



# Financial Stability Report 2011:1

Correction 1 June 2011

In the list of points on page 11, "illiquid asset" has been changed to "liquid asset".

In Chart B3:1. on page 48 the dates have been adjusted.

## The Riksbank's Financial Stability Report

The Riksbank's Financial Stability Report is published twice a year. The Report describes the Riksbank's overall assessment of the risks and threats to the financial system and of the system's resilience to them. The work on the analysis of stability is accordingly an instrument that is directly connected with the Riksbank's function of promoting safe and efficient payments. By distributing the information of this analysis, the Riksbank wishes to draw attention to, and warn of, risks and events that might entail a threat to the financial system, and to contribute to the debate on this subject.

The Executive Board of the Riksbank discussed this report on 12 May and 26 May. The Report uses data available as at 25 May.

The Report is available on the Riksbank's website [www.riksbank.se](http://www.riksbank.se) where a printed version of the report can be ordered free of charge or a PDF can be downloaded.

## The Riksbank and financial stability

- The Riksbank has the Riksdag's mandate to "promote a safe and efficient payment mechanism". Achieving this requires a stable financial system so that payments and the supply of capital function well. In practice, the task thus means that the Riksbank is responsible for promoting financial stability.
- The financial system plays an important role in the economy – it is necessary that this system is stable and functions smoothly for the economy to function and grow. A serious crisis in the financial system could have extensive economic and social consequences.
- The financial system is sensitive. This sensitivity is due to central parts of the system, such as banks and markets, being vulnerable. Banks are vulnerable mainly because they fund themselves at short maturities but lend at longer maturities. This imbalance makes the banks dependent on the general public and the market having confidence in them. Markets are also dependent on confidence to function efficiently. If the market participants' confidence in their counterparties or for the financial instruments traded in the market declines, trading may suddenly come to a halt. The various parts of the financial system are also closely interconnected, for instance in that financial institutions borrow from and trade with one another to such a large extent. This means that problems arising in one institution, market or within one infrastructure can rapidly spread throughout the system. Contagion effects may also rise in that confidence will fall with regard to similar activities in general.
- The combination of the sensitivity of the financial system and the large potential costs of a financial crisis mean that the state has a particular interest in preventing threats to financial stability. Banks and other market participants do not have incentives to fully consider the risks to financial stability to which they are contributing. This is because a large part of the costs of a financial crisis fall to others both within and outside of the financial system. If a crisis occurs, the government also needs to be able to manage it at the lowest possible cost.
- The Riksbank analyses the financial system's stability on a continuous basis for the early detection of changes and vulnerabilities that could lead to a crisis. The main focus of the analysis is on the four major banks (Handelsbanken, Nordea, SEB and Swedbank) and on the markets and infrastructure that are important for their funding and risk management. These banks together account for around 75 per cent of the Swedish banking market and thus have decisive significance for financial stability in Sweden. The Financial Stability Report, published twice a year, presents the Riksbank's view of the risks and the banks' capacity to cope with any shocks. The Riksbank also disseminates knowledge in other way: by arranging dialogues with market participants, publishing speeches and participating in the public debate. Moreover, the Riksbank has the possibility to influence the framing of laws and regulations that relate to supervision and crisis management, for instance by commenting on draft legislation and by participating actively in several international organisations.

- The Riksbank is the authority that has the capacity to grant emergency liquidity assistance to individual institutions if problems arise that threaten financial stability. To be able to use this possibility in the best possible way, the Riksbank needs to have good preparedness for crises in the form of an efficient crisis organisation with good information channels and tools for analysis, as well as well-developed cooperation with other authorities.
- The Riksbank does not have the sole responsibility for promoting financial stability. It shares this responsibility with Finansinspektionen (the Swedish financial supervisory authority), the Ministry of Finance and the Swedish National Debt Office. The Ministry of Finance is responsible for the regulation of financial enterprises and Finansinspektionen is responsible for supervision. The authorities' interaction is important both in the preventive work and in the event of crisis management. The same also applies internationally as financial enterprises increasingly operate across national borders.



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## ■ Summary of the stability assessment

The Swedish economy is performing well. Swedish banks' earnings are continuing to improve and loan losses are declining. The Riksbank assesses that the Swedish banks are financially strong and the forecast for the banks' loan losses in the coming three years has been revised down. The economic recovery in many parts of the world has been slower than in Sweden, and in several areas the financial markets are still marked by great uncertainty. This uncertainty is primarily linked to the fiscal problems in Europe. As the Swedish banks largely obtain funding through market borrowing in foreign currency, they are sensitive to disruptions in

the financial markets. However, at present the banks have good access to funding. The Riksbank's stress tests indicate that the banks have a good capacity to handle higher loan losses, but that they are taking larger liquidity risks than many other European banks. The Riksbank therefore recommends that the Swedish banks should retain or increase their capital ratios and reduce their liquidity and financing risks. In this way the banks will have better resilience if developments in the real economy worsen or if the turbulence on the financial markets increases. The banks should also improve their public reporting of their liquidity status.

### SOVEREIGN PROBLEMS ABROAD AFFECTING FINANCIAL MARKETS

Since the previous Financial Stability Report was published in December 2010, Portugal has been the third euro area country, after Greece and Ireland, forced to seek financial support from the IMF and the EU. However, despite the support packages, yields on government bonds issued by Greece, Ireland and Portugal have continued to rise.

In recent weeks financial market participants have mainly focused on Greece, where weak growth prospects and large budget deficits have increased the probability of a renegotiation of the country's national debt. There are also signs that market participants' confidence in Spain and Belgium has been affected by the recent unease.

The Swedish economy is continuing to develop well. The banks' loan losses have continued to decline, while their earnings and profitability have increased. The loan losses have primarily declined in the Baltic countries, where the economic recovery has continued to be faster than expected. Despite the fact that there are still problems on the international financial markets, the Swedish banks have good access to market funding, both in Swedish kronor and foreign currencies. It has thus been possible to completely phase out the Riksbank's liquidity assistance measures, which were implemented during the financial crisis. The Swedish banks' costs for market funding are also lower than those faced by many other European banks. However, several banks in Europe are still dependent on their central banks' liquidity provision for funding.

The reason the Swedish banks do not have problems finding funding on the financial markets is partly because they are well capitalised, compared with many other internationally-active banks, and partly that they have only small direct exposures to the countries with fiscal problems. According to earlier confidential information, which the Riksbank is now making public with the banks' consent, the

four major Swedish banks' exposures to the states of Greece, Ireland, Italy, Portugal and Spain amounted in total to SEK 4 billion at the end of last year. Compared with many countries in Europe, the Swedish economy is also developing strongly and public finances are good. This can have a favourable effect on how the Swedish banks are assessed in the international markets.

#### SWEDISH BANKS EXPECTED TO BE FINANCIALLY STRONG

The Riksbank's main scenario assumes that the economies in the Nordic countries will continue to develop well and that the recovery in the Baltic countries will progress. As a result, the Swedish banks' loan losses in the coming three years are expected to be low. During the period 2011–2013 the major banks' total loan losses are expected to amount to around SEK 18 billion, which is SEK 8 billion less than the assessment for the same year in the previous Financial Stability Report. The strong economic activity is also expected to contribute to companies in the Nordic countries increasing their borrowing to a slightly greater degree than before, which will contribute to an improvement in the banks' earnings. Household borrowing, on the other hand, is expected to show slower growth, mainly as a result of higher interest rates. All in all, the Riksbank assesses that the Swedish banks are financially strong – capital ratios are high, in an international perspective, at the same time as the banks' earnings are increasing and loan losses are declining.

#### RISKS

However, there is a risk that the outcome for the Swedish banks is worse than in the Riksbank's main scenario, as there is still considerable uncertainty in the financial markets.

The largest risk in the short term is that the unease on the financial markets might increase if the situation in the fiscally-weak European countries deteriorates. If the problems in Greece, Ireland and Portugal in particular continue, the banks in these countries will need require further state support. At the same time, it is uncertain whether it is politically possible, particularly in the case of Greece, to implement the measures agreed with the EU and the IMF. If the measures are not implemented, the support payments may be delayed or cancelled. Then, as a last resort, the country concerned might have to suspend payments on its national debt and thus force a renegotiation. However, it is not clear how such a renegotiation of the national debt could be achieved. If the market perceives that the EU's institutions and member states lack the capacity to manage such a situation, this could further exacerbate the problems on the financial markets.

Renegotiation of the national debt in one of the fiscally-weak countries would risk having substantial contagion effects in Europe.

If a country is forced to suspend the payments on its national debt, speculation may arise as to which foreign banks have large direct and indirect exposures to this country. In a worst case scenario this would affect the functioning of the financial markets and ultimately also the Swedish banks.

Despite the Swedish banking groups having only small exposures to the countries concerned, they could be affected by a poorer outcome in two main ways. Firstly, it may be both more expensive and more difficult for the Swedish banks to gain access to funding, particularly in foreign currencies. Secondly, increased unease in the financial markets could entail a worsened macroeconomic situation, both in Sweden and globally, which would also contribute to higher loan losses for the banks. Moreover, several of the European banks need to refinance large loans in the coming years. Increased concern on the financial markets may mean that these loans become more expensive and more difficult to refinance.

In the longer run, the fiscal problems in Europe could contribute to long-term market rates increasing. The market has already begun to pay attention to the situation in other countries with large national debts, several of which have the highest credit ratings. A large public sector borrowing requirement in several countries in Europe over the coming years and problems with public finances in the United States could cause market participants to reconsider their views on these countries. This could lead to yields on government bonds issued by countries with large national debts rising substantially, which could have major consequences for the global financial system. If market rates rise further, Swedish banks and companies may also be affected.

#### THE RIKSBANK'S STRESS TEST OF THE BANKS' CREDIT RISK

The Riksbank has carried out a stress test where the world economy shows much poorer development than in the main scenario, at the same time as unease on the financial markets increases. The purpose of the stress test is to investigate the Swedish banks' resilience to such a situation.

In the Riksbank's stress scenario, which covers the period 2011 to 2013, the total loan losses for the Swedish banks amount to around SEK 190 billion. However, the banks' annual earnings are expected to be able to absorb these losses. At the same time, the poorer credit quality means that the banks' risk-weighted assets increase. This reduces the banks' capital ratios, but only to a small extent. However, it is assumed in the stress test that the banks will not buy back their own shares. The relationship between the Riksbank's main scenario and the stress scenario is, in terms of the size of the loan losses, largely the same now as in the previous Financial Stability Report.

The result of the stress test shows that the Swedish banks' resilience to negative shocks is good. But even if the Swedish banks have sufficient capital to meet a large increase in losses, large loan

losses could mean that investors' confidence in the banks declines. Moreover, it may be sufficient for one bank to suffer extensive losses for confidence in all of the major banks to decline. This can in turn mean that the banks have difficulty finding funding on both the capital market and the interbank market. However, the stress test does not capture these indirect contagion effects.

#### THE RIKSBANK'S STRESS TEST OF THE BANKS' LIQUIDITY RISKS

The result of the Riksbank's test regarding liquidity risk shows that the major Swedish banks have reduced their liquidity risk somewhat in comparison with autumn 2010. But the Swedish banks are still taking larger liquidity risks than the average of a sample of European banks. The fact that the liquidity risk is higher in the Swedish banks is mainly because they have a large share of illiquid assets, such as mortgages, at the same time as a large share of their funding comes from short-term securities.

#### CONSIDERATIONS AND RECOMMENDATIONS

In the Financial Stability Report published in December 2010 the Riksbank presented a number of recommendations to the Swedish banks regarding measures to strengthen the stability of the financial system. The banks have to some extent acted in line with these recommendations. However, the Riksbank assesses that the recommendations from the previous Financial Stability Report are still valid for various reasons.

**The Riksbank considers that the Swedish banks should retain or increase their capital ratios.** Accordingly, the Riksbank considers that the banks should not utilise the buyback programmes or distribute dividends in such a way that their core Tier 1 capital ratios decrease.

There are two reasons for this recommendation. One is that the uncertainty over economic developments abroad and on the financial markets remains, or as in the case of Europe, has intensified. The other reason is that it is still not clear how all the parts of Basel III will be implemented in Sweden and what capital adequacy requirements will apply to the Swedish banks. The Riksbank considers there is reason for the major Swedish banks to be subjected to higher capital adequacy requirements than those prescribed by Basel III.

**The Riksbank considers that the Swedish banks should reduce their funding and liquidity risks.** This recommendation is based on the Swedish banks' exposures to financing and liquidity risk still being high, which is shown in the Riksbank's structural liquidity measure. Another reason why the Swedish banks should reduce their liquidity risks is that they are dependent on short-term market funding in foreign currencies, which means that disruptions on the financial

markets can have substantial effects on their access to funding. This became clear during the crisis, when a large share of the responsibility for the banks' refinancing in foreign currency had to be taken over by the Riksbank.

**The Riksbank considers that the banks need to improve the clarity in their public liquidity reporting.** This recommendation is based on the fact that the information on liquidity risks published in the banks' reports is still inadequate and rarely comparable. In addition, the Riksbank considers there are reasons to clarify the recommendation. The Riksbank considers that the banks should publish their liquidity risks once a quarter by supplying some of the information they will report to Finansinspektionen when the regulations regarding reporting liquidity risks begin to apply in July 2011,<sup>1</sup> including:

- Information on the size of the freely available liquidity reserve, broken down into type of liquid asset and currency.
- Information on the time to maturity of the bank's assets and liabilities per currency.
- Relevant and comparable key figures and liquidity measures.

<sup>1</sup> See *Nya föreskrifter om rapportering av likviditetsrisk för kreditinstitut och värdepappersbolag* (FI Dnr 10-4148) (New regulations on reporting liquidity risk for credit institutions and securities companies) and the Riksbank's consultation response, reference number DNR 2011-73-STA.



# ■ 1. Financial markets

The recovery of the real economy is continuing around the world. However, some parts of the financial markets are still marked by great uncertainty. This applies above all in Europe, where the financial markets are affected by concerns about the developments in countries with weak public finances.

Furthermore, during the spring, market expectations that Greece will have to renegotiate its central government debt have increased. In contrast, countries and banks without any direct linkages to the sovereign debt problems have been impacted by this unease to a lesser extent than they were last year.

As Swedish banks and firms are highly active on global financial markets and are dependent on them for their funding, this chapter takes international developments as its starting point. The chapter starts with a general review of the development of the real economy and the financial markets. After this, there follows a section which analyses markets with direct significance for the Swedish banks funding: the bond and money markets. The final section analyses the markets that are important for supplying capital to Swedish businesses, i.e. the corporate bond and commercial paper markets. This chapter also identifies the risks arising from the development of the financial markets. Chapter 4 discusses the possible effects of these on the Swedish banks in more detail.

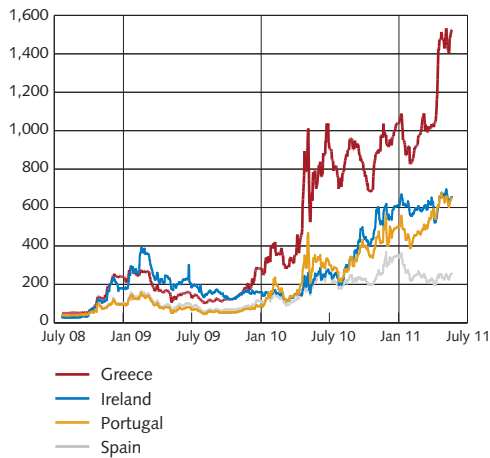
## The situation on the financial markets

**The economic recovery is continuing.**<sup>2</sup> This development is primarily being driven by the emerging markets of Asia and Latin America, but economic activity is also increasing in the United States and Europe. While the development of GDP in the United States was somewhat lower than expected, the recovery is now deemed to be more stable than it was in the autumn. In the euro area, the differences are wide, with growth prospects being significantly better in countries with strong public finances. In Sweden, the economy's rate of growth has slowed down after the rapid recovery in 2010, but the economy is still expected to grow faster than in many other countries. The strong public finances have meant that, unlike many other countries, Sweden has not been forced to adopt major fiscal policy tightening. This has contributed towards maintaining domestic demand.

**In the euro area, several countries are still struggling with large budget deficits.** Several of them have implemented significant fiscal policy tightening, and certain countries, such as Spain, have also implemented reforms of the labour market and pension system. These countries have also presented continued tightening for the coming years, aimed at putting the public finances into order. During 2010, Greece and Ireland received financial support from the EU and IMF. In April Portugal also applied for support, which was then approved in

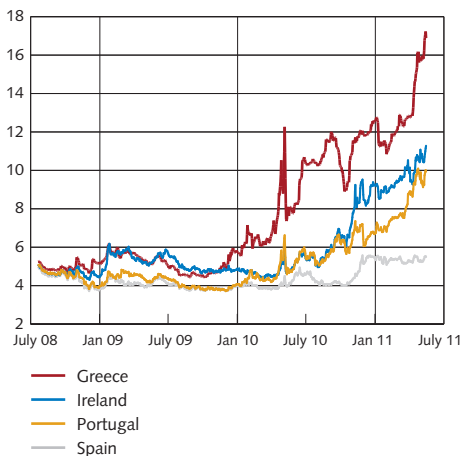
<sup>2</sup> See *Monetary Policy Update April 2011*, Sveriges Riksbank.

**Chart 1:1 Five-year CDS premiums**  
Basis points



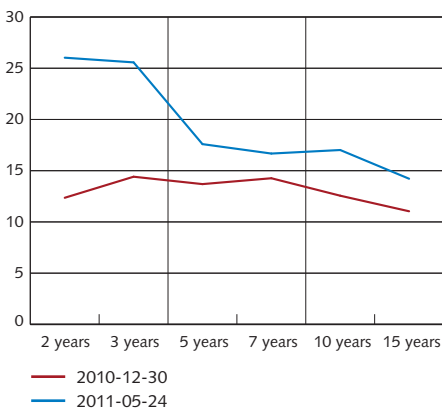
Source: Reuters EcoWin

**Chart 1:2. Ten-year government bond yields**  
Per cent



Source: Reuters EcoWin

**Chart 1:3. Yield curve for Greek government bonds**  
Per cent



Source: Reuters EcoWin

May.<sup>3</sup> The support packages have been granted on the condition that the countries strengthen their public finances. However, uncertainty prevails, to varying degrees, regarding the willingness and ability of these countries to carry out the budget cuts to which they have committed. The strained fiscal circumstances and unease surrounding this development have led to a decline in investors' interest in holding these countries' government bonds. This is reflected by increased risk premiums and rising government bond yields (see Charts 1:1 and 1:2).<sup>4</sup> Belgium is also struggling with a large budget deficit and the country's large private external debt makes it vulnerable.

**During the spring, market expectations that Greece will renegotiate its central government debt have increased.** This can be seen in the increased CDS premiums and sharply increasing short-term bond yields (see Charts 1:1 and 1:3). Difficulties in tightening public finances in accordance with the support programme's conditions, together with weak growth prospects, are leading investors to doubt whether Greece will be able to start fund themselves on the capital markets as planned in 2012.<sup>5</sup> The lack of communication regarding the EU's view of Greece's ability to obtain funding after the programme expires is also contributing to the investors' uncertainty.

