In Sweden, the Financial Crisis Commission submitted a report on 3 July 2014 on how the directive is to be implemented in Sweden. FI submitted its consultation response on 30 October. How the institutional framework for resolution should be organised in a country is a complicated question. FI's main fear is the risks related to creating parallel supervisory authorities. Therefore, in its consultation response, FI advocates that the measures occurring prior to resolution proceedings should be decided by FI, and that the resolution itself should be managed by a different authority.<sup>42</sup>

With the application of the EU directive, preparations in place for crises will be strengthened, both at the banks themselves and the concerned authorities. In order for resolution to be a credible alternative to liquidation or bankruptcy, there must be no substantial obstacles thereto. In practice, this requires that the banking structure is not overly complex

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41 Framework for the recovery and resolution of credit institutions and investment firms 2014/59/EU, <http://eur-lex.europa.eu/legal-content/SV/TXT/HTML/?uri=CELEX:32014L0059&from=EN>

42 <http://www.fi.se/Regler/Remissvar/Svenska-forslag/Listan/Remissvar-Ny-metod-hantera-banker-i-kris/>

and sufficient bail-in-able debt when the bank succumbs to resolution. Measures such as restructuring the bank or prohibiting certain operations can make the bank easier to wind up and hence reduce the cost to society in potential resolution. However, at the same time it can entail poorer efficiency in the banking system in normal times. This is a consideration faced by the authority deciding on removing such obstacles. Although preparations in place to manage a failing bank will be strengthened over the next few years, there is still a great risk that resolution proceedings do not turn out as intended. It is therefore important that FI continues to impose stringent demands on the banks and conduct sound supervision. The best way will still be to avoid default and financial crises rather than new means of managing them in the event of problems arising.

The Swedish authorities<sup>43</sup> will, as a supplement to the capital requirements, also impose a requirement for bail-in-able debt<sup>44</sup> at the bank. This requirement is expected mainly to cover bonds, certificates and certain types of deposits.<sup>45</sup> With the introduction of the Directive, the probability of investors in such instruments being forced to bear losses increases. This is likely to make borrowing more expensive, because the implicit guarantee from the Government decreases. It has not yet been decided what the bail-in-able debt requirement will be for Swedish banks.<sup>46</sup>

In FI's opinion, it is important that the requirements be set at appropriate levels and that the consequences of breaching the rules are reasonable. It is therefore FI's belief that the requirements for bail-in-able debt should not be equated to the minimum capital requirements according to the capital adequacy regulations. This is because new systemic risks can be created if major banks in funding difficulty risk losing their licence at an early stage. FI's fundamental view is that there should be stringent requirements for capital and bail-in-able debt, but the requirements should allow banks to first and foremost manage losses without defaulting, resolution or losing their licence.

### Global initiative to improve recovery and resolution

The Bank Recovery and Resolution Directive (BRRD) in the EU has not established all details regarding bail-in-able debt requirements at banks. In parallel with the directive, discussions are being held between the G20 countries in the Financial Stability Board (FSB) regarding agreeing on similar requirements for the largest banks in the world. The requirements in this context are known as Total loss absorbing capacity (TLAC), although they are basically the same type of requirements as those imposed by the EU directive. If FSB agrees on such a framework, which does not coincide with the version of the EU directive, the directive may need adjusting. FSB's mandate covers banks that are considered to have global systemic importance.<sup>47</sup> FSB presented proposals for prin-

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43 It has not yet been decided which authority/ies will decide this in Sweden.

44 Bail-in-able debt is debt that is not counted as own funds but which, in resolution proceedings, can be written down or converted into equity capital.

45 It will also be possible to meet it with capital.

46 On 28 November EBA published a proposal on how authorities in the EU shall determine the requirements for bail-in-able debt. <https://www.eba.europa.eu/regulation-and-policy/recovery-and-resolution/regulatory-technical-standards-on-minimum-requirement-for-own-funds-and-eligible-liabilities-mrel>

47 According to the latest assessment, Nordea is considered to be such a bank.

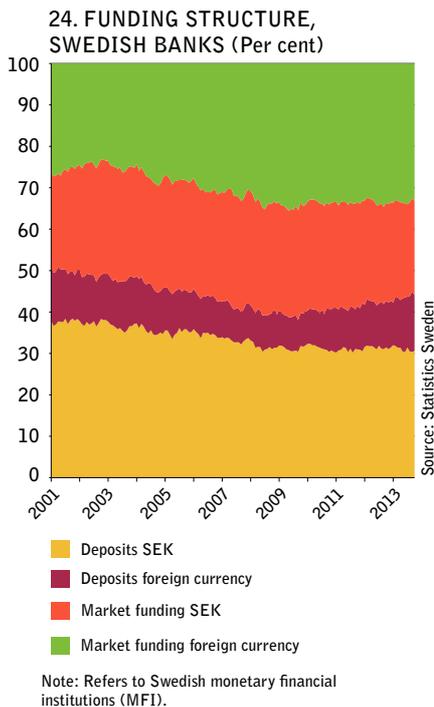
ciples and levels on 10 November.<sup>48</sup> FI finds it important that the TLAC requirement contributes to the banks' resilience in normal times too and does not only facilitate managing the bank when it has defaulted.

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48 <http://www.financialstabilityboard.org/2014/11/fsb-consults-on-proposal-for-a-common-international-standard-on-total-loss-absorbing-capacity-tlac-for-global-systemic-banks/>

## The banks' funding

Swedish banks currently have sound access to funding and short-term liquidity risks have subsided in recent years. At the same time, Swedish banks have a great need for market funding, making them vulnerable to funding shocks. Stress on the banks' funding markets or dented confidence in the banks can therefore rapidly lead to the banks encountering funding problems.



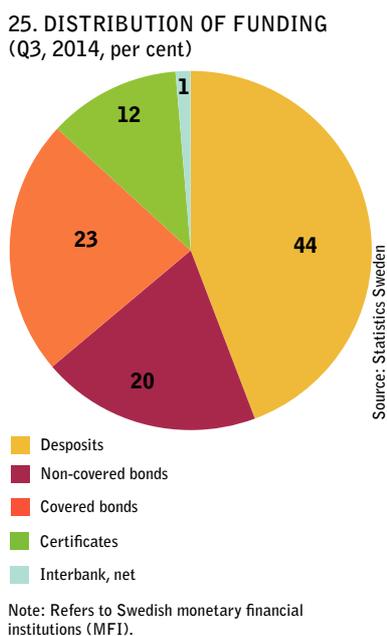
The Swedish banks mainly fund their lending through two channels – by accepting deposits from households and corporations (deposits) or by borrowing money on financial markets (market funding). A condition for the banks to have good access to funding is that they enjoy the high confidence of depositors and investors.

### MARKET FUNDING IS USED TO COVER THE DEPOSIT DEFICIT

At the end of the third quarter of 2014, the deposits of Swedish banks made up around 45 per cent of their total funding, which is low in a European comparison. Just shy of 70 per cent of deposits were in Swedish kronor and the rest in foreign currency (diagram 24).

In order to cover the deposit deficit (the chapter The structure and inter-linkage of the system presents the background to Swedish banks' need for market funding) large Swedish banks borrow mainly on financial markets by issuing different types of securities.<sup>49</sup> Covered bonds are an important part of the market funding, accounting for around a quarter of their total funding (diagram 25). Swedish banks currently have sound access to funding at a low cost (see the chapter The state of the economy).

Around 60 per cent of the banks' outstanding securities are issued in foreign currency (diagram 24) and are largely owned by foreign entities (diagram 26). In order to use this funding for Swedish lending, the banks must convert it into Swedish kronor, e.g. through so called currency swaps.