**The problems faced by the countries with sovereign debt problems in refinancing themselves may also impair access to funding for banks in these countries.** Above all, this applies to the banks that are already dependent upon government support. However, other banks could also be affected, in that the governments implicitly guarantee the banks' commitments. Furthermore, there is a risk that these countries' large refinancing needs for the coming years (see Chart 1:4) crowds out the private banks' possibilities of obtaining funding. This is because investors judge government bonds as safe haven. Given the interlinkages between banking systems and public finances, higher funding costs for the government also risk spilling over onto the banks' funding costs, and vice versa.

<sup>3</sup> The financial support from the EU comes from two support mechanisms. These two are the European Financial Stabilisation Mechanism (EFSM) and the European Financial Stabilisation Facility (EFSF). For further information, see [www.ecb.int](http://www.ecb.int), [www.efsf.europa.eu](http://www.efsf.europa.eu) and the *Financial Stability Report 2010:1*, Sveriges Riksbank.

<sup>4</sup> Neither Greece nor Ireland has issued bonds at these yields as they have obtained funding via loans from the EU and the IMF.

<sup>5</sup> In 2010, Greece's budget deficit amounted to 10.5 per cent of GDP, which can be compared with a deficit of 8 per cent under the conditions for the support programme.



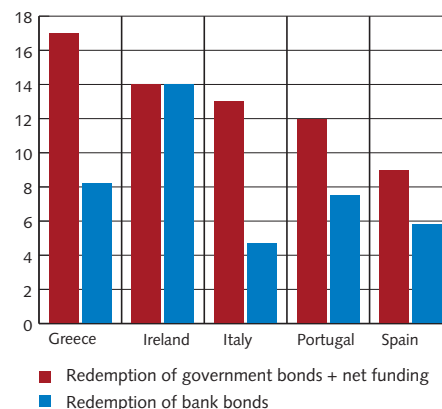
**The countries with sovereign debt problems may need to inject more capital into their banking system.** Consequently, the authorities are trying to increase clarity about the risks in the banking system through various means. For example, in March, the Irish authorities carried out stress tests of the banks, which resulted in further capital injections needed (see the box “The crisis in Ireland: similarities and differences compared to the Swedish bank crisis”). In April 2011, the European Banking Authority (EBA), carried out stress tests of a large portion of the European banks.<sup>6</sup> The results of these will be presented in June. By the start of 2011, some European banks strengthened their capital bases, partly to better cope with the stress tests, and partly to be better equipped against future shocks to the financial system.<sup>7</sup> During 2010, the banks also reduced their direct exposure towards the countries with sovereign debt problems (see Chart 1:5).

**Spain has so far succeeded in obtaining more funding on the market without needing to apply for support from the EU and the IMF.**

This is because investors deem that the uncertainty in Spain is lower than in the other countries with fiscal problems, thanks to the fiscal policy tightening carried out there (see Chart 1:1). During 2010 Spain attained its target of reducing the deficit from a good 11 per cent of GDP in 2009 to 9.3 per cent in 2010. Spain has also established a fund for restructuring banks, which has created scope to manage problems in the banking sector, primarily with regard to the country's savings banks.<sup>8</sup> All in all, this has meant that Spain could refinance its national debt at more favourable terms than the other fiscally-weak countries. However, they have not succeeded in managing the high unemployment level in the country, which has been around 20 per cent for a long time now. During May uncertainty has increased as a result of the political situation in the country in that the governing party, the socialists, lost the regional elections. The uncertainty concerns how the new regional politicians will act. Moreover, market participants are now more worried as to how much Spain might be affected by a restructuring of the Greek national debt.

**The situation in the euro area countries with sovereign debt problems is reminiscent of the situation in Sweden in the early 1990s.** The differences are that the countries' debts in relation to GDP are higher than they were in Sweden and they do not have the possibility of managing their problems by allowing the exchange rate to depreciate. Instead, the entire macroeconomic adjustment

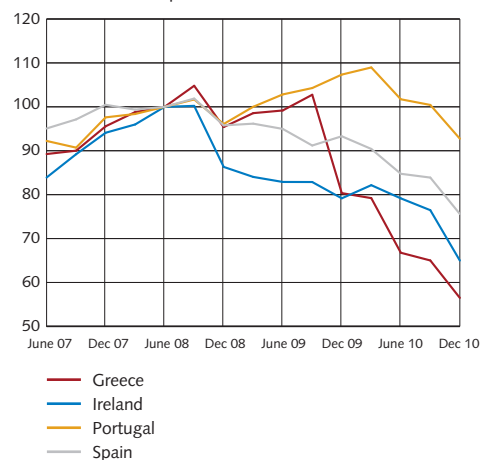
**Chart 1:4. Refinancing needs of countries and banks for 2011**  
Per cent of GDP



Note. The refinancing need for the government is comprised of the bonds falling due and additional funding requirements according to each country's budget for 2011. This does not include any refinancing need regarding treasury bills. Redemptions for the banks does not include certificates.

Sources: Dealogic, Reuters EcoWin and the Riksbank

**Chart 1:5. Exposure of international banks**  
Index, second quarter 2008=100, euro



Note. International banks represents banks reporting their holdings to the Bank for International Settlements.

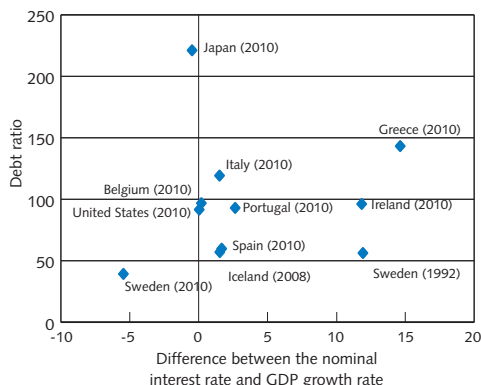
Source: Bank for International Settlements

<sup>6</sup> The European Banking Authority, EBA, will publish stress tests of the European banking sector in summer 2011. The stress tests cover around 90 banks, corresponding to just over 60 per cent of the total assets in the EU banking system. The purpose of the EBA's stress tests is to assess the resilience of the European banking market under certain hypothetical stressed situations. The tests are similar to those carried out by the Riksbank to assess the banks' resilience to higher loan losses (see Chapter 4).

<sup>7</sup> So far, it is primarily banks from Germany and Italy that have carried out new right issues. However, banks from other countries such as Portugal, Greece, Spain and Denmark have also strengthened their capital bases.

<sup>8</sup> The restructuring fund (Fund for Orderly Bank Restructuring, FROB), was established in 2009 and was allocated EUR 9 billion by the Spanish state. By issuing bonds the fund can increase in size to a total of EUR 100 billion. So far, around 11 billion have been used to support mergers between savings banks.

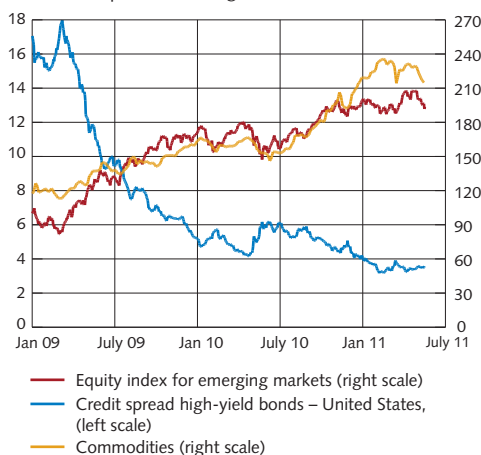
**Chart 1:6. Government debt as a percentage of GDP (vertical axis) and the difference between the nominal interest rate and nominal GDP growth (horizontal axis)**  
Per cent



Note. If the nominal interest rate is higher than the nominal GDP growth, a country must have a primary surplus in its public finance for its public debt to decrease as a share of GDP. The nominal interest rate used in this example is the highest interest rate on a ten-year government bond during the period in question for each country and year.

Sources: IMF, Eurostat and the Riksbank

**Chart 1:7. Signs of search for yield**  
Left scale per cent and right scale index



Note. The equity index for emerging markets is represented by MSCI EM and is indexed to 1 January 2009=100. Commodity prices are The Economist's commodity price index expressed in US dollars and indexed to 2005=100. The Merrill Lynch High Yield Index minus the 10-year government bond yield in the United States forms the credit spread for the high yield bond index.

Sources: Reuters Ecowin and The Economist

must be implemented via fiscal policy and structural reforms aimed at increasing competitiveness in the economy. Should the necessary tightening fail to be implemented at the same time as no further external funding becomes available, these countries may be forced to renegotiate their general government debt. Chart 1:6 compares the situation, in recent years, of the countries with fiscal problems with that of Sweden at the start of the 1990s. Countries with large central government debts in relation to GDP, and with nominal interest rates above the nominal growth rate of GDP are in a vulnerable position. A primary surplus must be created in the public finances if the central government debt is not to continue increasing.<sup>9</sup>

**Central government debt has also increased in other developed countries due to the financial crisis.** Both the United States and Japan already had significant budget deficits when entering the crisis, which have also grown during the crisis. According to the IMF, the US budget deficit is expected to amount to just over ten per cent of GDP this year, which is more than twice as much as the average in the euro area.<sup>10</sup> The US government plans to initiate fiscal policy tightening next year. However, if the United States does not succeed in preventing the increase of its central government debt, there is a risk that credit rating agencies will lower the country's rating.<sup>11</sup> The United States currently has the highest credit rating, AAA. In the short term, a lower credit rating could mean that investors with strict investment rules based on ratings may choose to sell their dollar assets. As a consequence, yields on US government bonds could increase. A lowering of the United States' credit rating could also entail a general increase in uncertainty on the financial markets.

**The supply of government bonds has decreased in Sweden, as a consequence of lower borrowing needs.** According to the Swedish National Debt Office's forecast, the supply will continue to decrease in the future.<sup>12</sup> A fall in the supply of bonds at the same time as new regulations<sup>13</sup> demand that investors buy safer securities is something that is worrying several market participants on the Swedish fixed-income market (see "The Riksbank's risk survey", spring 2011). Thus, the situation in Sweden is the reverse of the situation in, for example, the United States and several other countries in Europe.

<sup>9</sup> A primary surplus is income minus all expenditure except interest expenditure.

<sup>10</sup> See *World Economic Outlook*, January 2011, International Monetary Fund.

<sup>11</sup> In April, Standard & Poor's changed its forecast for the credit rating of the US central government debt from stable to negative. This means that the risk exists of a possible downgrade of the credit rating if US politicians fail to agree on how to reduce the central government debt.

<sup>12</sup> See *Statupplåning, prognos och analys 2011:1* (Central government borrowing, forecast and analysis 2011:1), May 2011, The Swedish National Debt Office.

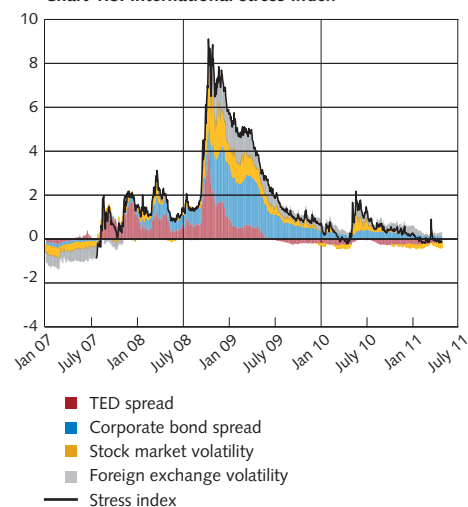
<sup>13</sup> It is mainly the new liquidity regulation in Basel III and the new regulations for insurance companies, Solvency II, that could lead to increased demand. For further reading see the boxes on Basel III and the insurance companies in *Financial Stability Report 2010:2*, Sveriges Riksbank.

**Asset prices have continued to rise in the emerging markets** (see Chart 1:7). Due to the strong growth prospects in Asia and Latin America, together with relatively low interest rates in developed countries, investors who wish higher yields are choosing to invest their money in emerging markets.<sup>14</sup> This means increased inflows of capital, which are not a problem in themselves, as long as they are based on well-founded evaluations of a country's growth potential. The nature of the capital flowing into a country is thus significant in terms of the risk that an asset bubble will build up. Capital flows can be divided into portfolio investments, direct investments and other capital flows.<sup>15</sup> Direct investments are considered to be a more long-term form of investment, and are thus more sluggish. In contrast, portfolio investments and other capital flows are often more short-term investments and thus more volatile. Statistics from the IMF show that the inflow to Asia (excluding China) during 2010 primarily consisted of portfolio investments, while these made up about half of the inflow to Latin America.<sup>16</sup>

**Investors' search for yield is also reflected in falling yield for high-yield bonds** (see Chart 1:7). High-yield bonds have a higher element of risk and investors thus demand higher yield (or interest rate) to compensate. When the yield for high-yield bonds decrease, this signals that demand for these bonds is high and that investors either consider the bonds to be less risky or have an increased demand for risk. Rapidly increasing commodity prices are also usually a sign that investors have become more inclined to take risks.<sup>17</sup>

**On the whole, some parts of the financial markets are still marked by great uncertainty.** The Riksbank's stress index and heat map, however, which show that stress has decreased on several submarkets. When uncertainty decreases, investors' demand for yield increases, which means that risk premiums on the financial markets fall (see Chart 1:8). However, the international stress index primarily reflects developments in the United States. Figure 1:1 captures the previously described uncertainty surrounding developments in the euro area. The chart, which illustrates various submarkets, shows that the European money market and also the credit market, to a certain extent, are still showing signs of stress. However, emerging markets, which have not been affected by the crisis to any great extent and where the economic recovery is strongest, are showing no signs of stress.

Chart 1:8. International stress index



Note. The stress index is based on four broad indicators: stock-market volatility, the bond spread, the basis spread and exchange rate volatility. The indicators are then weighted equally in the aggregate index. Financial stress is defined as deviations from the historic average, calculated for the years 1997–2007. For more details on the stress index, see the box “Financial Stress Index” in the Financial Stability Report 2009:2.

Sources: Reuters EcoWin, Bloomberg and the Riksbank

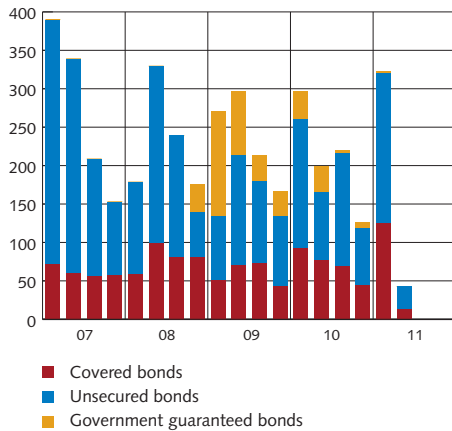
<sup>14</sup> See *Global Financial Stability Report*, April 2011, International Monetary Fund.

<sup>15</sup> Direct investments are defined as acquisitions of shares or participation rights giving a share or participation holding of ten per cent or more. In contrast, portfolio investments are often more short-term investments with a focus on return on capital. The category other capital flows includes cross-border bank loans, for example.

<sup>16</sup> See *Global Financial Stability Report*, April 2011, International Monetary Fund.

<sup>17</sup> Commodity prices are also driven by increased demand from commodity-intense emerging markets. In this connection, it should also be mentioned that price increases can also be explained by demand for commodities outstripping supply. Price increases can thus have a more fundamental explanation and may not solely be due to investors searching for yield in riskier assets.

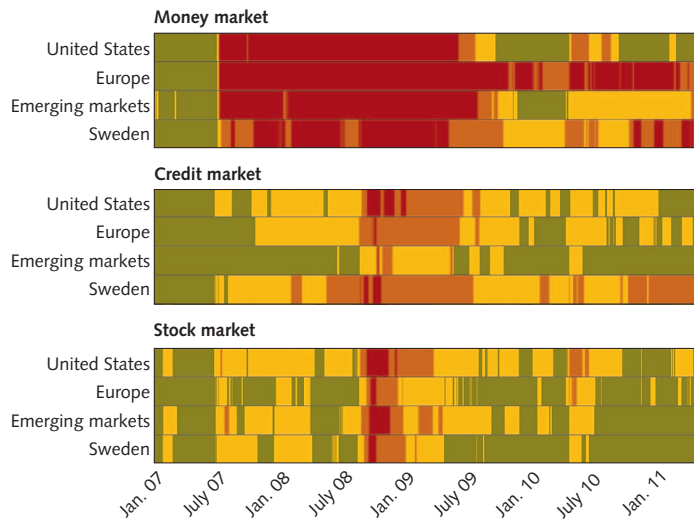
**Chart 1:9. European banks' bond issuance**  
EUR billion



Note. Refers to bonds issued by banks from 28 countries in Europe until 24 May. The percentage of bonds issued in dollars has increased from 10 per cent in 2008 to almost 20 per cent so far this year.

Source: Dealogic

**Figure 1:1. Heat map<sup>18</sup>**



Note. The heat map is a graphic illustration of developments over time. The heat map provides specific information on the state of individual submarkets, both in Sweden and internationally. The heat map is based on asset prices and volatility measures, but does not consider other factors, such as issue volumes, turnover or qualitative information. However, the fact that an individual market is experiencing stress will not necessarily have consequences for financial stability as a whole.

Sources: Reuters EcoWin, Bloomberg and the Riksbank

## Markets important for the Swedish banks' funding

Around half of the Swedish banking groups' funding consists of market funding. Of this, around two-thirds are in foreign currency. The currency risk, to the extent it arises, is handled through different currency insurances. This section discusses developments on markets important to the Swedish banks' funding. The Swedish banks are analysed in more detail in Chapter 3. This section also discusses the development of markets that are important for non-financial companies' funding.

### MARKETS FOR LONG-TERM FUNDING

Swedish banks' long-term market funding takes place through the issuance of covered and unsecured bonds. These bonds are mainly issued in the Swedish and European markets.

**On the whole, access to market funding has improved for most European banks during 2011.** Among other effects, this can be noticed in the increase in issue volumes of both covered and unsecured bonds (see Chart 1:9). There are several explanations for the increased issuance of covered bonds. An important one is that the European Commission has proposed that holders of covered

<sup>18</sup> The heat map measures monthly levels of spreads and volatility measures for various asset types in relation to a historical mean value based on the period between 2003 and 2007. Deviations from the historical mean value are expressed in terms of standard deviations. Green signifies a standard deviation under 1, yellow signifies 1-4 standard deviations, orange signifies 4-9 standard deviations and red signifies greater than 9 standard deviations. In Sweden, there is no aggregate index for corporate bonds representing the credit market. Consequently, the yield differential between covered bonds and government bonds is used for Sweden.

bonds should not lose their claims on any bank that may be forced to undertake reconstruction in the future. In contrast, holders of unsecured bonds risk losses. Another factor affecting the increased supply is that the number of institutions issuing covered bonds has increased.