### MATURITY TRANSFORMATION LEADS TO LIQUIDITY RISKS

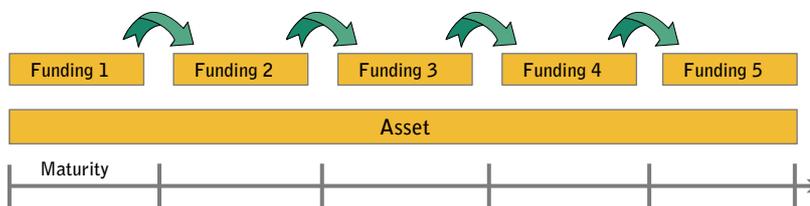
A key part of the banks' business operations is bringing together households and corporations with a surplus, with those with a deficit. However, those who invest money often want access to it at relatively short notice, while those who borrow money want to do so over a long period of time. Hence, the banks' funding is relatively short-term, while the maturity of their lending is longer. This gives rise to maturity transformation, which is of great value to both investors and borrowers (figure 2). For example, mortgages are an asset with a long maturity, while the average maturity of the liabilities that fund the mortgages, such as bonds and deposits, are not as long.

Maturity transformation involves the banks taking an exposure to refinancing risk, i.e. the risk of not being able to replace maturing funding at a reasonable cost. The shorter the outstanding maturity of the banks' liabilities, the more regularly they must find new funding and hence the greater the refinancing risk. Notwithstanding the refinancing risks, a

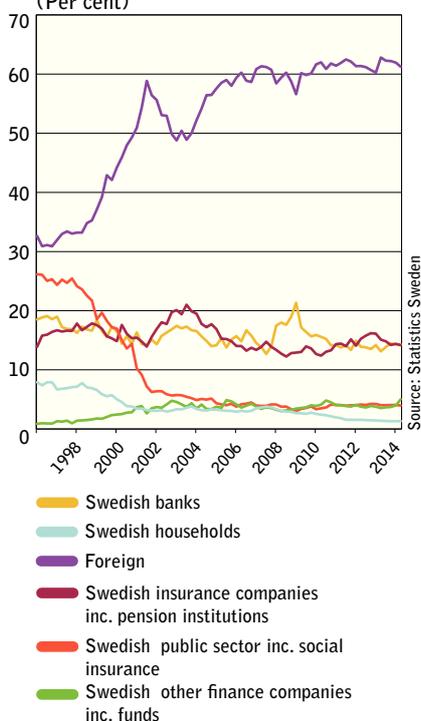
<sup>49</sup> Securities financing transactions are mainly conducted by larger banks.

banking system without maturity transformation is not desirable. Rather, focus should be on striking a balance whereby the banks' risks are reasonable, while the benefits of maturity transformation are enabled.

FIGURE 2. Maturity transformation



26. OWNERSHIP OF SWEDISH BANKS' OUTSTANDING SECURITIES (Per cent)



Note: The diagram refers to issued securities from MFI. 'Securities' refers to both covered and non-covered bonds, and certificates. Interbank loans and deposits are not included.

Different funding sources present different extents of risk

The majority of the banks' deposits can be withdrawn or transferred to another banks at short notice. Because a substantial part of the deposits of the general public are covered by the state deposit guarantee scheme, deposits are, however, generally considered a stable funding source that do not give rise to major funding risks. Deposits differ from market funding in that they do not have to be automatically repaid on a certain date.

Market funding has advantages. For example, creditors cannot request their money back from the bank before the debt matures, and also it is often easier to quickly borrow large volumes of capital through the securities markets than attracting larger deposits from customers. The extent of the risk in market funding as a funding source depends on the maturity of the funding, and the diversification and depth of investor demand. Because there is no deposit guarantee for investors, they must bear the entire loss in the event of a bank's inability to honour its commitments.<sup>50</sup> This generally makes investors more flighty than depositors.

The confidence of depositors and investors in the Swedish banks is fundamentally affected by how they perceive the risk of the banks encountering severe problems. Better capitalised banks run less of a risk of going bankrupt and investors and depositors hence have greater confidence in them. High capital requirements thus do not only lead to greater resilience to losses, they also reduce the risk of the banks encountering funding problems.

However, the need for market funding can lead to problems, even if confidence in the banks is fundamentally high. Shocks which negatively affect the banks' investors can spread to the banks if demand for their securities disappears. The banks can also encounter market funding problems if the trading venues they use are disrupted or if general financial uncertainty increases. Increased international financial can thus affect both the cost of funding and the banks' access thereto.

Because the major Swedish banks use covered bonds to a great extent for their funding, and because mortgage lending makes up a substantial part of their total lending, there is a clear link between the Swedish housing market and the banks' funding. A negative turn of events on the housing market, such as a fall in house prices, could reduce confidence in both

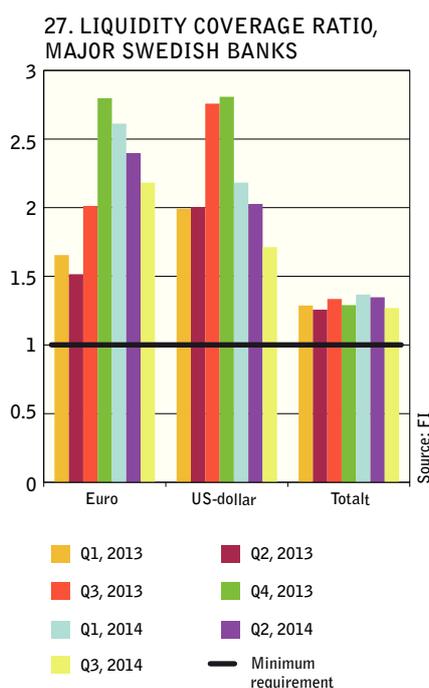
<sup>50</sup> This applies as long as the Government does not step in to cover the deficit that has arisen at the bank after the equity capital has been eliminated (see the box Too big to fail – the implicit Government guarantee for systemically important banks).

the banks and the Swedish economy at large, and hence lead to funding problems for the banks. The problems can be reduced if the banks have the possibility of borrowing through several funding sources and have a diversified and secure investor base.

### THE BANKS' RESILIENCE TO FUNDING SHOCKS

A bank can never perfectly predict its funding need or future market conditions. The latest financial crisis clearly showed how shocks on financial markets had a negative impact on Swedish banks' funding.<sup>51</sup> In order to withstand funding shocks, it is important that the banks have sufficient buffers. Such buffers, or liquidity reserves, consist of assets deemed sufficiently easy to convert into liquidity, even in a stressed situation.

Since the financial crisis, risk awareness among larger banks has increased, and measures have been taken. For example, they now hold larger liquidity reserves and have better risk management. FI has also worked actively on strengthening the banks' resilience to funding shocks. An important part of this work is the introduction of quantitative liquidity coverage requirements (LCR).<sup>52</sup> According to these requirements, banks must hold a liquidity reserve which at a minimum equates to 30 days' net outflows in stressed conditions. The requirements apply in the currencies EUR and USD and for all currencies combined. The reason for the specific requirements in the banks' two most common foreign funding currencies is that the Riksbank does not have the same possibilities of providing support in foreign currency as in Swedish kronor. The total liquidity coverage ratio for the major Swedish banks has been relatively stable at a level above the regulated threshold of 1 since the requirement was introduced at the beginning of 2013. The specific requirements in EUR and USD have, since the end of 2013, been much higher (diagram 27).



The average maturity for the market funding of the major Swedish banks is around three years, which is relatively short in an international comparison. However, it is longer than was the case before the financial crisis. At the same time, the actual maturity for many of the banks' assets is long, giving a high degree of maturity transformation.