**At present, there are larger differences in issuance prices, depending on which bank is issuing, than there were before the crisis.** Investors judge banks in euro area countries with sovereign debt problems to be riskier and thus have to pay a higher cost (i.e. interest rate) (see Chart 1:10). Certain banks in these countries remain unable to obtain funding from the market and are partially dependent upon borrowing from the European Central Bank (ECB). In the period ahead, large volumes of bonds will need to be refinanced on the international markets (see Chart 1:11). A portion of these bonds have been issued with government guarantees, which means that the banks' costs may increase when these government guarantees expire. In addition, the great need for refinancing among both banks and governments may lead to funding costs on the bond market increasing across the board.

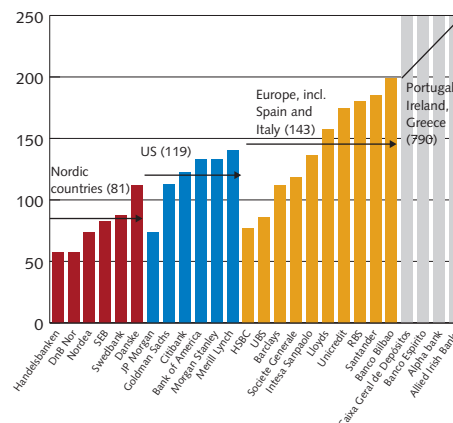
**Swedish banks have good access to funding through the bond market.** This applies to both Swedish kronor and other currencies. Above all, this means that they are considered to have a low credit risk in comparison with other banks (see Chart 1:10). This is also confirmed by the responses to the risk survey conducted by the Riksbank in April/May. Market participants report that Swedish securities are considered a safe haven in comparison with others and are thus subject to greater demand.<sup>19</sup>

MARKETS OF IMPORTANCE TO LIQUIDITY MANAGEMENT

**It is often difficult for banks to determine exactly how much liquidity they will need from one day to the next.** This leads them to redistribute liquidity among themselves on a daily basis. The greatest part of these transactions takes place on the domestic interbank market, either via direct loans, repo transactions or currency swaps. The following section describes the development of these markets. With increasing globalisation, the Swedish interbank market is also affected by international events. These markets are also described in this section.

**Extraordinary measures from central banks in the euro area, the US and the United Kingdom are contributing to low risk premiums on the interbank market** (see Chart 1:12). A large supply of liquidity implies that the risk premium on the European interbank market has been pushed down and does not therefore fully reflect the concern over sovereign debt problems (see Chart 1:13). The risk premium,

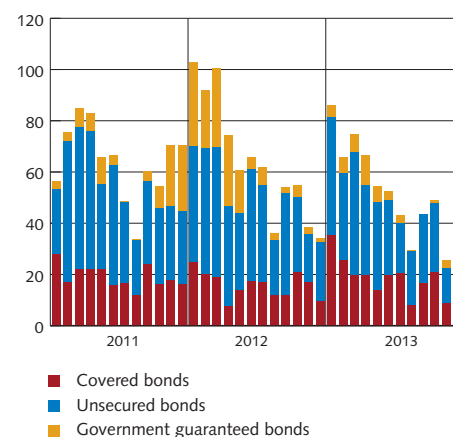
**Chart 1:10 Comparison of 5-year CDS premiums for banks**  
Basis points



Note. The graph shows a section of each bank's CDS premiums in April. The mean value for Portugal, Ireland and Greece amounts to 790 basis points. The average value for each region is given in brackets.

Source: Bloomberg

**Chart 1:11. Maturity profile of bonds issued by European banks**  
EUR billion

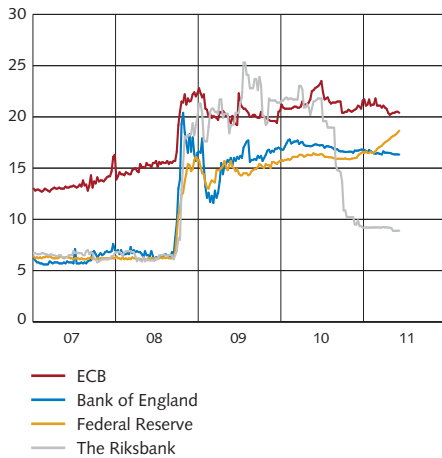


Note: Refers to bonds issued by banks from 28 countries in Europe until 24 May 2011. 70 per cent of the bonds were issued in euros, 15 per cent in dollars and the rest in other currencies.

Source: Dealogic

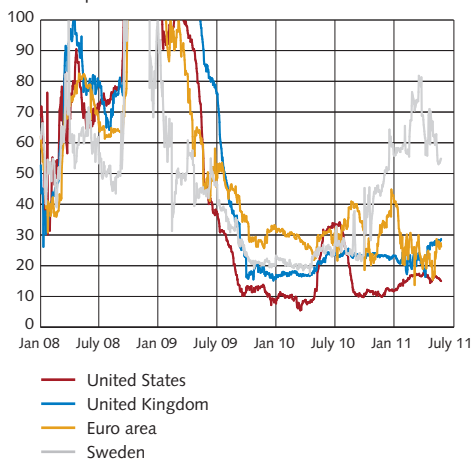
19 For more information see Risk survey spring 2010, Sveriges Riksbank at www.riksbank.com.

**Chart 1:12 Central banks' balance sheets**  
Per cent of GDP



Sources: National central banks

**Chart 1:13 The risk premium on the interbank market**  
Basis points



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

Sources: Reuters Ecowin and Bloomberg

calculated as the difference between the three-month interbank rate and the expected policy rate, gives an indication of how risky interbank loans are considered to be and how great the confidence between banks is.

**In contrast, the risk premium on the interbank market in Sweden has continued to increase since the autumn** (see Chart 1:13). In conjunction with the winding up last year by the Riksbank of its extraordinary measures, the extra liquidity in the banking system decreased and moved towards more normal levels. Since then, the risk premium has remained at a higher level. However, it is difficult to determine what a reasonable level would be for the risk premium. Before the crisis, the risk premium was considered to have been too low, reflecting excessive risk-taking. In contrast, in the autumn of 2008, when the crisis was at its most acute, the situation was the reverse, with risk premiums being at raised levels. In the period ahead, it is likely that the risk premium will be stabilised at a higher level than before the crisis, without the market being characterised as being under stress. For further discussion of the factors driving the risk premium on the Swedish interbank market, see the box "Disruptions on the interbank market since the phasing out of the extraordinary loan facilities".

#### DEVELOPMENTS ON MARKETS IMPORTANT FOR THE CREDIT SUPPLY OF SWEDISH FIRMS

The loan-based funding of Swedish non-financial companies primarily takes place through bank loans from credit institutions. The remaining part, 20 per cent, is made up of market funding. Of this, half is in Swedish kronor, 40 per cent is in euros, 5 per cent is in US dollars, and the rest is in other currencies. Market funding takes place on both the money and bond markets. This section thus includes an analysis of the functioning and the latest developments on these markets.

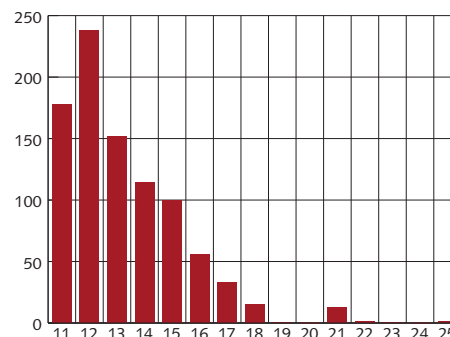
**Swedish firms' refinancing needs will be great in the period ahead. For example, during 2011–2013, large maturities of syndicated loans are expected** (see Chart 1:14). These are loans that were entered into under advantageous terms in the years 2003–2007. The proportion of market funding falling due will also be high in the years ahead (see Chart 1:15). This indicates that Swedish non-financial firms' need for refinancing will increase in the period ahead, regardless of which funding form has been chosen. In the Riksbank's corporate interviews from January, the major firms state that they are experiencing normal access to funding. On the other hand, smaller and medium-sized firms state that they are not finding it as easy to gain access to funding.

**Issuance volumes on the Swedish market for corporate bonds have increased somewhat during the year.** The primary reason for this is that it has been advantageous for foreign companies to issue securities in Swedish kronor and then swap this into domestic currency via the currency swap market.<sup>20</sup> Two examples of European companies that have been active on the Swedish market are the German debt manager KfW and the European Investment Bank.

**Bond issuance denominated in euros was lower in 2010, compared with the year before.** Among other reasons, this is due to decreased interest among investors caused by the increased unease regarding countries with sovereign debt problems, but also because many companies already refinanced themselves in 2009. However, even on the euro market, issuances within the high-yield segment were higher than in previous years.

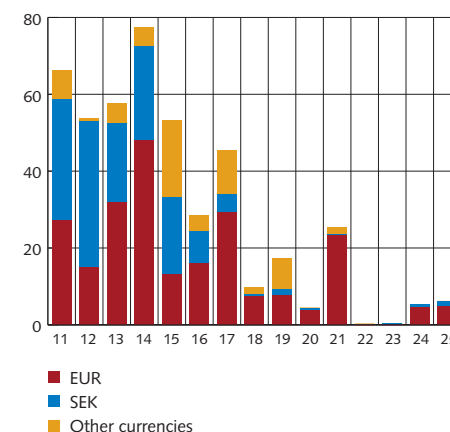
**Both US and European firms have been active issuers of bonds and certificates in US dollars.** The reason for the European companies issuing in dollar is partly the same reason why foreign companies are issuing in Swedish kronor. Advantageous prices on the swap market. Other contributory factors are the low interest rate situation in the United States and the fact that the dollar market is more liquid than before in terms of both turnover and the number of investors. An increasing number of issues in dollars are being made by high-yield firms (see Chart 1:16).

**Chart 1:14 Maturity structures for non-financial companies' syndicated loans**  
SEK billion



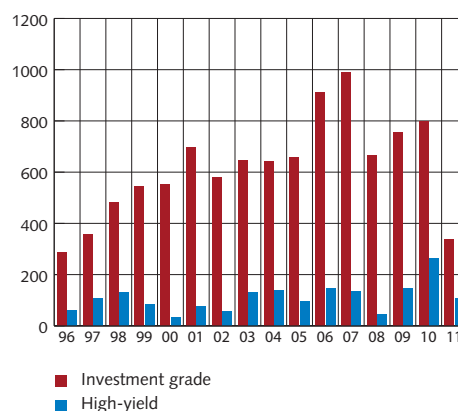
Source: Dealogic

**Chart 1:15. Maturity structures for non-financial companies' market funding**  
SEK billion



Source: Bloomberg

**Chart 1:16 US corporate bond issuance**  
USD billions



Note. High-yield bonds have a credit rating that is Ba/BB or lower according to Moody's/Standard & Poor's. The issuance volume for 2011 has been calculated until the end of April 2011.

Source: SIFMA

<sup>20</sup> In recent years, the price of transferring Swedish kronor in a cross-currency swap has been advantageous for foreign companies. This is because Swedish banks have a natural need for Swedish kronor, but conduct a portion of their market financing via the euro market and thus have to swap euros for kronor. If supply and demand were equal, there would not be any difference, in principle, between issuing securities in foreign currency and swap to domestic currency or issuing in domestic currency.

## The crisis in Ireland – similarities and differences compared to the Swedish bank crisis

**T**he ongoing restructuring of the Irish banking sector, as well as the measures taken by the Irish authorities, have clear similarities with, but also differences to, the Swedish bank crisis in the early 1990s and the measures taken by the Swedish authorities at that time. Both countries closed banks that were considered unable to survive and set up special companies to manage and sell bad loans and the associated collateral. Both cases also entailed conducting a thorough analysis of all the banks applying for assistance to ensure that their long-term capital requirements could be met. However, there are also differences in how the countries chose to manage the situation, for example with regard to the bank guarantee schemes that were introduced and the structures that were set up to specifically manage the bad loans. Another important difference between the Swedish and the Irish bank crises is the size of the problem and that Sweden, unlike Ireland, managed to deal with the crisis without financial support from outside. The end result in Ireland will probably be a change in the structure of the banking system to a situation with fewer and larger banks, in the same way as in Sweden in the early 1990s.

### *Bank guarantee scheme and liquidity support*

Prior to the crisis, the Irish banking system was dominated by six banks (Bank of Ireland, Allied Irish Banks, Anglo Irish Bank, Irish Nationwide, EBS Building Society and Irish Life and Permanent).<sup>21</sup> When the market lost confidence in the Irish banking system in connection with the financial crisis in 2008, the authorities chose to introduce a bank guarantee scheme for depositors and creditors in the six largest Irish banks. This scheme corresponded to potentially 260 per cent of GDP. The intention was to avoid a liquidity crisis. The Swedish bank guarantee scheme, which was introduced in the autumn of 1992, guaranteed the commitments of the Swedish banks rather than the specific banks as such. It could also be said that the Swedish bank guarantee scheme was more competitively neutral as it covered the commitments of all the banks. The Swedish scheme was phased out in 1996 after the Riksdag judged that it was no longer needed.<sup>22</sup>

During both the Swedish bank crisis and the Irish crisis the central banks provided emergency liquidity assistance and other forms of liquidity support to banks that had liquidity problems. In addition to this the Irish banks were able to use the normal liquidity facilities of the ECB.

21 For a description of the causes of the crisis in Ireland see the box "Support package for Ireland" in *Financial Stability Report 2010:2*, Sveriges Riksbank.

22 For more information on the Swedish banking crisis, see for example S. Ingves and G. Lind "The Management of the Bank Crisis – in retrospect", *Economic Review 1996:1*, Sveriges Riksbank.



### *Management of bad loans*

The Irish authorities set up the National Asset Management Agency (NAMA) in November 2009. The task of the NAMA is to identify, value and purchase loans on the balance sheets of the banks applying for support against collateral in property.

During the Swedish crisis too, special companies were used to manage bad loans. However, a difference between the crisis management conducted in Sweden and that conducted in Ireland is that in Ireland NAMA is solely responsible for managing the banks' bad loans. In Sweden, on the other hand, the government formed Securum and Retriva which only purchased assets from the state-owned banks Nordbanken and Gota bank. The other, privately-owned banks in Sweden formed their own companies to manage their bad loans.<sup>23</sup> The ultimate aim of the NAMA is, however, similar to the aim that Securum and Retriva had, that is to purchase, manage and sell assets at a profit. Another general similarity between the two bank crises is that the authorities in both countries faced major methodological challenges with regard to the valuation of a great number of property loans in a situation in which few property transactions were being carried out.

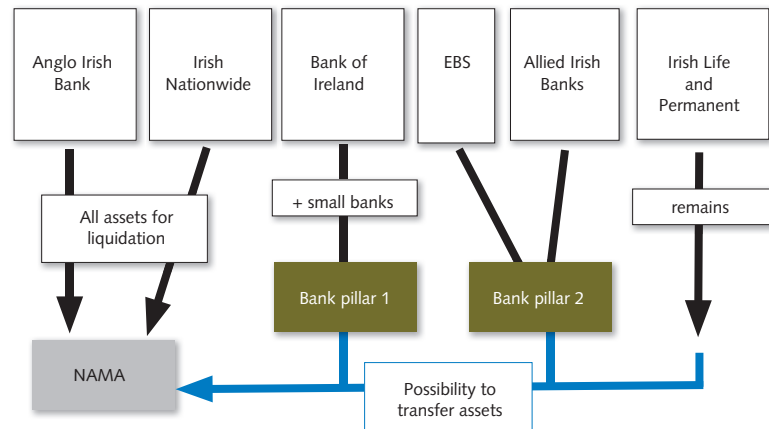
### *Capitalisation of the banks*

Government capitalisation of the banks has been an important measure. The Irish government has recapitalised the banks on several occasions since the first time in December 2008 when it injected EUR 1.5 billion into the Anglo Irish Bank. As this bank continued to make substantial losses that required additional capital injections, it was completely nationalised in January 2009. At the same time, the Allied Irish Banks and the Bank of Ireland were recapitalized by the government with injections of EUR 3.5 billion per bank. The government took a 25 per cent holding in each of the banks (see Figure B1:1 for the consolidation plan for the Irish banking sector). The total cost to the government of the support measures for the banks amounted in April 2011 to EUR 46 billion. This sum includes capitalisation costs, losses in connection with sales and ongoing losses in the nationalised banks.

During the Swedish bank crisis too, repeated capital injections to the same bank were required in some cases as the situation

<sup>23</sup> When assets are sold from a bank to a management company with the same owner then, by definition, no long-term transfer of wealth takes place. However, this could happen in the NAMA's case as the NAMA is jointly-owned by the state and private owners and buys bad loans from both wholly state-owned banks and banks with private ownership. This makes it even more important to set sales prices with a great deal of care.

Figure B1:1. Consolidation plan for the Irish bank sector



at the bank proved to be worse than first feared. This applied to Nordbanken and Första Sparbanken. The form of the capital injections for the Allied Irish Banks and for the Bank of Ireland can be compared to the support provided to Föreningsbanken. It consisted of capital guarantees, which if it had been used would have led to the state becoming a major owner of preference shares in the bank.

### Stress test

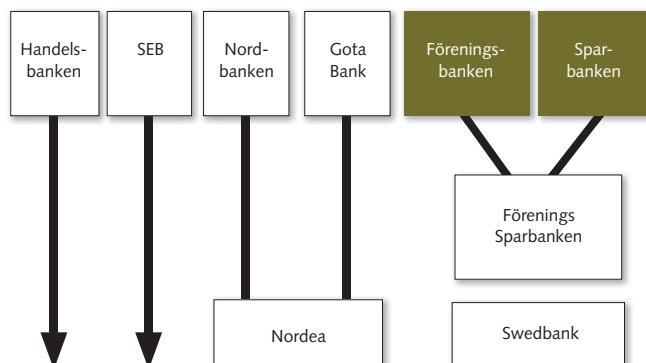
To dispel uncertainty concerning the situation of the banks and to enable a reinforcement of the capital situation of the banks in the long term, the Irish authorities conducted a stress test and published the results on 31 March 2011.<sup>24</sup> The stress test investigated whether the banks would be able to hold 6 per cent of core Tier 1 capital in a stressed scenario, as well as a capital buffer. The results of the stress test showed that the banks needed additional capital of EUR 24 billion to meet the target. This means that the total costs of restructuring the Irish banking sector amount to at least EUR 70 billion.

Ireland's stress test can be compared to the detailed analyses of the portfolios and future prospects of the banks that applied for support conducted by the Swedish Bank Support Authority.<sup>25</sup> These analyses led to conclusions about how much capital was needed and whether the bank concerned could survive at all. For example, it was concluded that Gota Bank was not viable, after which this bank was split up and sold off (see Figure B1:2).

<sup>24</sup> The CEBS (Committee of European Banking Supervisors) conducted a stress test of European banks that was published in July 2010. This stress test covered two Irish banks, the Allied Irish Banks and the Bank of Ireland. Both banks passed the test, although many analysts explain this by saying that the test was not strict enough.