In order to limit the risks in the banks' maturity transformation, the Basel Committee has prepared a Net Stable Funding Ratio (NSFR) measure. At the end of October 2014, the Basel Committee decided on the risk measure in its final form.<sup>53</sup> NSFR is a risk measure that places the bank's stable funding in relation to illiquid assets. In somewhat simplified terms, the measure shall indicate the extent to which assets with maturity exceeding 1 year are funded by liabilities with maturity exceeding 1 year. NSFR categorises deposits and long-term market funding as

51 As a result of this, the Riksbank offered loans on favourable terms to Swedish banks in the latest financial crisis. The Riksbank's outstanding loans to the banks were at their highest in February 2009, when they amounted to SEK 427 billion. This equals around 17 per cent of the major banks' issued securities at the same time. The Government also guaranteed the banks' borrowings within the bounds of the guarantee programme. In mid-2009, the Government's undertakings in the guarantee programme were at their greatest, amounting to SEK 354 billion.

52 These requirements were introduced on 1 January 2013 and cover financial firms with a balance sheet total exceeding SEK 100 billion.

53 <http://www.bis.org/bcbs/publ/d295.htm>

stable funding. Like LCR, the measure is a ratio that must amount to a minimum of 1; that is, stable funding must be at least as large as the assets that require stable funding. The NSFR of the four major banks was 89 per cent or higher in the third quarter of 2014.<sup>54</sup>

$$\frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} = \text{Net Stable Funding Ratio (NSFR)}$$

According to the decision of the Basel Committee, NSFR will be a minimum requirement in 2018. FI currently has no plans to introduce NSFR as a binding requirement before 2018. In FI's view, however, Swedish banks should, already today, allow for forthcoming European regulation and continue to extend the funding that funds illiquid assets in order to reduce the risks associated with maturity transformation.

The new Capital Requirements Regulation, which came into effect on 1 January 2014, includes a requirement for the banks to report, on a quarterly basis, the balance sheet items needed for calculating a net stable funding ratio to FI.<sup>55</sup> Further monitoring tools are also to be introduced within the EU from 2015, whereby banks are to provide more information about their funding and balance sheet structure.

#### Swedish banks' short-term funding in foreign currency

Some of the major banks' market funding is provided by investors in Sweden wishing to invest in Swedish kronor. Another part of the funding comes from foreign investors who prefer securities in currencies other than their own. The major Swedish banks thus obtain funding both on the Swedish and international financial markets. Around 60 per cent of their outstanding securities are currently in foreign currency. By having a diversified investor base, the major banks create several alternative funding channels that can be used to varying extents depending on what is most advantageous at the time. However, the foreign funding also gives rise to risks.

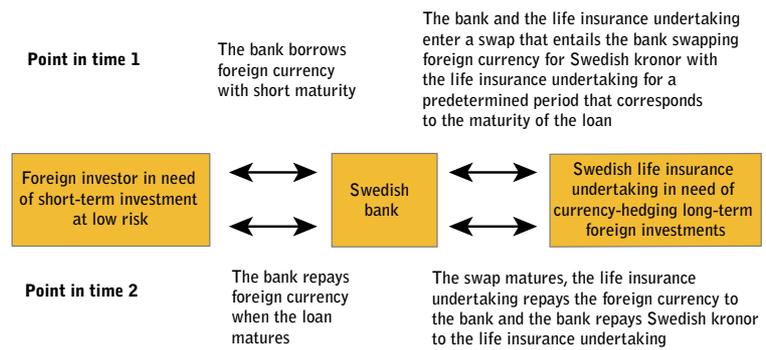
The major banks use part of the short-term funding in foreign currency to fund assets in the same currency, but some is used to fund assets in Swedish kronor. This gives rise to a foreign exchange risk, which the banks manage by entering foreign exchange swaps (figure 3). Swedish life insurance undertakings have a converse interest in currency hedging. These investors have both Swedish and foreign investments in order to diversify their risks, but their insurance undertakings are mainly in Swedish kronor. The foreign assets involve the life insurance undertakings taking an exposure to a foreign exchange risks that are converse to those of the major banks. In this way, the major banks and life insurance undertakings are natural counterparts when it comes to currency-hedging.

Because the major banks use foreign exchange swaps to currency-hedge their funding, foreign funding does not pose any substantial foreign exchange risks, as long as the foreign exchange swap market works as it should. However, a substantial part of foreign market funding is short-term and comes from entities not covered by any deposit guarantee. The majority of the major Swedish banks' securities maturing within six months are issued in foreign currency (diagram 28). Insofar that this short-term funding is used to fund long-term assets, the banks' refinancing risks increase.

54 Reporting to FI and Eba Corep.

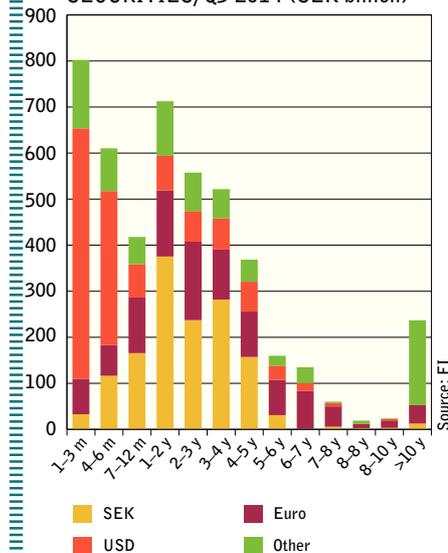
55 <http://eur-lex.europa.eu/legal-content/SV/TXT/?qid=1415652346278&uri=C ELEX:32013R0575>

FIGURE 3. Short-term borrowings and currency hedging



In addition, foreign investors can be considered more flighty than Swedish investors because they do not necessarily have the same knowledge about Swedish conditions as domestic investors.<sup>56</sup> Furthermore, the behaviour of foreign investors can be affected by shocks that are not closely linked either to the major Swedish banks or Swedish conditions in general. Hence, dependence on foreign investors creates a channel of contagion through which shocks abroad can affect the Swedish banks. Because much of foreign funding has a short maturity, a decline in the willingness of foreign investors to lend to the major Swedish banks can have a relatively rapid impact on the banks' funding.

28. MATURITY, OUTSTANDING SECURITIES, Q3 2014 (SEK billion)



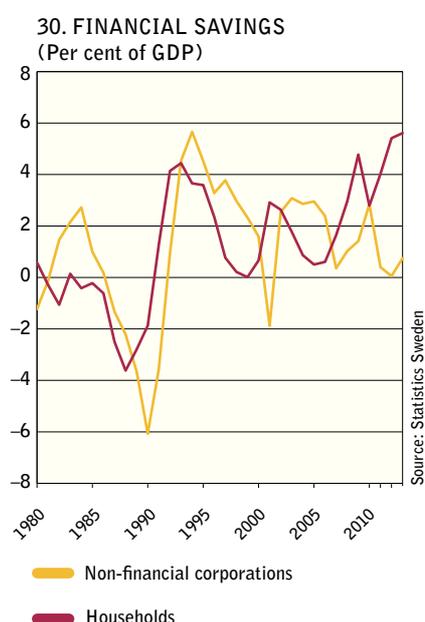
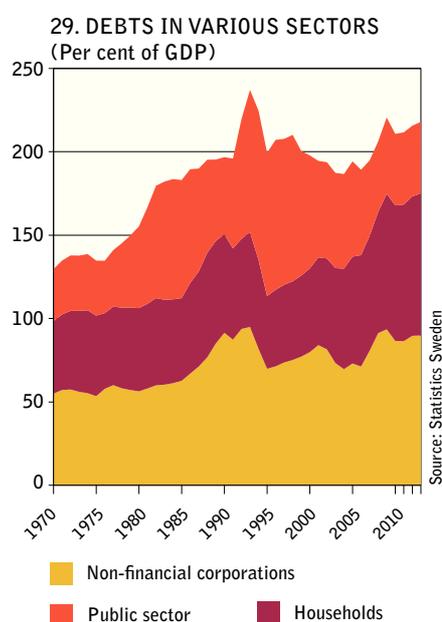
It is thus important to the major banks that foreign investors have a sustained interest in investing their capital with Swedish banks, or that they can be replaced by other investors. The currency hedging of the major banks entails them generally having constant access to foreign currency for repaying maturing foreign funding, if it cannot be renewed. However, such a situation could lead to a funding deficit in Swedish kronor. Because the Riksbank, in a crisis situation, can be expected to provide liquidity support in Swedish kronor, a funding need in Swedish kronor is easier to manage than a funding need in foreign currency. However, this still poses a refinancing risk.