<sup>25</sup> The Swedish Bank Support Authority was a Swedish government authority formed in 1993 to support the government in managing the effects of the Swedish financial crisis.

Figure B1.2: The Swedish banking sector before and after the crisis of the 1990s

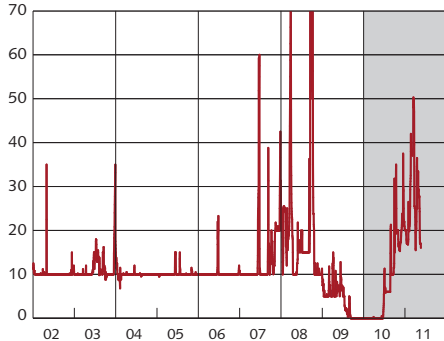


#### *The size of the problem an important difference*

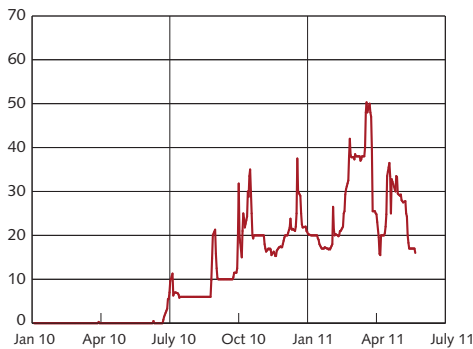
An important difference between the current Irish bank crisis and the Swedish bank crisis of the 1990s is the size of the problem in the two countries. In 1991, the Swedish banks' balance sheets amounted to approximately 100 per cent of GDP, while the corresponding figure for the Irish banks when the crisis began was 300 per cent.

The public financial gross costs for managing the Swedish bank crisis in 1991 corresponded to approximately 4 per cent of GDP, while the direct public costs of managing the bank crisis in Ireland may reach up to 45 per cent of GDP. In contrast to Ireland, Sweden managed to cope with the crisis without needing to seek external financial support.

Chart B1:1 Difference between the short-term interbank rate and the Riksbank's repo rate  
Basis points



Grey area in detail



Note. The graph illustrates the difference between Stibor tomorrow next and the Riksbank's repo rate.

Source: Reuters EcoWin

## Latest developments on the short-term interbank market

The last of the large extraordinary, fixed-rate loans provided by the Riksbank during the financial crisis matured in October 2010. Since then, Swedish short-term interbank rates have increased more than the Riksbank's repo rate and price fluctuations have been larger than previously. This has applied in particular to the tomorrow-next interest rate. One explanation for the increased price fluctuations is that the banks wish to hold more liquidity than previously and as a result they have become more restrictive in their lending on this market.

Serious disruptions arose on the Swedish interbank market during the financial crisis. One consequence of this was that the interest rate for the short-term loans, that is loans from tomorrow to the day after tomorrow (tomorrow next), increased and deviated from the repo rate to a greater extent than before the crisis (see Chart B1:1). Price fluctuations, or volatility, in the interest rates also increased substantially.

### *The financial crisis and unconventional measures affected the market*

In October 2008, the Riksbank, like other central banks, began to supply the banking system with large quantities of liquidity by employing more unconventional measures. These measures included the Riksbank issuing loans to its counterparties at longer maturities<sup>26</sup>, approving a wider range of securities as collateral for loans and making it possible for several institutions to make use of certain loan facilities. The aim of the measures was to ease the funding situation for the Swedish banks and to ensure the functioning of the financial markets. When these measures were introduced interest rates fell, including the rates for the short-term loans.<sup>27</sup> If the Riksbank had not taken these measures, the interest rate for the short-term loans would probably have remained at high levels or would have increased even further.

In the autumn of 2009, the Riksbank decided on complementary measures that were designed to ensure that monetary policy would have the intended effect. On three occasions, the Riksbank issued substantial twelve-month loans at an interest rate that exactly matched the repo rate. These loans totalled SEK 300 billion and the aim was also to keep down also the longer-term interest rates charged to households and companies.

<sup>26</sup> Initially these loans were at maturities of three and six months, but loans at maturities of twelve months were subsequently introduced.

<sup>27</sup> For a more detailed discussion of the Riksbank's measures during the crisis and how they were subsequently phased out see the box "Temporary market unease following the winding-up of the Riksbank's loan facilities", *Financial Stability Report 2010:2*, Sveriges Riksbank.

Pushing down interest rates made it possible to maintain the functioning of the financial markets and for the banks to retain their lending to households and companies. This helped to mitigate the negative effects of the financial crisis on the real economy in Sweden.

#### *Volatility increased when the major loans matured*

The functioning of the financial markets improved in 2010 and all the Swedish banks had access to market funding. The Riksbank therefore phased out its extraordinary loans, and was one of the first central banks to do so.

Since the loans were repaid the volatility of short-term market rates has once again increased (see Chart B1:1) and the interest rate level has increased. This became particularly clear when the last of the three large, twelve-month, fixed-rate loans matured in October last year. Volatility has thus increased despite the fact that the banking system has a structural surplus of liquidity of over SEK 15 billion, even though the extraordinary loans have matured.<sup>28</sup> However, volatility is not as high as it was during the financial crisis.

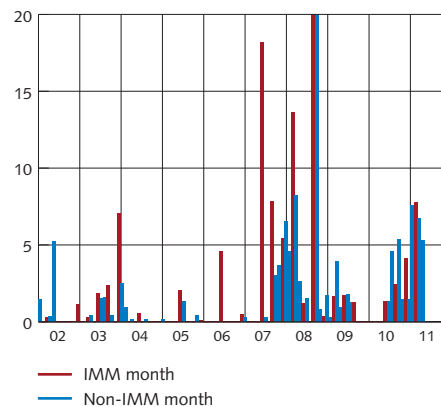
#### *Price fluctuations were more limited before the crisis*

In the years immediately preceding the crisis, volatility in the shortest loans was almost non-existent. However, volatility did increase somewhat on several occasions. These coincided with the months when the so-called IMM days occurred (see Chart B1:2).<sup>29</sup> During these months, large amounts of bonds and derivatives fall due and this sometimes creates a very high, but temporary, demand for tomorrow next loans.

The in principle non-existent volatility before the crisis can be explained by the fact that the price of risk was very low in this period. In the preceding years, volatility in interest rates at the same maturities was higher (see Chart B1:2).

**Chart B1:2 Monthly volatility in the difference between the tomorrow next rate and the repo rate**

Basis points



Note. Volatility is expressed here as the standard deviation. Blue bars (Non-IMM months) refer to months that do not include an IMM day, and red bars (IMM months) refer to March, June, September and December. The volatility for May 2010 is calculated up until 24 May.

Sources: Reuters EcoWin and the Riksbank

<sup>28</sup> This is explained in M. Nessén, P. Sellin and P. Åsberg-Sommar "The framework for the implementation of monetary policy, the Riksbank's balance sheet and the financial crisis", *Economic Commentary*, no. 1, 2011, Sveriges Riksbank.

<sup>29</sup> IMM stands for International Money Market. Many standardised derivative contracts on the fixed-income market fall due on the so-called IMM days. IMM days occur on the third Wednesday in March, June, September and December each year.

*What can explain the increased price fluctuations in the interest rate for short-term loans?*

To explain why volatility has increased since the summer of 2010 the link between the short-term interbank market and the overnight market must be clarified.<sup>30</sup> Loans on the overnight market are, as the name suggests, from today until tomorrow, while the short loans on the interbank market are from tomorrow to the day after tomorrow, i.e., tomorrow next. The banks that participate in the Riksbank's payment system, RIX, manage their daily liquidity deficits and surpluses on the Swedish overnight market. As RIX is a closed payment system, and as the Riksbank in its liquidity management ensures that the banking system is in balance, any bank that has a liquidity deficit can cover this by borrowing the corresponding amount from the banks that have surpluses. Given that the banks are willing to lend to each other at the repo rate, a shortage of Swedish krona can therefore never arise on the overnight market.<sup>31</sup> A bank that today agrees to lend money tomorrow next can thus rely on being able to cover tomorrow's deficit on the overnight market the next day.

Prior to the financial crisis, the banks acted as described above, which meant that there was no uncertainty about whether a bank with a deficit on the following day would be allowed to borrow money from another bank with a surplus. This largely explains why the difference between the interest rate on tomorrow next loans and the Riksbank's repo rate was small and stable (see Chart B1:1). When the Riksbank supplied extra liquidity to the banks during the crisis by providing extraordinary loans, the banks' need to use the overnight market to balance out their surpluses and deficits declined. This is an important reason why the interest rate for these loans fell and became stable in connection with the Riksbank's introduction of the extraordinary loans.

#### *The banks are more restrictive with their liquidity*

The financial crisis has changed the behaviour of the Swedish banks in that they are now more restrictive with their liquidity. The banks strive to hold more liquidity and to fund their operations at longer maturities to a greater extent. The effects of this new behaviour first became really apparent when the supply of surplus liquidity declined after the Riksbank's extraordinary loans matured. The banks were then forced, in the same way as before the crisis, to balance out their surpluses and deficits by using the interbank and overnight markets.

<sup>30</sup> See J. Eklund and P. Åsberg-Sommar "The Swedish market for balancing liquidity between the banks overnight 2007–2010", *Sveriges Riksbank Economic Review*, 2011:1, Sveriges Riksbank, for a more detailed description of the Swedish overnight market.

<sup>31</sup> The Riksbank conducts its operations to ensure that the banking system is always in balance.

Although the banking system as a whole has structural surplus, the change in the way the banks manage their liquidity has led to a situation in which the banks, to a greater extent than before, wish to avoid having a deficit on the overnight market. One of the results of this is that in 2010 the banks that participate in the RIX system introduced a limit for how much an individual bank can borrow from another bank on the overnight market. This limit means that a bank that today agrees to lend money tomorrow next cannot always rely on being able to cover this loan on the overnight market next day if it risks exceeding the limit. The limit thus leads to a situation in which a bank that is uncertain about its inflows and outflows for the following day will not dare to lend this money to the same extent as before the crisis. The consequence of the limit is therefore that the number of tomorrow next loans offered is restricted. This thus represents a form of supply restriction. Consequently, the banks that are still willing to lend tomorrow next charge more, that is demand a higher interest rate, to lend this money.

On the other hand, the limit does not necessarily hinder the banks from covering deficits on the overnight market that are larger than the limit. The limit only restricts how much a bank may borrow from one other bank. A bank can, thus, cover a deficit that is larger than the limit by borrowing from more than one bank.

Moreover, the banks can handle daily deficits (and surpluses) by conducting repos with each other overnight. An increased use of such repos could reduce dependence on the overnight market, which in turn would mean that the possibility of the banks to lend tomorrow next would not be limited to the same extent by the introduced limit.

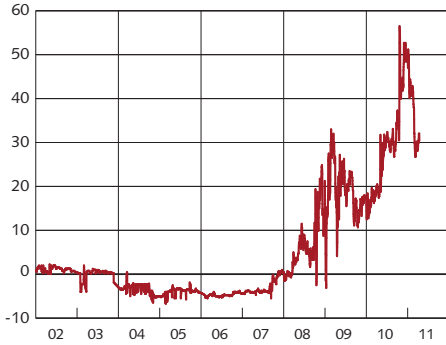
#### *High demand for short-term loans*

In addition, the demand for the short-term loans is high. This is partly because the Swedish banks fund a large, and growing, part of their lending in Swedish krona by borrowing in foreign currencies. An explanation of the link between the banks' foreign funding and the short-term fixed-income market is given below.

The loans that the banks take in foreign currency are usually converted into Swedish kronor using currency swaps.<sup>32</sup> A simple example would be one in which a Swedish bank borrows euro in Germany at a maturity of five years. As the bank has no need of euros but needs kronor it will have to conduct a currency exchange. Correspondingly, in five years' time, the bank will need to pay back the loan it has taken on the German market. To protect itself against foreign exchange risks the bank can enter into a currency swap, in

32 A currency swap is an agreement to swap one currency for another during a certain period of time. The term currency swaps refers here to both FX swaps and cross-currency basis swaps. A cross-currency basis swap entails swapping interest payments in two currencies, for example the Swedish rate for the euro rate. A swap of this kind normally has a maturity of more than one year. An FX swap has no interest payments and normally has a maturity of up to one year.

**Chart B1:3 Cost of converting long-term borrowing in euros into Swedish kronor via a currency swap**  
Basis points



Note. The chart shows a five-year SEK-EUR cross-currency basis swap.

Source: Bloomberg

which euro are exchanged for kronor which are then swapped back into euro at a predetermined exchange rate in five years' time.

A common procedure is for the Swedish banks to conduct these swaps with foreign banks that do not have natural access to Swedish kronor. This means that the foreign banks must fund this lending to Swedish banks by in turn borrowing kronor on the short-term interbank market. The fact that the outstanding stock of Swedish banks' securities in foreign currencies is increasing (see Chart 3:17) indicates that the Swedish banks' demand for currency swaps is also increasing. Therefore, the demand of foreign players for short-term loans in Swedish kronor should also have increased, from already high levels.

The high demand for tomorrow next loans in Swedish kronor means that even a small reduction in supply may lead to a relatively large increase in the interest rate for these loans. As the banks now want to hold more liquidity than previously the demand for tomorrow next loans varies from day to day, which leads to volatility in the interest rate. The self-imposed limit also increases this volatility. Before the crisis, the RIX participants could handle an increased demand for the short-term loans from one day to the next by borrowing more on the overnight market on the following day. This possibility has now been restricted to some extent by the limit, which means that the interest rate rises when demand increases.

The restrictiveness of liquidity is not unique for Swedish banks. Foreign banks also want to hold more liquidity than they did previously. One result of this is that the cost of converting borrowing in euro to Swedish kronor by means of a currency swap has increased for the Swedish banks (see Chart B1:3).

### Conclusion

The Riksbank assesses that there are two main explanations of the substantial price fluctuations in the interest rate for tomorrow next loans. The first is that supply has fallen because the banks are more restrictive about lending. The second is that the demand for these loans is high.

With regard to the level of the interest rate it seems reasonable that the new equilibrium for risk premiums, and thus also for the interest rates on the interbank market, will be higher for the period ahead than before the crisis.<sup>33</sup> However, it takes time to establish new equilibrium prices on the short-term interbank market and volatility may therefore remain high on this market for some time to come.<sup>34</sup> It is also possible that the change in the attitude of the banks in regards of liquidity will lead to volatility on this market being somewhat higher than it was in the years preceding the crisis (see Chart B1:2).

<sup>33</sup> See also Chapter 1 in *Financial Stability Report 2010:2*, Sveriges Riksbank.

<sup>34</sup> This picture is also confirmed by the responses in *The Riksbank's Risk Survey*, Spring 2011 ([www.riksbank.se](http://www.riksbank.se)).



## 2. The Swedish banking groups' borrowers

The strong economic growth in Sweden and the Nordic countries has led to an increase in corporate sector borrowing. At the same time, the higher interest rates have meant that household sector borrowing is increasing at a slower rate, after having grown rapidly over a long period of time. On the whole, households' debt-servicing ability is assessed as good, despite higher interest rates, and the risk

that the banks could suffer extensive loan losses from households is thus assessed as slight. The Danish economy continues to be characterised by a severe downturn and borrowers' debt-servicing ability is generally poorer than in the other Nordic countries. In the Baltic countries, the recovery began sooner than expected, but the borrowers' credit ratings are still low.

This chapter discusses developments among the Swedish banking groups' borrowers. Just over half of the banks' lending is to households and companies in Sweden, although households and companies in the other Nordic countries and the Baltic countries also comprise important borrower groups (see Charts 2:1 and 2:2). The Swedish property companies are analysed separately, as they comprise the banks' largest exposure to an individual sector.

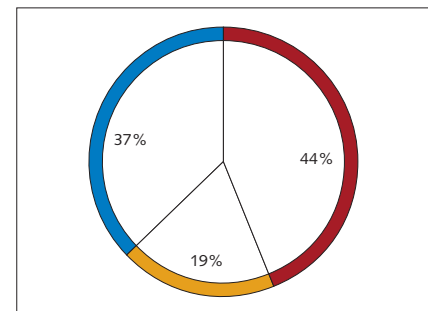
The risk of loan losses in the banking system is contingent on the indebtedness of the borrowers and their ability to repay loans. The so-called credit risk is the substantial risk to which the banks are exposed. Their earnings and profits are also directly affected by how much money they lend.

### The Swedish household sector

**Swedish housing prices and household borrowing are no longer increasing at the same rapid rate** (see Charts 2:3 and 2:4). There are probably several factors contributing to this: higher interest rate, signals of further interest increases and Finansinspektionen's general guideline that the loan-to-value ratio for mortgages should not exceed 85 per cent.<sup>34</sup> There are also signs that households have become more restrictive in their attitude towards the housing market and indebtedness. For example, the percentage of new loans granted at a variable interest rate has declined (see Chart 2:5). In addition, the percentage of mortgages used for non-housing related purposes has declined in recent quarters.<sup>35</sup>

**Household sector demand for credit will probably slow down further as interest rates rise.** The negative relationship that has historically existed between short mortgage rates and household demand for credit, points to this being the case (see Chart 2:6). This relationship was temporarily disturbed during the financial crisis when uncertainty over the future led to a slowdown in household

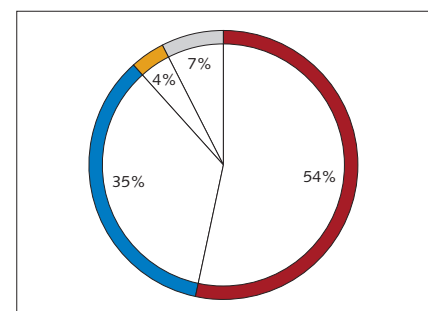
Chart 2:1. Lending of the Swedish banking groups by borrower category, March 2011  
Per cent of total lending



■ Households  
■ Companies, excluding property companies  
■ Property companies

Sources: Bank reports and the Riksbank

Chart 2:2. Lending of the Swedish banking groups by geographical area, March 2011  
Per cent of total lending



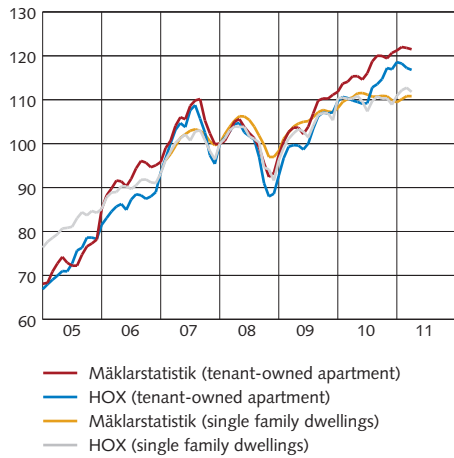
■ Sweden  
■ Other Nordic countries  
■ The Baltic countries  
■ Other countries

Sources: Bank reports and the Riksbank

<sup>34</sup> See the Riksbank's commission of the inquiry into the risks in the Swedish housing market, 2011, for a detailed description of the long-term determinants of housing prices.