Finally, foreign funding and the major banks' currency hedging thereof make the banks reliant on smoothly functioning funding markets and a foreign exchange market on which they can conduct their currency hedging. Shocks on such markets can thus have a negative impact on the funding of the major banks.

56 As an example, foreign investors reduced their holdings of covered bonds from SEK 450 to 330 billion in the second half of 2007, when stress on financial markets increased. See also Sandström, Forsman, Stenkula von Rosen and Wettergren (2013), The Swedish covered bond market and links to financial stability, Economic Review 2013:2, Sveriges Riksbank.

## Indebtedness and the Swedish economy

Part of FI's responsibility for stability is about counteracting financial imbalances with a view to stabilising the credit market. In FI's opinion, the indebtedness of corporations does not constitute a vulnerability that may lead to problems for the financial stability or the Swedish economy at present. Nor is household indebtedness deemed to threaten financial stability, because despite having substantial debts, households have strong balance sheets and considerable margins. However, the Swedish economy can become more vulnerable to macroeconomic shocks due to the fact that the percentage of households with major loans is on the rise. FI will therefore introduce an amortisation requirement for new mortgage holders to reduce this vulnerability.



Indebtedness is a natural phenomenon in a modern economy. This enables corporations and households to invest and consume without requiring from them an advance build-up of equity. Efficient capital distribution gives higher growth. A redistribution of consumption over time gives increased benefits to households. The ability of households and corporations to take on debt is thus positive for the national economy.

However, high and rising indebtedness also gives rise to various vulnerabilities, for lenders and borrowers and the economy at large. It is thus important to keep an eye on the risk-taking of corporations and households, and ensure that imbalances do not build up.

In an environment of healthy economic growth, rapidly rising income and low interest rates, asset prices and debts can quickly rise. If this course of events unexpectedly slows down or points downwards, the possibilities of borrowers to manage current debt expenses decline, and asset prices drop sharply. This increases the vulnerability of the financial system and the Swedish economy.

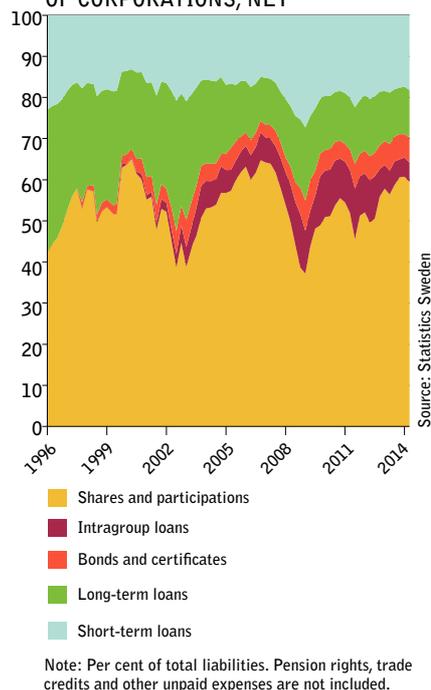
### INDICATORS OF VULNERABILITY

Experience points to long periods of strong growth in debt often preceding instability in the financial system.<sup>57</sup> An overall indicator of financial and economic stability is the credit-to-GDP gap, which shows how much the credit growth in relation to GDP deviates from its long-term trend (diagram 20). At the same time, there are considerable weaknesses in this measure, for instance linked to the fact that the underlying driving forces behind the credit growth are not analysed. For example, an upswing in lending resulting from more households owning their homes does not at all involve the same vulnerability as an increase due to more imprudent lending.

Another indication of the build-up of financial imbalances is if the debts of borrowers grow faster than their assets. Such a weakening of the balance sheet could be the result of loans being taken out for consumption and not investment, or of low return on investments. In such situations, selling assets for the purpose of honouring entered loan agreements can be problematic. A complicating circumstance in terms of

<sup>57</sup> See e.g. Drehmann and Tsatsaronis (2014), The credit-to-GDP gap and countercyclical capital buffers: questions and answers, BIS Quarterly Review, March 2014.

31. BREAKDOWN OF THE FINANCING OF CORPORATIONS, NET



assessing risks is that the value of assets can be affected by access to credit.

Loan instalments, i.e. interest plus amortisation, in relation to income, are a third indicator of the build-up of vulnerabilities.<sup>58</sup> This measure shows the payment ability of borrowers in relation to the expenses associated with indebtedness. This indicator is particularly important for non-financial corporations because they, unlike many households, rarely have marketable assets as collateral for their loans.

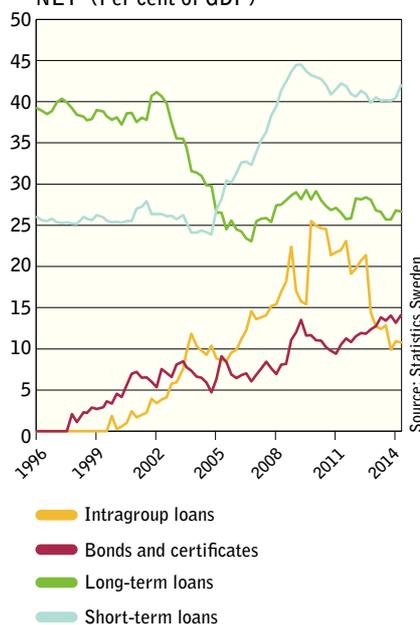
### INDEBTEDNESS IN THE SWEDISH ECONOMY

In the last two decades, the public sector has reduced its indebtedness (diagram 29). Thanks to a strong economic recovery and measures taken after the crisis of the 1990s, public debt as a share of GDP fell from around 90 per cent in the mid-1990s to 43 per cent in 2013. A strong position for public finances gives greater scope for managing financial crises.

Non-financial corporations and households have, on the other hand, increased their indebtedness in the same period. In a longer-term perspective, the indebtedness of corporations has increased from around 60 per cent of GDP to around 80 per cent. This structural shift is probably linked to the deregulation of the financial sector in the 1980s and the structural transformation in the 1990s. Where households are concerned, it has rather been a case of a rising trend in indebtedness from under 50 per cent of GDP in the 1970s to the current level of over 80 per cent. In this case too, deregulation in the 1980s might probably have played a part. The surge of the past decade is largely due to an increasing share of home-owning households, later entry onto the labour market, rapid urbanisation, lower housing taxes and lower mortgage rates.<sup>59</sup>

Indebtedness must also be viewed in a broader perspective. Since the mid-1990s household indebtedness has increased despite moderate household consumption as well as high and increasing savings (diagram 30). Combined with high savings in other sectors Sweden as a whole has had a substantial trade surplus; and hence accumulated receivables from abroad. This build-up helps reduce the likelihood of a crisis and provides a better margin of discretion and resilience should one nevertheless occur.