<sup>35</sup> Estimates of what percentage of household loans, using their home as collateral, that have been used for non-housing related purposes are uncertain and entail numerous measurement errors, see *Financial Stability Report 2010:2*, Sveriges Riksbank for a more detailed description.

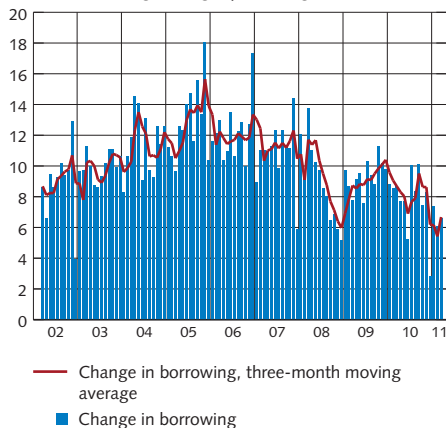
**Chart 2:3. Prices for single-family dwellings and tenant-owned apartments**  
Index, January 2008 = 100



Note. All indices are for Sweden. HOX is the hedonic price index from Valueguard. Mäklarstatistik (tenant-owned apartment) is an index of prices per square metre, while Mäklarstatistik (detached house) is an index of the C/I ratio.

Sources: Mäklarstatistik and Valueguard AB

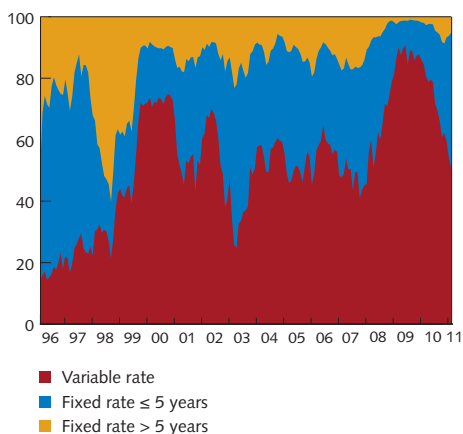
**Chart 2:4. Household borrowing**  
Monthly change on an annual rate and three-month moving average, percentage



Note. Seasonally-adjusted data.

Source: The Riksbank

**Chart 2:5. Households' new loans broken down by fixed interest period**  
Per cent



Source: The Riksbank

borrowing, despite large cuts in the interest rate. Recently, however, the relationship between interest rates and household borrowing has strengthened again, although unlike the situation prior to the crisis, the demand for credit at a given interest rate is lower. Before the crisis, when mortgage rates were around 2.5 per cent, household borrowing increased by between 12 and 13 per cent. Recently, the corresponding interest rates have meant that household borrowing has increased by 8 to 9 per cent. At the same time, there are factors contributing to an increase in households' demand for credit, such as increased employment. All in all, household debt is expected to continue increasing but, as interest rates increase, debts are expected to grow at a slower pace than before (see Chart 2:7). The higher interest rates expected in the coming period also indicate that house prices will continue to slow down.

**Housing construction is expected to increase somewhat in the coming period, which may also contribute to slowing down house prices.** However, the expected increase is relatively modest and it will take some time before it affects prices to any great extent. The total effect on the price may be larger than expected if the supply increases at the same time as demand falls, for instance, due to rising interest rates. Housing construction in Sweden has been low since the 1990s and this has probably contributed to a continuous rise in house prices over the past 15 years. The additions to the housing stock have not been sufficient to meet the increase in demand caused by higher incomes and a growing population. In the short term, the supply of housing is relatively sluggish, but in the longer term rising house prices are usually linked to an increase in construction. However, construction in Sweden has not increased to any great extent, unlike the construction booms in countries such as Spain and Ireland.<sup>36</sup>

**Despite households having a high level of indebtedness, they generally have a good debt-servicing ability.** Households' real and financial assets (excluding collective insurance) are continuing to increase, and are more than 5 times as large as disposable incomes (see Chart 2:8). This can be compared with households' debts, which are roughly 1.7 times as large as their disposable incomes. The buffer may thus be large, but at the same time the value of the assets may fall while the debts remain the same.

<sup>36</sup> See the Riksbank's commission of inquiry into risks on the Swedish housing market, 2011, Sveriges Riksbank.

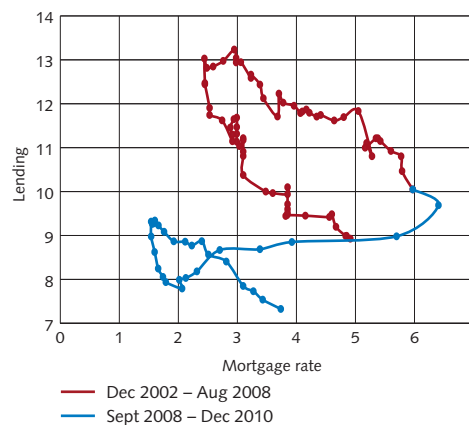
**Households' debt-servicing ability will probably remain good in the coming period.** Employment is improving and incomes are expected to rise, which makes households less vulnerable. According to earlier studies, the households with the largest debts generally also have two wage-earners.<sup>37</sup> Combined with the social safety net, this means that households are expected to be able to meet interest payments on their loans, even if they are affected by unemployment.

**Higher interest rates affect household cash-flow negatively.** This applies mainly to households that have recently entered the housing market and in general have larger debts in relation to their incomes than other homeowners. According to Finansinspektionen's mortgage survey in 2009, debts were 3.75 times as large as disposable incomes for households with new or newly-converted mortgages.<sup>38</sup> The figure for existing mortgages was 1.87.<sup>39</sup> This means that the households that entered the housing market more recently are particularly vulnerable when interest rates increase. Table 2:1 shows an example of how large a share of a household's disposable income needs to be allocated to interest payments for an average new or existing loan respectively at different interest rates. With a mortgage rate of 5.6 per cent around 15 per cent of the household's disposable income would be used to pay interest for households with new mortgages. If the interest rates were to change so that the mortgage rate was 8 per cent, interest expenditure would amount to approximately 21 per cent of their disposable income. Most of the households would not experience any major difficulties in managing the higher interest rates.

**Some households may suffer problems when interest rates rise.**

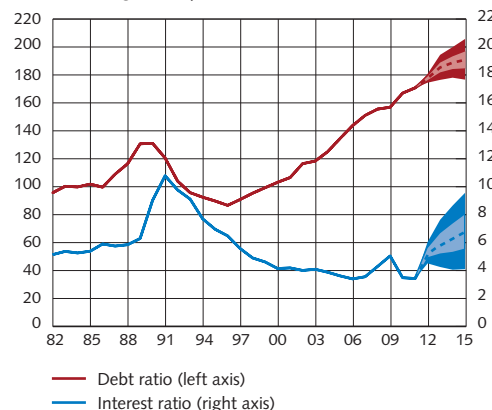
The calculation in the example, shown in Table 2:1, are however based on the average household. For households with higher indebtedness, the interest rate increase may be felt more. A high level of indebtedness may also be a risk for households affected by illness or unemployment, without having unemployment benefit, or by a change in the family situation. However, these households comprise a small percentage of the banks' borrowers and are therefore not expected to generate any major loan losses for the banks. However, it should be noted that the costs in the table do not include amortisation, but are only the amount the household has to pay in interest on the loan. If the banks begin to demand that households should amortise their mortgages to a greater degree, households' margins would decline.

**Chart 2:6. Lending to households and three-month mortgage rates**  
Annual percentage change and per cent



Source: The Riksbank

**Chart 2:7. Household debt and post-tax interest expenditure**  
Percentage of disposable income

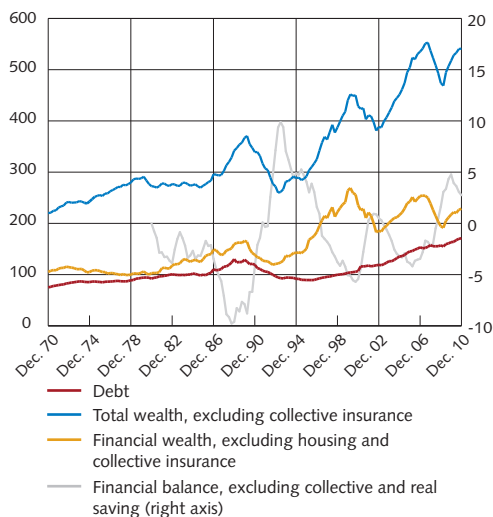


Note. The forecast for household debts and household interest expenditure is produced using a stationary VAR model in which the change in the disposable income and the three-month interest rate for a treasury bill are used as exogenous variables. The forecast was produced under the assumption that the long-term rate of growth of household debt is five per cent per year.

Sources: Statistics Sweden and the Riksbank

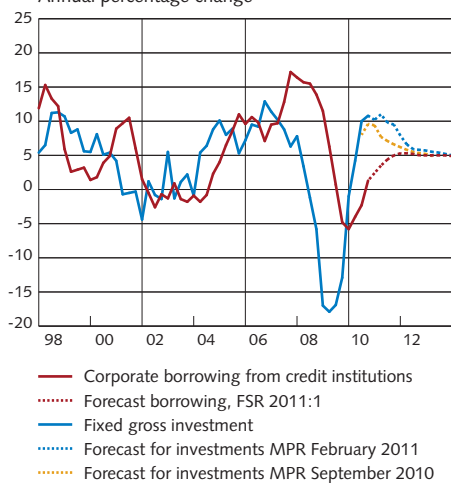
37 See, for example, *Financial Stability Report 2009:2*, Sveriges Riksbank.  
38 See "The Swedish Mortgage Market and Bank Lending", February 2010, Finansinspektionen.  
39 See *Household finances* (HEK), 2007, Statistics Sweden.

**Chart 2:8. Households' gross debts, assets and saving as a share of disposable income**  
Per cent



Sources: Statistics Sweden and the Riksbank

**Chart 2:9. Corporate borrowing from credit institutions and fixed gross investment**  
Annual percentage change



Sources: Statistics Sweden and the Riksbank

**Chart 2:10. Corporate credit gap**  
Per cent



Note. The credit gap is defined as the distance from the underlying trend in in corporate debt in relation to GDP. Under debts are included short-term and long-term loans (excluding inter-company loans), certificates and bonds.

Sources: Statistics Sweden and the Riksbank

**Table 2:1. An average household's monthly cash-flow at different interest rates**<sup>40</sup>

Per cent	Interest cost after tax deduction as a percentage of disposable income	
	New mortgages	Existing mortgages
Mortgage rate		
3.5	9.2	4.6
5.6	14.7	7.3
8.0	21.0	10.5

Note. Interest costs are calculated using a mortgage rate that is 2 percentage points higher than the repo rate. Amortisation is not included. An average new mortgage amounts to SEK 1.8 million, and an average existing mortgage in the housing stock amounts to SEK 600,000.

Sources: Finansinspektionen, Statistics Sweden and the Riksbank's calculations

## The Swedish corporate sector

**The strong recovery in the Swedish economy has meant that corporate sector demand for credit is increasing again** (see Chart 2:9). However, in the coming period the rate of increase in borrowing is expected to be moderate, despite the Riksbank gradually revising up its forecast for investment.<sup>41</sup> Corporate sector borrowing from credit institutions has historically gone hand in hand with developments in fixed gross investment, but this relationship is expected to weaken over the coming year. One explanation for this is that companies' debts are still large in relation to economic activity (see Chart 2:10). It is therefore probable that companies, in an effort to reduce their debts, will to a greater extent fund investment with equity capital and retained profits. All in all, companies' borrowing from credit institutions is expected to increase more quickly in 2011 than in 2010 and then to stabilise at a slightly lower rate of increase than prior to the crisis (see Chart 2:9). Company borrowing through bonds and certificates is also expected to increase somewhat as a result of companies wishing to diversify their sources of funding. In Sweden there are currently more than 70 large and medium-sized companies that obtain funding on the securities market (see also Chapter 1 for a description of non-financial companies' funding through securities).

**Companies' credit ratings have improved and this trend is expected to continue.** One indicator of this is that companies' interest coverage ratio has risen, which is partly because their operating profits have improved and partly because interest rates are low (see Chart 2:11). Companies improved debt-servicing ability can also be seen in the fact that the number of bankruptcies and injunctions to pay is continuing to fall and is now almost in line with the historical average (see Chart 2:12). The exception is the construction sector where the number of bankruptcies has risen slightly recently. The strong recovery in Sweden, together with the low interest rates, has meant that Swedish

<sup>40</sup> In the example the interest expenditure reported is the nominal amount paid by the average household. In a longer run perspective inflation and growth in disposable incomes mean that the real interest expenditure is lower than shown in the table.

<sup>41</sup> See *Monetary Policy Update April 2011*, Sveriges Riksbank.

companies' credit ratings were generally higher in 2010 than those of companies in many other European countries. Swedish companies were thus able to benefit from a weak krona exchange rate over a long period of time, but exports are continuing to grow, despite an appreciation in the krona. This implies that Swedish companies have a good ability to adapt and competitive costs. The expected default frequency for listed companies is expected to fall as economic activity strengthens and interest rates are still low, despite the increases (see Chart 2:16).

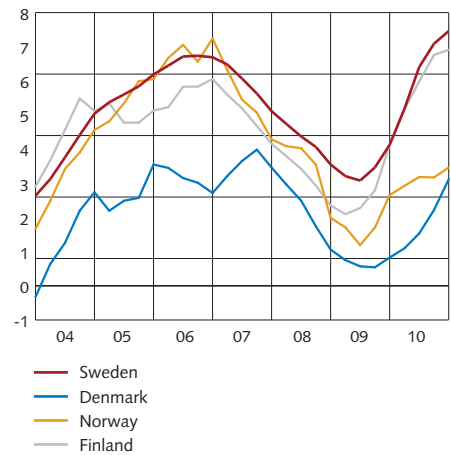
### Property companies and the commercial property market

**Activity in the commercial property market is continuing to increase.** Both domestic and foreign investors are finding their way into the Swedish property market and the transaction volumes are approaching their pre-crisis levels (see Chart 2:13). The increased activity is connected to the favourable developments in the Swedish economy and to the fact that access to funding has improved (see also Chapter 1). The fact that foreign investors are now returning can be interpreted to mean that they perceive the risks in the Swedish property market to have declined. If the recovery continues, it is likely that both domestic and foreign investors will continue to increase their activity in Sweden and transaction volumes will continue to increase over the year.<sup>42</sup>

**As activity on the property market increases, prices of office premises will also rise.** High transaction volumes during 2011 compared with last year indicate that prices will continue to rise. The improvement in the market is also reflected in the fact that investors' direct yield requirement is falling (see Chart 2:14). The brighter prospects on the labour market indicate that demand for renting office premises will increase. The supply of newly-built office premises is expected to increase in all three metropolitan regions, but most of these premises are already rented out.<sup>43</sup> All in all, the percentage of unlet premises, the vacancy rate, is thus expected to fall. This in turn provides the right conditions for rents to continue rising.

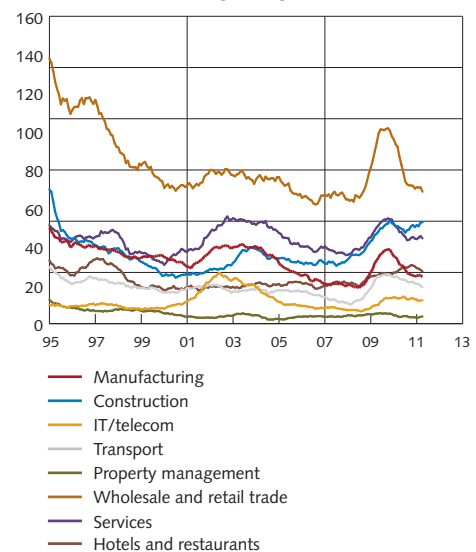
**Property companies' debt-servicing ability is expected to remain good, despite rising lending rates.** As long as rents increase in line with economic activity, companies are expected to be able to meet the rising interest costs with increased incomes. Most property companies use interest derivatives to reduce their interest rate risk in the short run. Better operating profits in the coming period point to the property companies in general not experiencing any major problems in refunding the loans that fall due in the coming years.

Chart 2:11. Interest coverage ratio in Nordic listed companies Ratio



Note. The interest coverage ratio is defined as operating profit/loss plus financial income in relation to financial costs. Sources: Bloomberg and the Riksbank.

Chart 2:12. The number of bankruptcies broken down by industry Twelve-month moving average

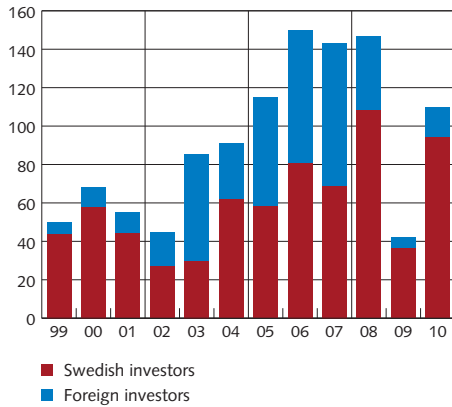


Source: Statistics Sweden

42 This is also confirmed by Leimdorfer's investor survey for 2011.

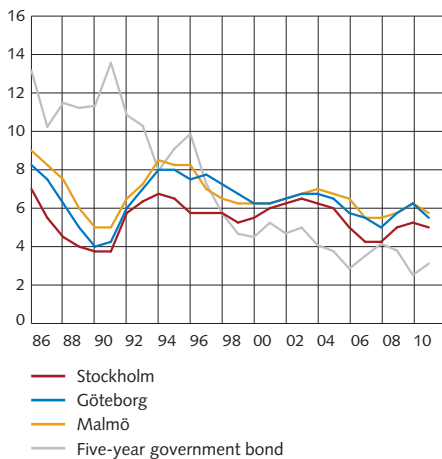
43 See Newsec property outlook, spring, Newsec.

**Chart 2:13. Transaction volumes on the Swedish commercial property market**  
SEK billion



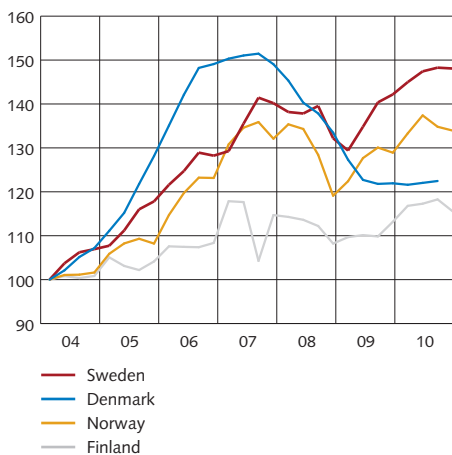
Source: Savills

**Chart 2:14. Average yield levels for modern office premises in city centres**  
Per cent



Sources: Newsec and the Riksbank

**Chart 2:15. Real house prices**  
Index, March 2004 = 100



Note. Real house prices are defined as nominal prices deflated by the CPI.

Sources: Bank for International Settlements, Bank of Finland, Reuters EcoWin and the Riksbank

## The Swedish banking groups' borrowers abroad

### THE OTHER NORDIC COUNTRIES

**Households' and companies' demand for credit is increasing in the other Nordic countries.** But there is a split here, as company borrowing is just beginning to accelerate, while household borrowing is slowing down after increasing at a rapid rate over a long period of time. At the same time, housing prices are increasing more slowly than before (see Chart 2:15). As economic activity continues to strengthen and resource utilisation becomes more strained, companies' investment needs and the demand for credit are expected to increase at a faster pace. Household borrowing, on the other hand, is expected to continue to slow down, despite the improvement in the labour market. An already high level of indebtedness and rising interest rates contribute to a slowdown in the demand for credit and in house prices. This is similar to developments in Sweden.

**Borrowers' debt-servicing ability is good on the whole, but weaker in Denmark.** This is because the recovery in the Danish economy is moving slowly as a result of the earlier large increase in indebtedness, relatively high interest rates and a fall in housing prices. Fiscal policy tightening is also expected to contribute to slowing down growth in Denmark over the year. Unlike companies in the other Nordic countries, borrowing by Danish companies is showing a weak development and the expected default frequency has not declined to the same extent as in the other countries (see Chart 2:16). The Danish banks are therefore expected to make large write-downs.<sup>44</sup> When the recovery becomes stronger and employment increases, both households' and companies' debt-servicing ability is expected to improve.

<sup>44</sup> See *Financial Stability 2010*, Danmarks Nationalbank.

THE BALTIC COUNTRIES

**The recovery in the Baltic countries is strengthening** (see Chart 2:17). Exports remain the motor behind the recovery, as growth is good among the countries' main trading partners, including the Nordic countries, Germany and Russia. In addition, real exchange rates have weakened over the past two years, particularly in Latvia and Lithuania, which means that these countries' competitiveness has improved (see Chart 2:18). Thanks to the improvements in public finances and credible reforms, the countries have not been affected by the sovereign debt unease in Europe, despite Latvia and Lithuania still having large budget deficits. Employment has also begun to increase, but is still low compared with the pre-crisis level. However, it will probably take some time before employment increases in the sectors where there was over-investment prior to the crisis. This applies, for instance, to the construction and property sectors, where there is a risk that unemployment will remain high for a long time.

**Lower growth in Europe or in the Nordic countries can affect the Baltic countries' continued recovery.** Continuing good growth in exports is necessary for domestic demand to recover. It is therefore important that the countries' competitiveness is not undermined by the rising inflation rate.

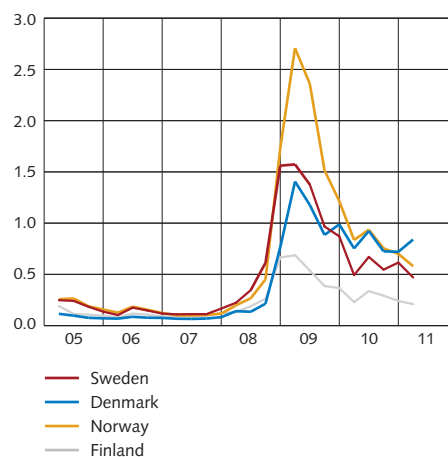
**The sectors exposed to international competition also need to continue to grow.** As the economies recover, direct investment should return to the region, which should contribute to growth in the competitive sectors. At present, foreign direct investment has only increased in Estonia.

**Further fiscal policy tightening can be expected.** This is necessary for Latvia and Lithuania to attain the Maastricht criterion of a deficit of no more than three per cent of GDP in the year 2012 and to be able to introduce the euro in 2014.<sup>45</sup> If economic growth comes to a halt, on the other hand, it may be difficult to implement the planned tightening. Another worrying factor is inflation, which could mean that the countries do not meet the Maastricht criterion of low and stable inflation. If Latvia and Lithuania change over to the euro, this will eliminate a large currency risk in the Swedish banks' lending to companies and households in the region.<sup>46</sup>

<sup>45</sup> In Latvia the deficit in the government budget is funded with the aid of a loan from the International Monetary Fund, IMF, and the European Commission. The loan matures at the end of the year, and then Latvia will need to find funding in the international capital market.

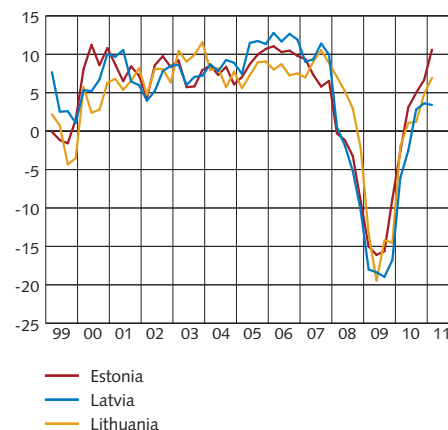
<sup>46</sup> Between 70 and 90 per cent of households' and companies' borrowing is in foreign currency, mainly in euro, while wage-earners' incomes are in their domestic currency. Estonia introduced the euro at the start of the year.

Chart 2:16. Expected default frequency (EDF)  
Per cent



Source: Moody's KMV

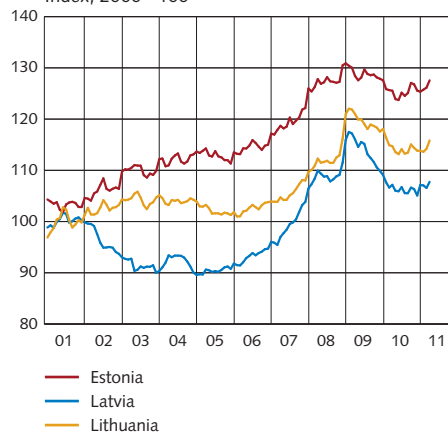
Chart 2:17. GDP  
Annual percentage change



Note. The GDP figures for the first quarter of 2011 are preliminary.

Source: Reuters EcoWin

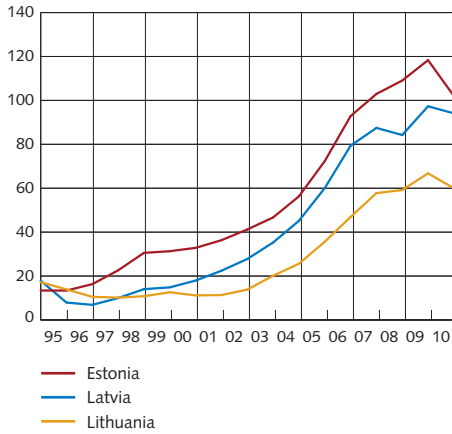
Chart 2:18. Real exchange rates  
Index, 2000 = 100



Note. The exchange rates are corrected for the price level (CPI). The scale is inverted so that lower values indicate weaker real exchange rates.

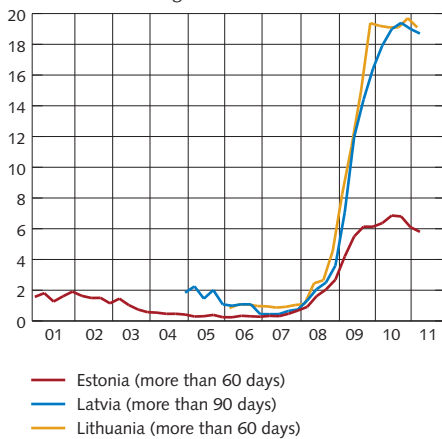
Source: Bank for International Settlements

**Chart 2:19. Households' and companies' debts in relation to GDP**  
Per cent



Sources: The national central banks and Reuters EcoWin.

**Chart 2:20. Late payments**  
Per cent of lending



Note. The definition of late payments may differ from country to country and comparisons between countries should therefore only be made with caution. In Lithuania, this refers to impaired loans, which implies that no payment default has occurred as yet. The number of late payments is thus lower than appears in the chart.

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

**Demand for credit from households and companies are still declining.** Resource utilisation is still low in the corporate sector and it is expected to take some time before new investment and thus demand for credit increases. At the same time, households are under pressure from high unemployment and a large burden of debt (see Chart 2:19). Their demand for credit is not expected to begin to increase again until domestic demand strengthens and a clear improvement is seen in the labour market.

**Borrowers' credit ratings remain weak.** Although employment has increased, the percentage of late payments is still at a high level (see Chart 2:20). Most of the late payments still stem from the construction and property sectors. Borrowers' debt-servicing ability is still supported by the low interest rates. But as the ECB raises its policy rate, interest rates in the Baltic countries will also be affected as most of their loans are in euro. This will put a further burden on the already weak borrowers.



### 3. Developments at the banking groups

The revenue and profitability of the major Swedish banks have continued to improve as a result of lower loan losses and increased income. Above all, loan losses stemming from the Baltic countries have fallen markedly in recent quarters, which has boosted the banks' profits. However, although the banks are

relatively well capitalised and the credit risk has declined, there are still risks. At present, the foremost risk is the banks' dependence on market funding, which makes them vulnerable to disruptions on the financial markets. This applies above all to short-term market funding in foreign currencies.

The Swedish banking sector is dominated by the four major banks Handelsbanken, Nordea, SEB and Swedbank. Together, they account for three-quarters of the deposits from and loans to the Swedish public. This means that these banks play a decisive role with regard to the supply of credit and other important functions in the Swedish financial system.

Sweden has a large banking sector in relation to the size of the country. The total assets of the Swedish banking groups at home and abroad are more than four times Sweden's GDP (see Chart 3:1). This high figure is partly explained by the fact that a significant part of the major banks' operations abroad, particularly in the case of Nordea (see Chart 3:2).<sup>47</sup>

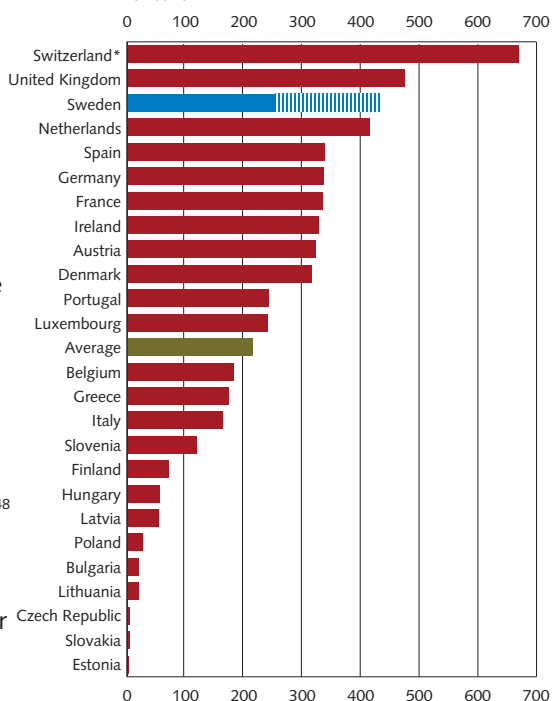
As the domestic and foreign operations of the banks are closely interlinked, problems in a subsidiary abroad can easily spread to the Swedish parent company. The Riksbank's analysis thus covers the banking groups, which include both Swedish and foreign operations.<sup>48</sup>

The chapter begins with a review of the major banks' earnings and profitability followed by a description of the banks' lending and their credit risk, and then by a section on the banks' funding and their liquidity risk.

#### Earnings and profitability

**The major share of the banks' profits stem from the Nordic countries** (see Chart 3:3). Approximately 80 per cent of the profits before loan losses come from this region. Of this, the largest part comes from the banks' operations in Sweden. The banks' largest earnings items are net interest income, that is the difference between interest income and interest expenditure, and net commission, which consist of charges for various services and products (see Chart 3:5).

Chart 3:1. Bank assets in relation to GDP June 2010  
Per cent



Note. The striped area of the blue bar refers to the four major Swedish banks' assets abroad in relation to the Swedish GDP. The banking assets include all of the assets of the national banking groups, that is both foreign and domestic assets. This means, for example, that Nordea's assets abroad form a large part of Sweden's banking assets. UBS and Crédit Suisse contribute to Switzerland's relatively large banking sector in the same way.

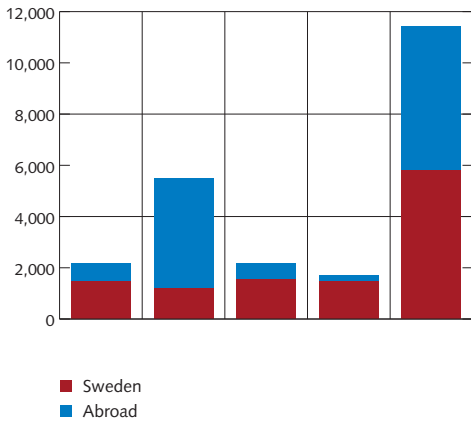
\* Data for Switzerland refers to 2009.

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

<sup>47</sup> The size of the Swedish banking sector thus depends on how the banking groups' assets abroad are defined. However, during the crisis it became apparent that when banks experienced problems they were to a striking degree rescued by government intervention from the home countries of the problem banking groups.

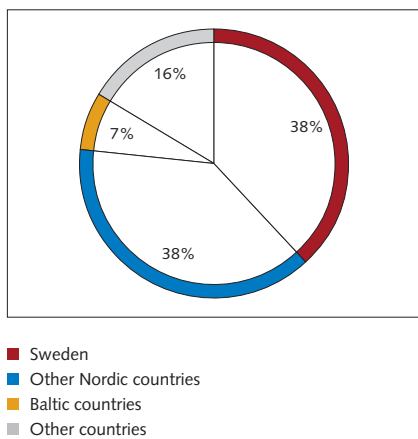
<sup>48</sup> Hereinafter, the term "Swedish banks" refers to the Handelsbanken, Nordea, SEB and Swedbank banking groups unless stated otherwise.

**Chart 3:2. The total assets of the major Swedish banks, December 2010**  
SEK billion



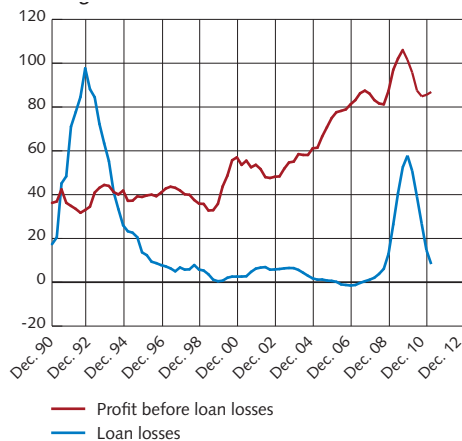
Sources: Bank reports and the Riksbank

**Chart 3:3. Breakdown of the major Swedish banks' profits before loan losses, 2010**  
Per cent



Sources: Bank reports and the Riksbank

**Chart 3:4. Earnings before loan losses and loan losses in the major Swedish banks**  
Totalled over four quarters, SEK billion, fixed prices, March 2011



Sources: Bank reports and the Riksbank

The bank's earnings, that is profits before loan losses, increased in the end the reporting period (see Chart 3:4).<sup>49</sup> The increase is due to the fact that income, above all net commission income, increased at the end of the period (see Chart 3:5). This in turn is largely due to the increase in commission income from securities trading and asset management as a result of both higher turnover on the stock markets and higher share prices. Net interest income, on the other hand, has decreased slightly compared to the previous reporting period and is still under pressure because lending to companies has not increased to any great extent and because deposit margins are low.<sup>50</sup> The lending margin for Swedish mortgages has, however, increased somewhat recently (see Chart 3:6).

The profitability of the banks has also increased in the last four quarters (see Chart 3:7). Profitability measured as return on equity reached 12 per cent, compared to an average of approximately 15 per cent over the last seven years.<sup>51</sup> Return on equity can be decomposed as follows:

$$\begin{aligned}
 \text{Return on equity} &= \frac{\text{Net profit}}{\text{Equity}} = \\
 &= \left( \underbrace{\frac{\text{Profit before loan losses}}{\text{Liabilities}}}_{\text{Profit margin}} \times \underbrace{\frac{\text{Liabilities}}{\text{Equity}}}_{\text{Leverage}} - \frac{\text{Loan losses}}{\text{Equity}} \right) \times (1 - \text{tax rate})
 \end{aligned}$$

This division shows that the deviation from the average level during this reporting period is due to both lower earnings, that is profits before loan losses, and lower leverage (see Table 3:1). The explanation of the lower leverage is that the banks have increased their resilience by increasing their equity. The division of the return on equity also shows that a greater proportion of equity leads to lower returns if earnings are constant. The alternative remaining to the banks if they wish to retain the same return on equity as previously is to increase earnings, either by reducing costs or increasing income, for example by increase risks.

49 The reporting period comprises the latest four-quarters running to the end of the first quarter 2011. Unless stated otherwise, comparisons are made with the preceding four-quarters. The figures are adjusted for one-off effects.  
 50 The deposit margin refers to the difference between the short-term interest rate that banks can invest at and the average interest rate they pay on deposits.  
 51 Return on equity is often referred to as ROE.

**Table 3:1. The major Swedish banks' return on equity**

	2006	2007	2008	2009	2010	2010 Q2 – 2011 Q1
A. Profit margin (profit before loan losses/liabilities)	1.0%	1.0%	0.9%	0.9%	0.8%	0.8%
B. Leverage (liabili- ties/equity)	24.7	24.7	25.1	22.8	22.6	22.4
C. Return on equity before loan losses and tax (A*B)	26%	25%	22%	20%	17%	18%
D. Loan losses/ equity	-0.4%	0.3%	3.1%	11.6%	3.0%	1.7%
E. Return on equity before tax (C-D)	26%	25%	19%	8%	14%	16%
F. 1-tax rate	80%	80%	79%	60%	74%	75%
G. Return on equity (E*F)	21%	20%	15%	5%	11%	12%

Note. Not adjusted for one-off effects.  
Sources: Bank reports and the Riksbank

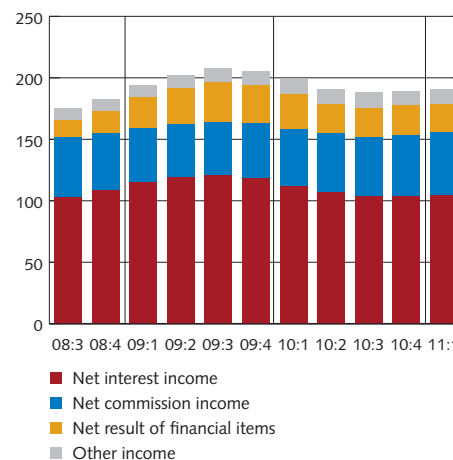
## Lending and credit risk

**The credit risk is the greatest risk on the asset side for the major Swedish banks.** This is because lending to the public and to credit institutions, together with interest-bearing securities, account for 75 per cent of the assets. The banks also have assets that are exposed to market risk. However, this risk constitutes only a small part of the total risk.