32. THE FINANCING OF CORPORATIONS WITH BORROWED CAPITAL, NET (Per cent of GDP)



### THE DEBTS OF NON-FINANCIAL CORPORATIONS

Non-financial corporations finance their operations with equity and borrowed capital.<sup>60</sup> The choice of financing is affected by costs, risks and tax rules. Different types of capital fulfil different needs at corporations, such as long-term borrowings for investments or short-term credit for managing cash flows. The composition of financing sources varies a great deal in the short term because equity capital is valued at market price (diagram 31).

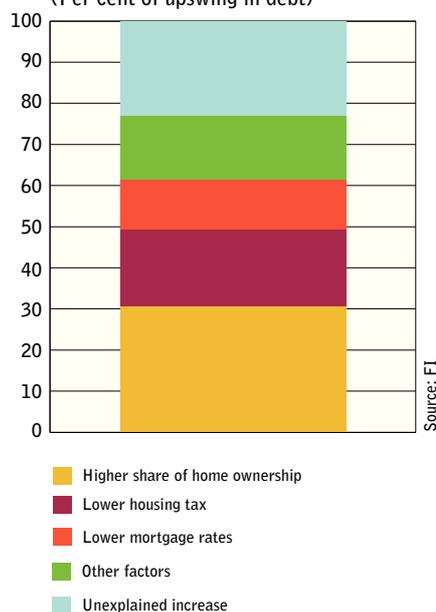
At the outset of the 2000s, non-current loans were replaced to a great

58 See e.g. Drehmann and Juselius (2013), Evaluating early warning indicators of banking crises: Satisfying policy requirements, BIS Working Papers no. 421

59 Hansen (2013), Explanations for the development in household debt since the mid-1990s. Analysis materials for the Council for Cooperation, Memorandum 1, FI.

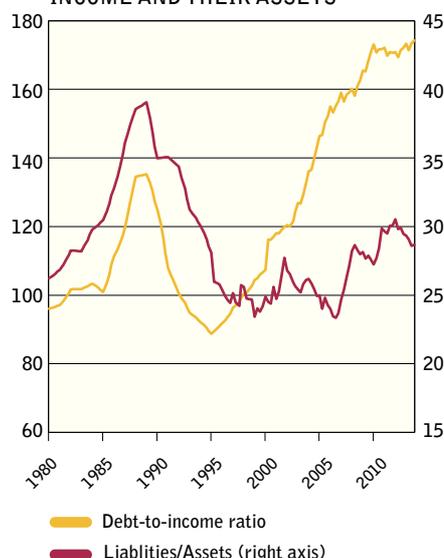
60 Equity can be broken down into issued shares and reinvested profits. Borrowed capital is financing through cash loans, bank loans, certificates and bonds.

33. REASONS FOR THE UPSWING IN THE HOUSEHOLD DEBT RATIO (Per cent of upswing in debt)



Note: Diagram shows upswing from 1994 to 2010

34. DEBT OF HOUSEHOLDS IN RELATION TO THEIR DISPOSABLE INCOME AND THEIR ASSETS



Sources: Statistics Sweden and the National Institute of Economic Research

extent by current loans (diagram 32). This enabled corporations to reduce their costs, but at the same time they became more sensitive to changes in interest rates and exposed to greater refinancing risk. A further trend in the past decades has been rising borrowings using bonds and certificates. The emergence of this market diversifies the financing of corporations, while at the same time makes them less reliant on banks, and hence less exposed to shocks in the banking sector. Large corporations in particular obtain financing using bonds and certificates since establishment on the bond market involves major costs.

A substantial part of the liabilities of non-financial corporations consists of intragroup loans, which do not pose the same risks to the financial system as other loans, because the relationship between the lender and borrower is not the same as in e.g. a bank loan.<sup>61</sup> Intragroup loans have increased because many corporations use them for tax planning purposes.<sup>62</sup> However, in 2009 and 2013 the Government introduced rules that limited the tax breaks (deducting interest) for corporations on internal loans, which have turned the trend around.

In FI's opinion, the liabilities of non-financial corporations do not currently constitute a vulnerability that risks leading to problems for financial stability or the Swedish economy.

## HOUSEHOLD DEBTS

### Vulnerabilities associated with household indebtedness

In order to assess vulnerabilities linked to household indebtedness, it appears to be more important to analyse rates of change than levels. For example, there are countries with a much higher debt-to-income ratio than Sweden which have fared well without difficulty. At the same time, there are countries with lower debt-to-income ratios than Sweden that have encountered problems. A rapid increase in household indebtedness thus appears to be a better indication of a vulnerability-build up linked to household indebtedness having taken place.<sup>63</sup> The rate of increase in household debt was sharply curbed after 2010, but has started to pick up again and is now at just below 6 per cent (diagram 9). Rising house prices and an expected strengthening of the economy could boost growth further.

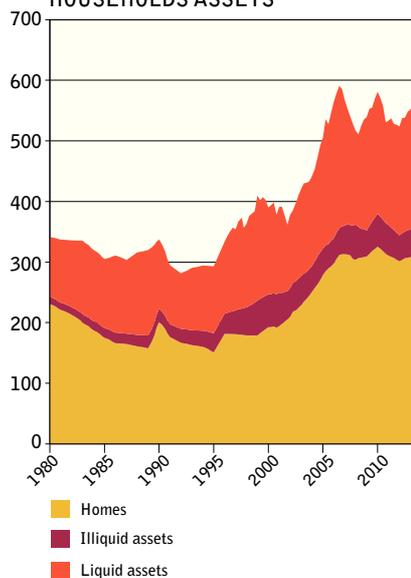
However, a high or increasing debt-to-income ratio need not pose a vulnerability if indebtedness is driven by sluggish structural factors. In such situations, the risk is low of rapid or major future changes. In previous analyses, FI has pointed out that a rising share of home ownership among the population, later entry onto the labour market and rapid urbanisation are important driving forces for the upswing in debt since the mid-1990s (diagram 33). The debt-to-income ratio is also affected by factors that cannot as easily be classified as structural, such as lower housing taxes and lower mortgage rates.

61 If such loans had not been consolidated in the statistics, the liabilities of non-financial corporations would have amounted to 124 per cent of GDP instead of 90 per cent of GDP. See EU Commission (2014), Macroeconomic Imbalances Sweden 2014, Occasional Papers 186, March 2014, EU Commission.

62 See Blomberg et al. (2012), Tax planning may have contributed to high indebtedness among Swedish corporations, Economic Commentary no. 3, 2012, the Riksbank.

63 See e.g. Bunn and Rostom (2014), Household debt and spending, Quarterly Bulletin 2014 Q3, Bank of England.

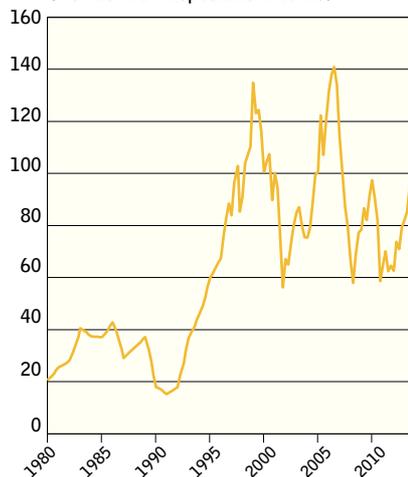
### 35. COMPOSITION OF HOUSEHOLDS ASSETS



Note: 'Homes' refer to single-family dwellings and tenant-owned apartments. 'Liquid assets' refer to deposits with banks, interest-bearing investments, shares and fund units. 'Illiquid assets' refer to private pension savings. Pension rights such as occupational pension and funds in the premium pension system.

Sources: Statistics Sweden, National Institute of Economic Research and FI

### 36. NET FINANCIAL POSITION OF HOUSEHOLDS (Per cent of disposable income)



Note: The net position is calculated as financial assets (liquid and illiquid assets) less liabilities, in relation to disposable income. Pension rights such as occupational pension and funds in the premium pension system (PPM) are not included.

Sources: Statistics Sweden, National Institute of Economic Research and FI

Although the upswing in the debt-to-income ratio of Swedish households can largely be explained by structural factors and changed mortgage conditions, of financial and macroeconomic vulnerabilities may nevertheless be present. Around 20 per cent of the upswing in debt is unexplained (diagram 33). Aggregate indicators such as the total debt trend also only account for a part of the risk profile. The distribution of debts and income, and the resilience of different households to shocks are examples of other areas for analysis to supplement the risk profile.<sup>64</sup>

#### The balance sheet of households is strong

In the last twenty years, the debts of households have risen rapidly in relation to their disposable income. The increase is largely due to the fact that households finance a substantial part of their home purchases with loans, and a new mortgage amounts on average to around 70 per cent of the value of the home.<sup>65</sup> The debt-to-income ratio, i.e. the debt of households in relation to their disposable income, currently exceeds 170 per cent. At the same time, the debt of households in relation to their assets has been stable, at between 25 and 30 per cent (diagram 34). This shows that the rising indebtedness of households has been used for building up assets, rather than for consumption.

The assets are mainly made up of homes and liquid financial assets (diagram 35). Looking only at the financial assets of households, wealth is greater than debts (diagram 36). The total balance sheet of households thus looks strong. Unfortunately, however, there is no data on the distribution of assets and debts for individual households. The balance sheets of individual households can thus both be weak and strong.

Mortgages make up the lion's share of household lending. The share increased from just below 70 per cent in 2001 to close to 80 per cent in 2008, and has been stable since. If the share of mortgage lending out of total lending for 1980–2001 is estimated at around 70 per cent, the average loan-to-value ratio for the housing assets of households for the period 1980–2013 can be calculated (diagram 37). This loan-to-value ratio rose rapidly in the 1980s, from under 25 per cent to close to 45 per cent, then fell back to around 35 per cent at the beginning of the 1990s. After having been relatively stable at around 30 per cent until the mid-2000s, it started to increase and is now at 40 per cent.

The growing debt that led to rapidly rising loan-to-value ratio in the 1980s was used to a great extent for consumption rather than for building up the housing wealth of households. At the same time, the high level of consumption over this period meant that households ended up with negative financial savings (diagram 30). It was therefore not surprising that the crisis at the beginning of the 1990s led to a drastic upswing in the financial savings of households with a view to restoring their balance sheets. Today, the situation is different because the financial savings of households are much higher, and in parallel with indebtedness, households have built up financial assets and housing wealth (diagram 35). Their net financial position is also much stronger than in the 1980s and the beginning of the 1990s, even excluding occupational pensions and savings in the premium pension system (diagram 36). On the whole, FI hence finds the equity/assets ratio of Swedish households to be sound.

<sup>64</sup> See Braconier Hansen and Palmqvist (2014) Risker kopplade till hushållens skuldsättning [Stability risks associated with household indebtedness], FI, for a discussion.

<sup>65</sup> Finansinspektionen (2014), The Swedish mortgage market, 10 April 2014, FI.

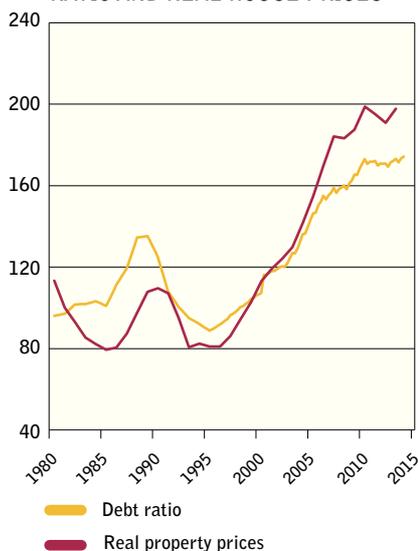
**37. AVERAGE LOAN-TO-VALUE RATIOS FOR ALL HOUSEHOLDS**  
(Per cent of asset value)



Note. Per cent of assets' value. Homes including tenant-owned apartments.

Sources: Statistics Sweden and FI

**38. HOUSEHOLD DEBT-TO-INCOME RATIO AND REAL HOUSE PRICES**



Note: The debt ratio is shown as a share of disposable income and the house prices are indexed, 100=1981.

Sources: Statistics Sweden and the National Institute of Economic Research.

**The risks of a substantial fall in house prices seem limited**

In the past two decades, house prices have soared rapidly in Sweden. The price trend is closely linked to that of the debt-to-income ratio (diagram 38) and key questions are thus whether the current price level is sustainable, and what the risks are of a sharp drop in prices ahead.

In an international perspective too, Swedish house prices have risen rapidly (diagram 39). There are several studies that look at house prices based on fundamental driving forces, but their conclusions as to whether homes are overvalued are not unanimous.<sup>66</sup> Most of them show, however, that changes in a number of fundamental factors since the mid-1990s have added to rising house prices and hence increased indebtedness too. Factors such as low real interest rates, abolished property tax, urbanisation in combination with a poorly functioning rental market, a low construction level, higher disposable income and a rise in unamortised borrowing seem to have contributed to the price increase. Another method for estimating whether homes are overvalued is to look at the housing cost of a newly purchased tenant-owned apartment in relation to what it would cost to rent the equivalent apartment. Using certain assumptions that take account of the fact that the Swedish rental market is regulated, these types of analysis do not show any overvaluation either.<sup>67</sup>

Although homes in Sweden are not evidently overvalued, there are always risks of a fall in prices. Prices are currently rapidly on the rise, and uncertainty is high about what a fundamentally reasonable price is. FI therefore judge that the risk of a fall in house prices has risen somewhat compared to six months ago. When price drops occur, they tend to be major because the expectations of households about the future price trend can decline. Empirical studies suggest that drops in house prices has a negative impact on private consumption. As discussed in FI's stability report of June 2014, the National Institute on Economic Research finds that a fall in house prices of 20 per cent can entail a downturn in household consumption of 1.8 percentage points and an upturn in unemployment of 1.4 percentage points.<sup>68</sup>

**The resilience of households is sound**

Because of increasingly lower interest rates, interest expense as a share of households' income has fallen substantially since the beginning of the 1990s. The interest-to-income ratio of households has declined from 6 to 4 percentage points over this period, despite home ownership, the number of indebted households and the average outstanding debt having risen (diagram 40). The decline can largely be explained by the fact that lending rates have dropped from 10 per cent to 3 per cent on average.

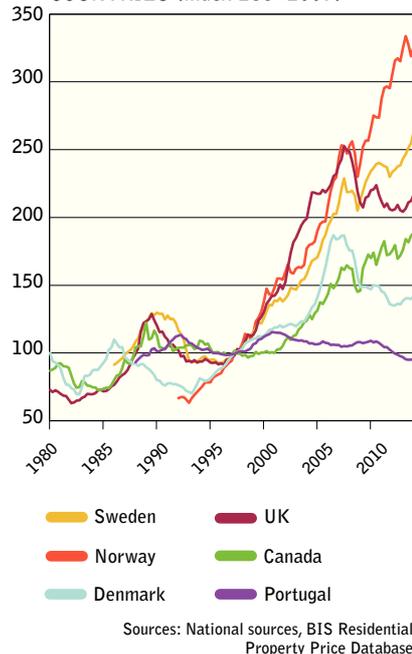
As the economy improves, the disposable income of households will probably grow faster, while at the same time the risk of a loss of income due to unemployment decreases. It is also reasonable to expect interest rates and interest expense to rise in time. However, it is hard to judge how fast

66 See e.g. Sörensen (2013), *The Swedish Housing Market: Trends and Risks*, Report to the Swedish Fiscal Policy Council, 2013/5, and IMF (2013), *Nordic Regional Report – Selected Issues*, IMF Country Report No. 13/275, September 2013, International Monetary Fund.