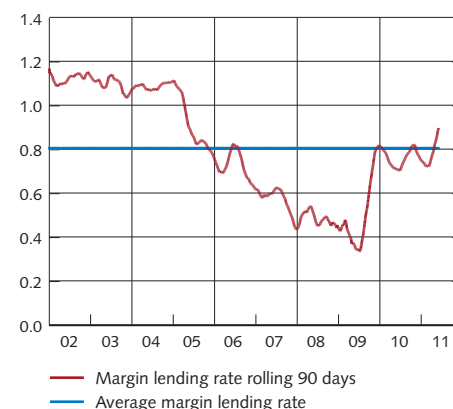
### LENDING

**The major part of the banks' lending is conducted in the Nordic countries.** The geographical distribution of the lending differs, however, from bank to bank. Compared to the other three banks, Nordea has a relatively small proportion of its total lending in Sweden and is the bank that has the largest proportion of its lending in the other Nordic countries (see Table 3:2). Swedbank and SEB are the two banks that have the largest proportion of their lending in the Baltic countries, but Nordea also has part of its lending there. For Swedbank and SEB, lending in the Baltic countries constitutes 11 per cent of each of the banks' total lending to the public. The corresponding figure for Nordea is 2 per cent. According to earlier confidential information, which the Riksbank is not making public with the banks' consent, the Swedish banks' exposure to the so-called GIIPS countries is, on the other hand, limited (see Table 3:3).<sup>52</sup>

52 Greece, Ireland, Italy, Portugal and Spain.

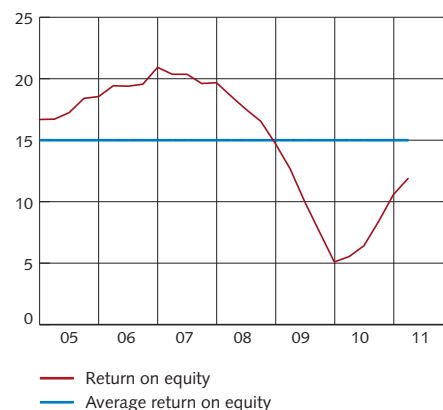
**Chart 3:5. The major Swedish banks' income**  
Rolling four quarters, SEK billion

Sources: Bank reports and the Riksbank

**Chart 3:6. The major Swedish banks' margins on new mortgages in Sweden**  
Per cent

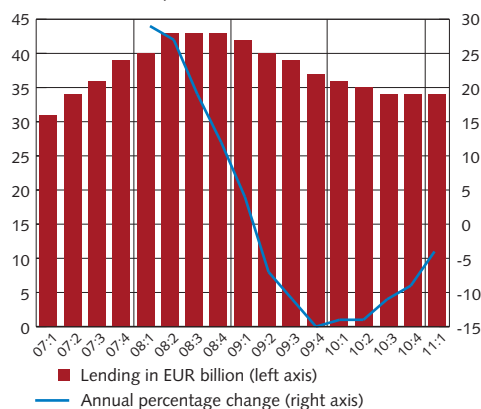
Note. The margin refers to the difference between the lending rate and the bank's funding costs for a mortgage with three-month interest rate.

Sources: Bank reports and the Riksbank

**Chart 3:7 The major Swedish banks' profitability**  
Four-quarter moving average, per cent

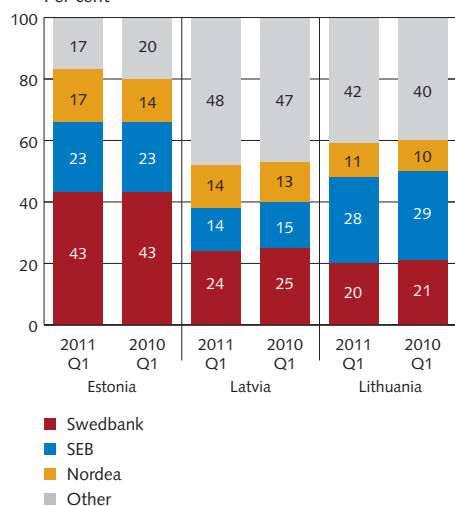
Sources: Bank reports and the Riksbank

**Chart 3:8. Swedish major banks' lending to the public in the Baltic countries**  
EUR billion and per cent



Sources: Bank reports and the Riksbank

**Chart 3:9. Market shares of lending in the Baltic countries**  
Per cent



Sources: Bank reports and the Riksbank

**Table 3:2. Geographical distribution of the major Swedish banks' lending, March 2011**

	Handelsbanken	Nordea	SEB	Swedbank	Total
Sweden	68	24	67	85	51
Norway	12	15	2	2	10
Denmark	3	23	1	1	11
Finland	6	16	1	0	9
The Baltic countries	0	2	11	11	5
– Estonia	0	<1	3	5	2
– Latvia	0	<1	3	3	1
– Lithuania	0	<1	5	3	2
Poland	<1	2	0	0	1
Germany	1	<1	17	0	3
UK	5	<1	0	0	1
Eastern Europe, other	0	1	0	1	2
Other countries	4	17	2	1	10
Lending to public, SEK billion	1,532	2,953	1,114	1,174	6,772

Sources: Bank reports and the Riksbank

**Table 3:3. The major Swedish banks' exposures to the GIIPS countries, December 2010**  
SEK million

		Greece	Ireland	Italy	Portugal	Spain	Total
SEB	Banking book	359	-	1,018	375	389	2,500
	Trading book	152	-	99	108	-	
Nordea	Banking book	-	-	-	-	574	1,452
	Trading book	-	9	870	-	-	
Handelsbanken	Banking book	-	-	-	-	-	-
	Trading book	-	-	-	-	-	
Swedbank	Banking book	-	-	-	-	-	-
	Trading book	-	-	-	-	-	
Total		511	9	1,986	483	963	3,952

Note. "-" indicates that the banks have no holdings. Holdings are not adjusted for any credit default swaps. This implies that banks' net exposures probably are overestimated in the table. Includes government securities and loans to state.

Sources: The Riksbank and Finansinspektionen

**The Swedish banks' lending in the Baltic countries is continuing to decline** (see Chart 3:8). Compared with one year ago, lending has declined by 4 per cent, adjusted for exchange rate effects. In Estonia, lending has fallen by 4 per cent, in Latvia by 9 per cent and in Lithuania by 1 per cent. Part of this decline is due to some loans becoming loan losses, but the main reason is that the demand for loans has decreased as a result of the continued weak economic situation in these countries. Although the Swedish banks have reduced their lending in the Baltic countries, their market shares remain relatively unchanged compared with the situation a year ago (see Chart 3:9.) Their total lending in these countries amounts to SEK 305 billion. In Estonia, lending is SEK 115 billion, in Latvia just under SEK 88 billion and in Lithuania SEK 103 billion.

## CREDIT RISK

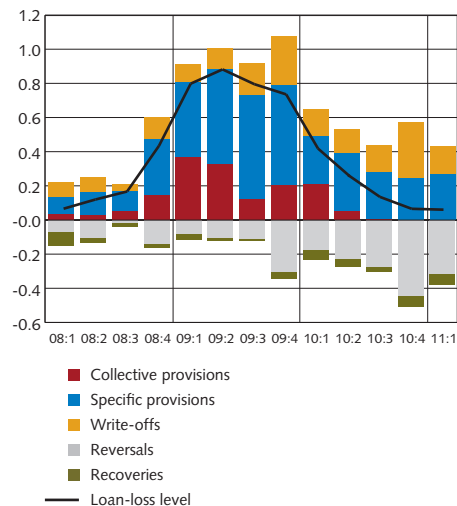
**Loan losses have fallen for the seventh consecutive quarter** (see Chart 3:10). This fall is due to recoveries and reversals of earlier provisions. The proportion of new provisions is falling at the same time as the proportion of write-offs is increasing. This is natural following a severe economic downturn and means that loan losses in relation to lending, the so-called loan-loss level, is below the banks' expected level of 0.2-0.3 per cent over an economic cycle.

**Loan losses stemming from the Baltic countries have fallen substantially compared to the situation a year ago** (see Chart 3:11).

Loan losses for the last four quarters amount to SEK 8.3 billion, compared to SEK 49.5 billion for the same period one year ago. The corresponding figures for the banks' Baltic operations are SEK 0.4 billion and SEK 24 billion. Loan losses from the other Nordic countries have, on the other hand, remained relatively stable over the last four quarters. Over half of these loan losses stem from Denmark.

**The Swedish banks have a sound grasp of the scope of the problem loans in the Baltic countries and their management of these loans complies with good practice.** There was a substantial increase in problem loans in the Baltic countries during the financial crisis and there is still a large stock of such loans (see Chart 2:20). Approximately three-quarters of these loans are loans to companies, while the rest are loans to households. According to SEB and Swedbank, the inflow of new problem loans has recently been much smaller than previously. The new problem loans come above all from loans to households, while the number of problem loans stemming from loans to companies has declined. As the economic situation in the Baltic countries has improved, an increasing number of the borrowers have once again begun to make interest and amortisation payments on their loans. Some of the problem loans have thus become loans for which the customers are now able to meet their commitments. However, in the case of some problem loans the banks have been forced to cancel the loans and take over the collateral provided, if any. In cases where there has been no underlying collateral or where the value of the collateral was less than the size of the loan the banks have suffered loan losses. This has also contributed to the reduction of the stock of problem loans. The overall effect of these inflows and outflows is that the stock of problem loans has remained relatively unchanged in recent quarters. Both SEB and Swedbank state that they have reviewed all their problem loans and that they have also drawn up action plans for the management of these loans. Both banks say that they have made adequate provisions for potential loan losses stemming from the stock of problem loans.

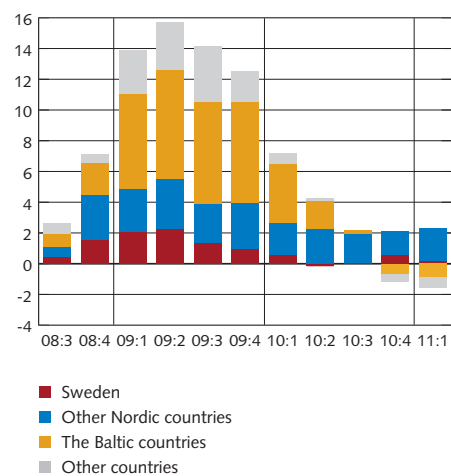
**Chart 3:10. The major Swedish banks' loan losses**  
Percentage of lending at the start of the respective quarters



Note. Annualised data.

Sources: Bank reports and the Riksbank

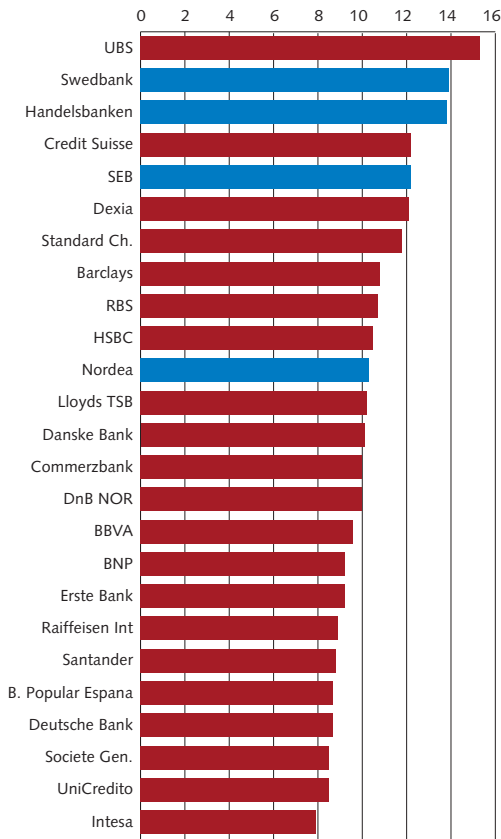
**Chart 3:11. The major Swedish banks' loan losses per quarter**  
SEK billion



Sources: Bank reports and the Riksbank

**Chart 3:12. Core Tier 1 capital ratios of Swedish and foreign banks, as defined by Basel II, December 2010**

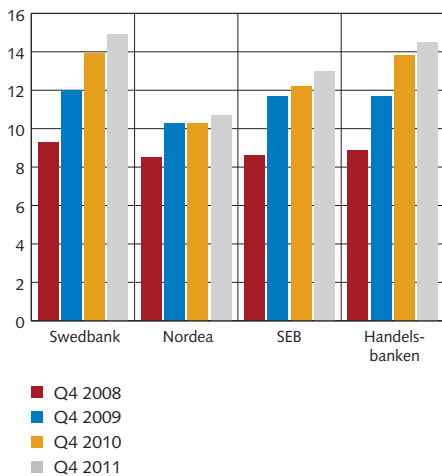
Per cent



Sources: Bank reports and the Riksbank

**Chart 3:13. Core Tier 1 capital ratios according to Basel II**

Per cent



Sources: Bank reports and the Riksbank

**Loan losses from corporate lending in Sweden and the other Nordic countries, with the exception of Denmark, have been lower than expected.** The low interest rates in combination with the fact that the companies have had a high proportion of loans at short fixed-rate periods has had a more positive impact than expected on the ability of the companies to service their loans. The weak krona also eased the situation for Swedish export companies during the crisis. Many companies also had strong balance sheets when the crisis hit, and many of them also managed to quickly reduce their costs. The lessons learned during the Swedish bank crisis of the early 1990s also helped to keep the loan losses low. For example, companies judged to have temporary problems have in some cases had their loans extended and have been allowed to reduce their amortisation and interest payments. However, the lenders have often set conditions for such easing measures so that the owners have also been forced to inject more capital and pledge additional collateral.

#### CAPITAL

**Swedish banks are well capitalised in an international comparison** (see Chart 3:12). During the crisis, all of the banks strengthened their capital ratios by both increasing their capital and reducing their risk-weighted assets (see Table 3:4 and Chart 3:13). Among other things, three of the four major banks raised new capital through rights issues.<sup>53</sup> In all of these issues, existing shareholders or private players injected capital. The banks also cancelled or reduced dividends to their shareholders during the crisis. However, all of the banks have now begun issuing dividends to their shareholders again at the levels that prevailed before the crisis. In addition, all four banks have received approval from their respective annual general meetings to buy back own shares.

<sup>53</sup> Nordea conducted a rights issue amounting to EUR 2.5 billion, SEB's rights issue amounted to SEK 15 billion and Swedbank conducted two rights issues totalling SEK 27.5 billion.

**Table 3:4 Changes in core Tier 1 capital ratios**

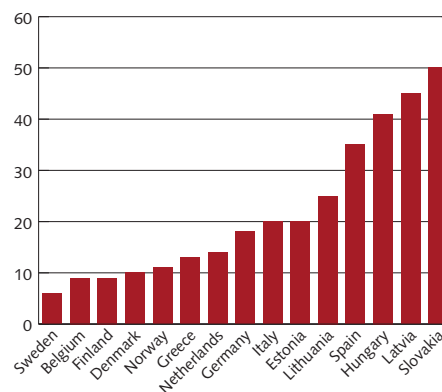
	Handelsbanken	Nordea	SEB	Swedbank
Core Tier 1 capital ratio Basel II, September 2008	8.7	7.1	8.4	7.4
Total change in core Tier 1 2008 Q3–2011 Q1	5.8	3.6	4.6	7.5
o/w rights issues	0.0	1.3	1.9	4.1
o/w retained earnings	1.9	1.6	1.1	0.1
o/w change in risk-weighted assets	4.0	0.7	1.6	3.3
Core Tier 1 capital ratio Basel II, March 2011	14.5	10.7	13.0	14.9
CET 1 ratio Basel III, March 2011	12.9	9.7	10.7	14.2
CET1/total assets (Basel III), March 2011	3.0	3.4	3.6	4.3
Core Tier 1 capital ratio transitional rules, March 2011	7.8	9.1	11.4	10.4

Note. At present, transitional rules apply under which the risk-weighted assets must correspond to a least 80 per cent of the risk-weighted assets under Basel I. The government has presented a bill that proposes extending these so-called floor regulations until further notice and the Riksdag is expected to decide on this issue in June 2011.

Sources: Bank reports and the Riksbank

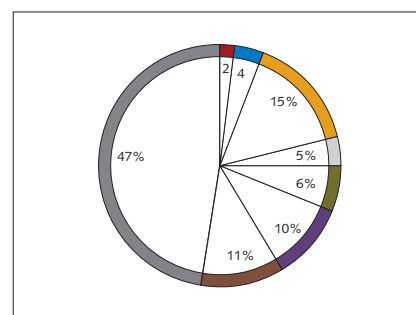
**Swedish mortgages have low risk weight in an international perspective** (see Chart 3:14). The reason is that the banks are permitted to calculate the risk weights using internal risk-based models based on historical data on loan losses. These internal models generate very low risk weights for Swedish mortgages. This is because loan losses stemming from Swedish mortgages have historically been low. A possible explanation for this is that the public sector, through the various social insurance schemes, has helped to preserve the households' ability to service their mortgages and other loans during hard times. However, even if the risk weights for Swedish mortgages were to be doubled, the core Tier 1 capital ratios of the Swedish banks according to the measure of capital adequacy defined by Basel III would only fall by 0.1-0.7 percentage points.

**Chart 3:14. Risk weighting on mortgages defined by Basel II**  
Per cent



Sources: National central banks and the Riksbank

**Chart 3:15. The major Swedish banks' funding, March 2011**  
Per cent

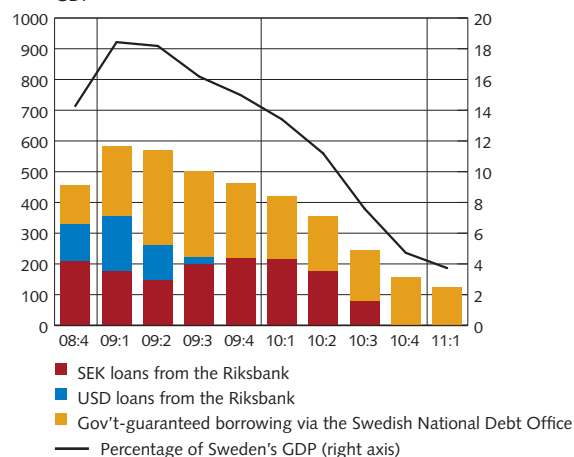


- Gov't-guaranteed borrowing via the Swedish National Debt Office
- Interbank, net
- Swedish covered bonds in SEK
- Swedish covered bonds in foreign currencies
- Foreign covered bonds
- Unsecured bonds
- Certificates
- Deposits

Note. The funding of the major banks amounts to approximately SEK 7,400 billion.