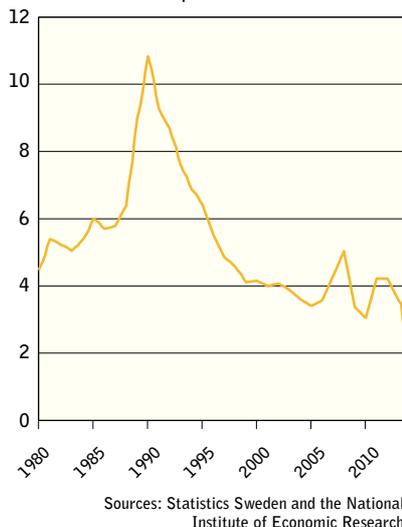
67 See e.g. EU Commission (2014), *Macroeconomic Imbalances Sweden 2014*, Occasional Papers 186, March 2014, EU Commission.

68 See also the Riksbank (2010), *Effects of a fall in housing prices*, Monetary policy report, July 2010.

39. REAL HOUSE PRICES IN VARIOUS COUNTRIES (index 100=1997)



40. HOUSEHOLD INTEREST EXPENSE TO INCOME RATIO (Per cent of disposable income)



and by how much. According to the Riksbank's forecast, the mortgage rate can be expected to be in the range of 5.2–6.5 per cent in a normal interest rate environment.<sup>69</sup> If mortgage rates were to increase to this range in a few years' time, the current level of the aggregate debt-to-income ratio means that the aggregate interest-to-income ratio for households would amount to 6–8 per cent after tax relief and hence be higher than the average of the past 20 years.<sup>70</sup>

Many international organisations however believe that global real rates – which steer Swedish long-term real rate levels to a great extent – will remain very low for many years ahead.<sup>71</sup> This could indicate that forthcoming mortgage rates will be lower than the Riksbank's estimated interval.

A supplementary portrayal of the resilience of households to shocks can be gained by analysing how individual households are affected by economic shocks. FI therefore carries out regular stress tests of new mortgage holders to identify the extent to which households risk ending up in financial insolvency and hence potentially causing the banks credit losses. FI's stress test shows that households have substantial resilience to higher interest rates, loss of income and declining house prices.<sup>72</sup> On the whole, Swedish households are thus deemed to be substantially resilient, and the risks of major credit losses linked to household indebtedness are considered low.

#### The macroeconomic vulnerability appear to be on the rise

The strong balance sheets of households and substantial resilience to shocks imply that household indebtedness does not pose a serious threat to financial stability. However, the indebtedness is a vulnerability that may lead to macroeconomic instability. International experience suggests that highly leveraged households tend to tighten their consumption sharply in economic shocks such as a fall in house prices, and thus deepen economic downturns.<sup>73</sup> There can be many reasons for the strong reaction; for example that households have short planning horizons, that they underestimate risks or that their expectations about the future change quickly. This might have caused them to save too little or have taken excessive risks during the years preceding the crisis. In light of FI's extended mandate to counteract financial imbalances, it is thus relevant to attempt to identify the extent to which Swedish households can be expected to react strongly to altered conditions, and also take measures to reduce potential imbalances, even if they do not pose any credit risk to the banks.

If highly leveraged Swedish households can also be expected to react

69 Financial stability 2014:1, Sveriges Riksbank.

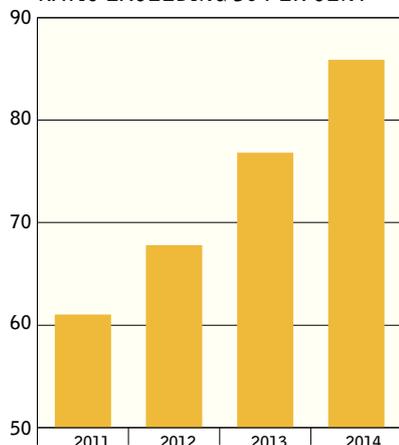
70 Such an upswing in mortgage rates would probably coincide with increasing disposable income, which would curb the upswing in the interest-to-income ratio somewhat.

71 See e.g. World Economic Outlook, April 2014, International Monetary Fund.

72 The Swedish mortgage market 2014, <http://www.fi.se/Folder-EN/Startpage/Supervision/Other-reports/Listan/The-Swedish-Mortgage-Market-2014/>

73 See for example Andersen et. al. (2014), Household debt and consumption during the financial crisis: Evidence from Danish micro data, Working Paper, Danmarks Nationalbank, Dynan, Karen, (2012), Is household debt overhang holding back consumption, Brooking Papers on Economic Activity and Bracconier, Hansen and Palmqvist, (2014), Risker kopplade till hushållens skuldsättning [Stability risks associated with household indebtedness], FI, for a more detailed discussion..

41. SHARE OF NEW MORTGAGE HOLDERS WITH A LOAN-TO-VALUE RATIO EXCEEDING 50 PER CENT



Note. Share in per cent.

Source: FI:s Mortgage survey (2011, 2012 och 2013) och FI:s Mortgage questionnaire (2014)

strongly to altered economic conditions, there is reason to attempt to curb the share of households with high loan-to-value ratios. At the same time, there is substantial uncertainty in the extent to which Swedish households can be expected to react in the same way as in other countries. For example, the financial savings of households have been much higher in Sweden than in e.g. Denmark, which might indicate that households in Sweden can have higher loan-to-value ratios without reacting strongly to changes. However, loan-to-value ratios have increased in recent years in line with the rise in house prices (diagram 41). In FI's opinion, households with loan-to-value ratios above 50 per cent risk reacting strongly to altered economic conditions, and hence amplifying economic fluctuations.

#### Measures for sustainable indebtedness among households

FI has implemented and announced a number of measures to reduce the vulnerabilities that household indebtedness and the housing market are associated with. The following measures have been taken or announced since 2010:

- In 2010 FI introduced a limitation on loans collateralised by the home to 85 per cent of the value of the home, known as the mortgage cap.
- In order to ensure that the banks' internal models do not underestimate the credit risk in mortgage portfolios, and create misplaced incentives in lending, in 2013 FI introduced a risk weight floor for mortgages of 15 per cent. In connection with the new capital adequacy regulations that enable FI to take account of the systemic risks brought about by mortgages, in 2014 FI increased the risk weight floor for mortgages from 15 to 25 per cent.
- New capital requirements to strengthen the banks increase the banks' resilience in a crisis.
- The countercyclical buffer was decided in September 2014 at a buffer rate of 1 per cent, applicable as of September 2015.
- FI works continuously with supervising the banks' credit assessment processes and discretionary income calculations at the basis of mortgage applications.
- FI has, in consultation with the Swedish Bankers' Association, also worked to promote offering individually tailored amortisation plans to the banks' customers when they are granted a mortgage. These started to apply as of the second half of 2014.
- In November 2014, FI announced that an amortisation requirement for new mortgages will be introduced. Under the requirement, new mortgages must be amortised by 2 per cent of the initial loan, down to a loan-to-value ratio of 70 per cent, and subsequently by 1 per cent down to a loan-to-value ratio of 50 per cent (see the box "FI's new amortisation requirements").

FI finds that the implemented and announced measures represent a balanced approach between curbing long-term macro stability vulnerabilities, and not breaking the weak economic recovery, which would increase the probability of financial instability in the short term. At the same time, there is substantial uncertainty linked both to the economic recovery and the extent to which the measures cause a long-term reduction in the vulnerabilities associated with indebtedness. FI thus continue

to monitor the development in order to ensure that the measures are well-balanced.

FI's measures can affect demand for and supply of credit, thus curbing house prices and reducing the risks linked to indebtedness. At the same time, FI has little possibility of influencing the underlying driving forces behind rising house prices and indebtedness. Measures which affect the supply of homes, such as new construction projects and more efficient housing utilisation, are largely governed by political decisions. In the same way, tax and tax deduction rules greatly affect the incentives of households to take out loans. In order to address imbalances on the housing market, rising house prices and increasing indebtedness, a collective approach is therefore needed.

#### **FI's new amortisation requirements<sup>74</sup>**

New mortgage holders with loan-to-value ratios below 70 per cent often opt to refrain from amortising. This is concerning, because international experiences indicate that households with loan-to-value ratios exceeding 40–50 per cent tend to cut back on other consumption relatively much when economic conditions change. This is concerning for the Swedish economy, because economic downturns can deepen.

FI therefore wishes new mortgage holders to amortise more than they do today. This reduces their indebtedness and increases their resilience to shocks. Hence, the risk of economic fluctuations being amplified decreases. According to FI's regulations, new loans shall be amortised in two stages. A loan with a loan-to-value ratio over 70 per cent shall be amortised by at least 2 per cent of the original loan amount each year. Households with a loan that has a loan-to-value ratio below 70 per cent shall amortise at least 1 per cent annually until the loan-to-value ratio has reached 50 per cent.

In FI's opinion, the new requirement will entail much lower indebtedness among households than would otherwise be the case. In turn, this leads to a reduction in the interest expense of households, which increases their resilience to shocks. At the same time, an amortisation requirement involves debt instalments, i.e. interest plus amortisation, rising. This brings about a reduction in the resilience of households. In FI's opinion, it is therefore important for stability that the banks can grant temporary exemptions from an amortisation requirement if the household suffers temporary problems.

A further consequence of an amortisation requirement is that demand for homes declines, which curbs the price trend. In turn, because of the lower prices, new home buyers need to take out smaller loans, which thus has an indirect curbing effect on indebtedness. At the same time, the measure is expected to lead to a slowdown in household consumption and hence demand in the economy. The effect on household consumption will peak in a few years' time, at an estimated maximum level of around 0.5 per cent compared with if no requirement had been introduced, and largely subsides within five years.]

<sup>74</sup> See Berg and Hansen (2014), Measures to handle household indebtedness – amortisation requirement, FI, for more details.

## Glossary

**Basel 3** A global framework established by the Basel Committee. The Basel 3 agreement for the banking sector contains regulations regarding capital adequacy, leverage ratio and liquidity regulation. In the EU these regulations are being implemented through the Capital Requirement Regulation (CRR) and the new Capital Requirements Directive (CRD 4).

**Capital requirements** Regulations about the minimum amount of capital a financial firm must maintain to conduct operations. The requirement is linked to the extent of the firm's risk-taking and should function as a buffer if losses arise.

**Central counterparty** A firm that enters as the seller for all buyers and the buyer for all sellers for the financial instruments being traded.

**Common equity Tier 1 capital** Denotes in principle equity, i.e. equity capital and accumulated non-distributed profits, i.e. the capital that absorbs losses first.

**Common equity Tier 1 capital ratio** Relationship between common equity Tier 1 capital and risk-weighted assets.

**Countercyclical capital buffer** The countercyclical capital buffer is a new time-varying capital requirement with the purpose of managing systemic risks linked to the credit cycle, which denotes the variation of the credit market over time.

**Covered bonds** A bond whose holder has a special right of priority in the event of bankruptcy. The purpose of covered bonds is that the credit risk is normally lower than for non-covered bonds, which means a reduction in borrowing costs.

**Credit-to-GDP gap** Indicator which shows how much indebtedness in the economy diverges from the long-term estimated trend.

**Debt-to-income ratio** A measure of indebtedness. It is defined as the household's total debt divided by the household's annual disposable income.

**Interest-to-income ratio** A measure of how much of a household's income is spent on interest rate expenses. It is defined as the household's interest expenses after tax divided by the household's disposable income.

**Internal ratings models (IRB models)** Calculation models banks develop and, after receiving permission from FI, use to calculate how much capital is needed to cover various credit risks.

**LCR – Liquidity Coverage Ratio** A requirement expressed within the framework of the new capital requirement regulations (CRD 4) requiring a bank to have sufficient liquid assets to honour its short-term obligations during a "stressed" 30-day period.

**Leverage ratio** Measure that states the extent of the bank's capital in relation to the bank's total assets and commitments outside of the balance sheet. The measure is used as a supplement to the risk-based capital adequacy requirements. There is an ambition for leverage ratio requirements to be introduced in the EU in 2018.

**Liquidity risk** The risk of not being able to honour payment obligations on the due date without the cost increasing considerably. Liquidity risk in financial instruments is defined as the risk that a financial instrument cannot immediately be converted into liquid funds without declining in value. This risk is often called market liquidity risk.

**Mortgage cap** The mortgage cap came into effect on 1 October 2010 th-

rough FI's general guidelines FFFS 2010:2. These guidelines state that a loan collateralised by a home may not exceed 85 per cent of the market value of the home.

**NSFR – Net Stable Funding Ratio** A liquidity measure that places a bank's stable funding in relation to its illiquid assets in a stressed one-year scenario. The EU Commission has the ambition of submitting a NSFR proposal in 2016.

**OTC (Over the Counter)** Denotes financial products (such as derivatives) that are traded directly between buyers and sellers outside of a stock market or multilateral trading facility.

**Pillars 1, 2 and 3** The Basel 3 capital adequacy regulations are divided into three pillars. Pillar 1 is the minimum capital requirements for credit risks, market risks and operational risks that are calculated using explicit calculation rules. Pillar 2 entails the supervisory authority identifying risks and assessing the risk management from a broader perspective. This can result in an increment to the capital requirements calculated under Pillar 1. Pillar 3 defines various transparency requirements.

**Risk premium** The extra yield demanded by investors as compensation for taking on higher risk.

**Risk weight** When the capital need of a bank is calculated, the value of each asset, for example a mortgage or corporate loan, is multiplied by a risk weight. The risk weights vary between the various assets based on how large the credit risk for each asset is judged to be. By combining the value of all of a bank's assets, weighted at the different risk weights, it is possible to produce a single value for the risk-weighted assets in the bank.

**Solvency 2** An umbrella term for the new regulations for the financial position and strength (solvency) of insurance undertakings being drawn up in the EU.

**Solvency margin** The solvency margin is the lowest acceptable level for own funds. Its calculation is based on the nature and scope of operations. In Solvency 2, the concept solvency capital requirement is introduced instead, with more detailed calculation rules.

**Stress test** Analysis of various scenarios to test resilience to unforeseen and negative events.

**Systemic risk** The risk of key functions being seriously disrupted or completely put out of action in all or parts of the financial system.

**Tier 1 capital** The sum of Core Tier 1 capital and Additional Tier 1 capital. Additional Tier 1 capital is, for example, perpetual subordinated loans with certain characteristics. A subordinated loan is a loan without particular security and of lesser seniority than a bond, which means that in the event of a default the holder will be paid after other creditors, but before equity holders.

**Tier 2 capital** Mainly consists of short-term subordinated loans (see Tier 1 capital), selected reserves and other supplementary capital that the supervisory authority has recognised as Tier 2 capital.



Finansinspektionen  
Box 7821, 103 97 Stockholm  
Besöksadress Brunnsgatan 3  
Telefon 08-787 80 00  
Fax 08-24 13 35  
finansinspektionen@fi.se

[www.fi.se](http://www.fi.se)