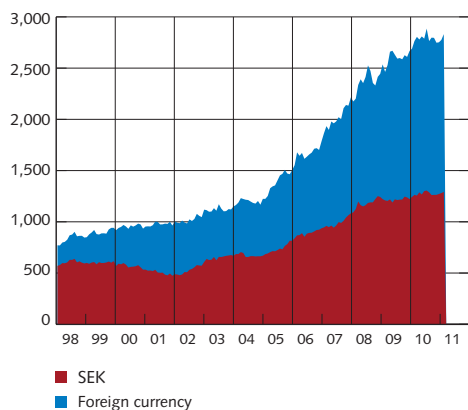
Sources: Bank reports and the Riksbank

**Chart 3:16. Government-guaranteed borrowing and the Riksbank's lending to the major Swedish banks**  
Left axis: SEK billion, right axis: percentage of Sweden's GDP



Sources: Bank reports, Statistics Sweden and the Riksbank

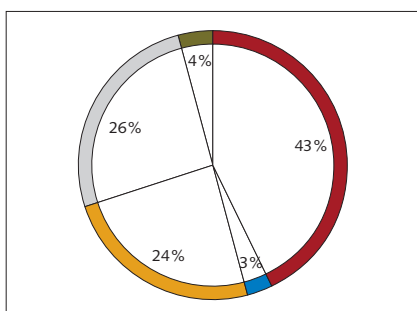
**Chart 3:17. The market funding of the major Swedish banks via Swedish parent and subsidiary companies per SEK and foreign currencies**  
SEK billion



Sources: Statistics Sweden and the Riksbank

**Chart 3:18. The major Swedish banks' lending funded by foreign currency securities issued in Sweden**

Percentage of the major Swedish banks' market funding in foreign currency via Swedish parent and subsidiary companies



- Swedish lending in SEK
- Swedish lending in foreign currency
- Lending, euro area countries
- Lending, other countries
- Lending, Latvia and Lithuania

Note. In total, the major Swedish banks' centralised market funding via Swedish parent or subsidiary companies in foreign currency amounts to slightly less than SEK 1,500 billion.

Sources: Bank reports, Statistics Sweden and the Riksbank

## Funding

**Half of the Swedish banks' funding consists of deposits and half of market funding** (see Chart 3:15). In total, the banks' funding amounts to SEK 7,400 billion. Market funding consists mainly of issued securities. Bonds (mainly covered bonds) account for the long-term funding. Short-term market funding largely consists of certificates in foreign currencies, mainly US dollars. Borrowing on the interbank market, which is primarily to be regarded as a means of balancing liquidity, is also a part of the short-term market funding. During the crisis, a small part of the banks' normal market funding was replaced by loans from the Riksbank and government-guaranteed borrowing (see Chart 3:16). The last of the large extraordinary loans from the Riksbank was phased out at the end of 2010 and, although a number of bonds with government guarantees are still outstanding, no bank is any longer part of the government guarantee programme.

**The market funding of the major Swedish banks is largely conducted through their Swedish operations.** Approximately 80 per cent of the market funding of the Swedish banking groups is managed centrally by parent or subsidiary companies domiciled in Sweden. This funding has increased over time, both as a percentage of total funding and in absolute terms. This applies primarily to that part of market funding that is in foreign currencies, which is mainly because the banks' foreign operations have grown (see Chart 3:17). Long-term market funding in foreign currencies is mainly conducted in euro, while short-term funding mainly in US dollars (see the box on "The banks' liquidity risk in foreign currency").

**A large part of the centralised market funding in foreign currencies is used to fund lending in Sweden and in the other Nordic countries** (see Chart 3:18). Approximately SEK 600 billion of Swedish lending is funded in this way. In order to avoid the undesirable effects of exchange rate fluctuations, the banks swap this foreign currency for Swedish kronor. The swaps are reversed when the time comes to repay the debt in foreign currency.<sup>54</sup> Similarly, SEK 400 billion is swapped for foreign currencies for lending in other countries where lending is not conducted in euro or dollars. The market for swaps is thus important to the Swedish banks when it comes to managing the risks that arise because funding takes place in a different currency than lending (see also the box on "Latest developments on the short-term interbank market").

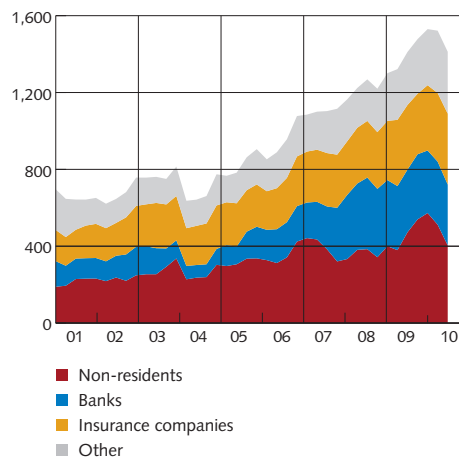
<sup>54</sup> The banks use swaps with maturities less than one year (FX swaps) and swaps with maturities more than one year (cross-currency basis swaps).



**Foreign investors own a large proportion of the bonds issued by the banks.** Of the outstanding stock of covered bonds of almost SEK 1,700 billion, SEK 320 billion are in euro and more than SEK 70 billion are in other foreign currencies. Approximately the same amount issued in foreign currencies is owned by foreign investors (see Chart 3:19). A large proportion of the Swedish mortgages are thus funded using covered bonds in foreign currencies. Even though the Swedish market for covered bonds worked relatively well during the crisis, foreign investors reduced their holdings by approximately SEK 120 billion when the turbulence was at its height.<sup>55</sup> At the same time, the banks' holdings of covered bonds increased, partly because investors sold bonds back to the banks and partly because the banks issued bonds that they were forced to hold on to. The banks then used these covered bonds as collateral for the extraordinary loans the Riksbank began to provide in October 2008.

**The banks unsecured bonds are for the most part in foreign currencies and owned by foreign investors.** The major banks' outstanding volume of unsecured bonds amounts to over SEK 700 billion. These bonds are primarily used to fund lending to companies in both Sweden and abroad. The information concerning the proportion of unsecured bonds that are denominated in foreign currency is scarce. However, estimates suggest 80 per cent, of which almost all is owned by foreign investors, mainly fund management companies, insurance companies and banks.

Chart 3:19. Holders of Swedish covered bonds  
SEK billion

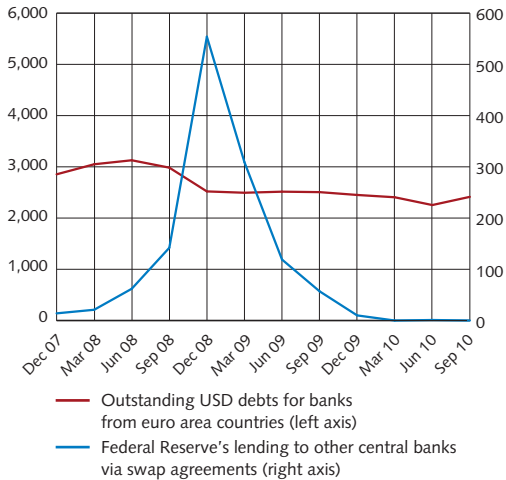


Note. Up to the end of 2006, this relates to mortgage bonds, thereafter the outstanding mortgage bonds were gradually converted into covered bonds. SEB's covered bonds are not included in the chart after October 2007.

Sources: Statistics Sweden and the Riksbank

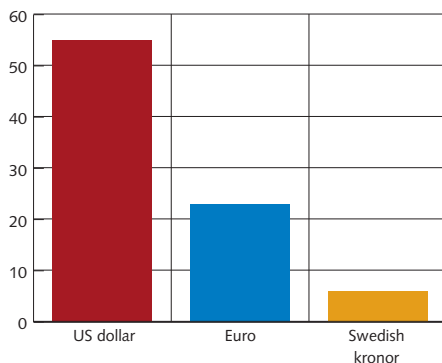
<sup>55</sup> Despite the severe pressure placed on the international bond markets, the market for Swedish covered bonds remained open for trading throughout the recent financial crisis. Swedish banks were able to issue bonds on the primary market and market makers were also willing to offer ask and bid prices on the secondary market with a bid offer spread that never exceeded 10 basis points.

Chart B3:1. Funding in US dollars for banks in the euro area and the Fed's lending to other central banks  
USD billions



Sources: Bank for International Settlements, Federal Reserve and the Riksbank

Chart B3:2. Percentage of funding through securities by currency with original time to maturity of less than one year in the Swedish banking system  
Per cent



Note. The banks' foreign subsidiaries are not included in the statistics.

Source: The Riksbank

## The banks' liquidity risk in foreign currency

Swedish banks take comparatively large liquidity risks in foreign currency. This is because this type of funding tends to be harder to obtain in times of financial stress. In addition, the Riksbank's ability to handle liquidity problems in foreign currency is limited. All in all, this entails a risk for the Swedish financial system. During the financial crisis, the liquidity risk in foreign currency led to problems, when both Swedish and international banks found it difficult to obtain access to funding in dollars. This box presents an analysis of Swedish banks' dependence on US dollars, and the risks this entails.

Liquidity risk is a natural part of banks' operations, as banks normally fund themselves at shorter maturities than those at which they lend. However, during the financial crisis, it became apparent that banks across the world had taken excessive liquidity risks. The great extent towards which many banks – including Swedish ones – had relied on short-term funding in US dollars was particularly problematic. When the supply of this funding disappeared in conjunction with the collapse of Lehman Brothers, many banks experienced acute liquidity problems. Consequently, many central banks had to provide the banking system with liquidity in dollars to avoid a full-scale systemic crisis (see Chart B3:1).

### *The liquidity risk in foreign currency is particularly problematic*

The liquidity risk in foreign currency is more problematic than the liquidity risk in Swedish kronor. There are two general reasons for this:

Firstly, in periods of stress, access to funding in foreign currency is significantly more instable than funding in Swedish kronor. Experiences from the financial crisis have shown that many foreign investors pulled back and avoided many types of investments, particularly outside their home markets. Furthermore, during periods of financial stress, disruptions can arise on the foreign exchange market, both on the spot markets and on the swap markets. Banks can normally use the foreign exchange market to exchange liquidity in one currency for liquidity in another currency. However, when the market is under stress, it can be difficult to fund loans in dollars, for example, even if a bank has liquidity in Swedish kronor.

Secondly, the Riksbank's ability to provide liquidity support in foreign currency to the banking system is limited. The Riksbank cannot create liquidity in foreign currency by itself in the same way that it can in Swedish kronor.

Furthermore, as regards the banks' liquidity risk in dollars, a large part of funding is subject to short times to maturity (see Chart B3:2). This means that the banks need to refinance their debts more frequently than would have been the case if this funding had been more long-term.

### Why does funding take place in other currencies?

Borrowing money on the international capital markets can be a cheaper way for the banks to obtain funding. It also provides a way to widen their investor base.

The banks can use their foreign funding in two ways. Firstly, the funding can be used to fund Swedish assets. By issuing securities in foreign currencies and simultaneously carrying out a currency transaction known as a currency swap, the banks can obtain Swedish kronor with which to fund Swedish assets.<sup>56</sup> Except from the actual currency exchange, the aim of this swap is also to carry out currency hedging of the financing.

The other reason why the banks may need funding in foreign currency is that they have foreign assets. It is only this type of funding that gives rise to a liquidity risk in the foreign currency. When a security in foreign currency falls due for payment, it must be replaced with the same currency in those cases the asset doesn't fall due for payment at the same time.

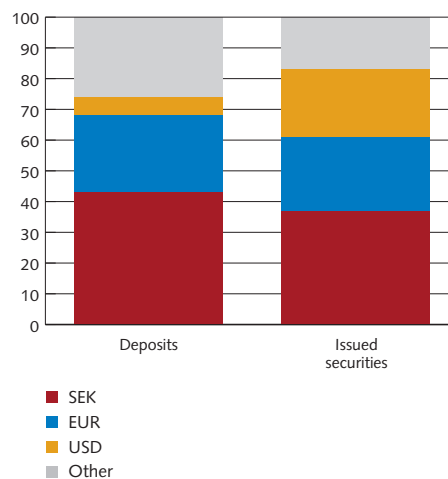
### The funding and liquidity risks in foreign currency of the major Swedish banks

The size of the liquidity risks a bank has in foreign currency depends partly on how the bank funds itself and partly on which foreign assets are held by the bank. Major Swedish banks fund more than half of their assets on the financial markets. Over 60 per cent of this market funding is made up of other currencies than Swedish kronor (see Chart B3:3). In addition, the foreign part of this has grown rapidly in significance over the last decade or so.

In addition to the currencies of the Nordic countries, the currencies used by the Swedish banks for funding are the euro and the US dollar. Of these, the dollar is the currency that presents the largest liquidity risk to the major Swedish banks. Funding in dollars is primarily short-term, as this type of funding is common and easily available in the United States. Both before and after the crisis, the US market has been used by the Swedish banks to obtain significant volumes of short-term funding under advantageous terms. In contrast, funding in euros is more balanced, with both short-term certificate programmes and long-term borrowing. In addition the banks have a considerable euro deposit base.

As was mentioned above, the risks that a bank will face a liquidity crisis are not just due to how it obtains funding. They also depend on the degree of liquidity of the bank's assets. If a bank funds itself with short term money and use it to purchase liquid government bonds, the liquidity risk will be limited. If, on the other hand, the bank uses this money to lend to a customer, the risk will be

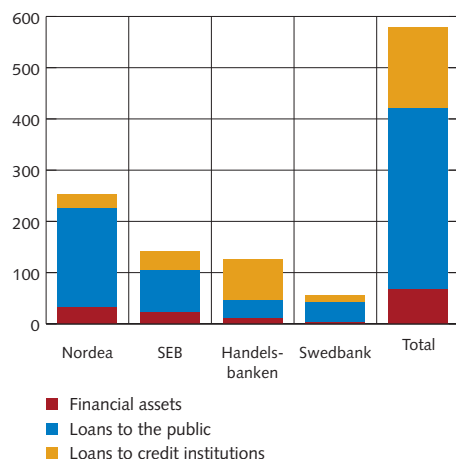
Chart B3:3. The major banks' funding from deposits from the public and securities issued, by currency, per December 2010  
Per cent



Sources: Bank reports and the Riksbank

<sup>56</sup> The banks primarily use this type of funding because they wish to diversify their funding. Furthermore, foreign funding has been both cheaper and, frequently, more liquid than domestic funding. See also the box "Swapping covered bonds in euro to Swedish kronor – a decomposition of costs", *Financial Stability Report 2009:2*, Sveriges Riksbank.

Chart B3:4. The major Swedish banks' assets in USD per December 2010  
SEK billion



Sources: Bank reports and the Riksbank

significantly greater. Most of the major Swedish banks' dollar assets consist of just this type of illiquid asset (see Chart B3:4).

Why do Swedish banks lend dollars to their customers? A large part of the Swedish banks' US dollar loans are to shipping firms, which operate in a dollar-dominated market. However, other large Swedish firms also need to borrow dollars. For example, this includes firms that import, export or have operations in the United States with payment flows in dollars. Apart from these customer groups, the banks also have a certain amount of exposure in countries in which lending traditionally takes place in US dollars, such as Russia and Ukraine.

#### *Quantification of the major Swedish banks' liquidity risk in US dollars*

One way of measuring the liquidity risk in dollars is to use the Riksbank's structural liquidity measure, which is close to the Basel measure of Net Stable Funding Ratio (NSFR).<sup>57</sup> The aim of this measure is to highlight structural imbalances. Put simply, it measures the maturity mismatch between assets and liabilities. The measure reveals that the major Swedish banks' liquidity risks in dollars are significantly higher than they are for operations in general.

The Riksbank's structural liquidity measure is expressed as the proportion of the bank's stable funding to its illiquid assets.<sup>58</sup> Liquidity risk thus arises when parts of the bank's illiquid assets are not fully covered by stable funding. In order to attain a proportion of 100 per cent, the funding designated as stable must equal the illiquid assets. The higher this measure is, the lower the structural liquidity risk taken by the bank. The banks' illiquid assets are calculated by multiplying the asset items with a factor expressing their degree of liquidity. Their stable financing is calculated by multiplying the liability items with a factor expressing the stability of these items. The factors range between 0 and 100 per cent, where 100 per cent means the asset is completely illiquid or the financing is totally stable, that is, it is assumed to remain on the balance sheet for at least one year.

<sup>57</sup> For more information on the method and assumptions used here, see the article "Method for stress testing the banks' liquidity risks", *Financial Stability Report 2010:2*, Sveriges Riksbank.

<sup>58</sup> The liquidity measure is only calculated here for that portion of the debts used to fund assets in US dollars, as the remaining dollar funding is used to fund assets in other currencies.

**Table B3:1. The major Swedish banks' assets and debts in US dollars, and the assumed stability of funding and liquidity of assets, December 2010**  
SEK billion and per cent

	Volume	Factor	Weighted volume	Structural measure
Financial assets	68	20%	14	
Loans to public	352	85%	299	
<b>Total illiquid assets</b>			<b>313</b>	
Deposits, larger firms	188	50%	94	
Deposits, smaller firms and households	21	90%	19	
Issued securities (excluding swapped amounts) with times to maturity of over one year	41	100%	41	154 / 313 = 49
Issued securities (excluding swapped amounts) with times to maturity of less than one year	165	0%	0	
<b>Total stable funding</b>			<b>154</b>	

Sources: Bank annual reports and the Riksbank

In the case of the major Swedish banks, the largest part of the illiquid dollar assets is made up of lending to major internationally-active firms (lending to the public), at the same time as 60 per cent of stable funding is made up of deposits from major firms.

The financial assets are considered to be relatively liquid, at the same time as lending to the public is assumed to be illiquid (however, all interbank lending is assumed to be liquid) (see Table B3:1). Deposits from the public are assumed to have a short remaining time to maturity and, consequently, half of the deposits from larger firms and 90 per cent of deposits from smaller firms and households are counted as stable funding. The majority of the outstanding issued securities have a remaining time to maturity of less than one year and are not considered to be stable funding. However, one-fifth of the issued securities are assumed to have a remaining time to maturity exceeding one year, which is fully counted as stable funding.

Table B3:1 shows that the banks' illiquid assets in dollars equal just over SEK 300 billion, at the same time as their stable funding in dollars only amounts to just over SEK 150 billion. This means that the Riksbank's structural liquidity measure amounts to 49 per cent in dollars. For operations in the four major banks in total, the measure amounts to over 80 per cent.<sup>59</sup> The liquidity risk is thus greater in dollars than it is for the Swedish banks in general.

In addition, the liquidity risk in US dollars is probably underestimated somewhat when it is calculated in this manner, as the assumptions of stability in funding are the same as those for other currencies, when funding in dollars in times of unease on the financial markets has actually been shown to be more instable. Finally, it is worth mentioning that there is insufficient transparency in public data surrounding the banks' debts and assets in foreign currency. This means that unnecessary uncertainty has arisen regarding the size of the banks' liquidity risks.

<sup>59</sup> The calculations are based on the same assumptions that the Riksbank used to calculate the currency-aggregated structural liquidity measure. The only difference is that the banks do not publish maturity data for assets and debts per currency, which gives rise to certain assumptions.

## Countercyclical capital buffers – An illustrative example

**T**he new international regulatory framework for banks, Basel III, entails the introduction of stricter capital regulations.<sup>60</sup> In addition to the stricter requirement regarding the minimum amount of capital, a capital buffer will also be required. If a bank fails to meet both these requirements, restrictions will be imposed on its dividends and share buy-backs etc. The extra capital buffer should be made up of core Tier 1 capital and consist of two parts – a permanent capital conservation buffer and a countercyclical capital buffer. The capital conservation buffer should amount to 2.5 per cent of the bank's risk-weighted assets while the size of the countercyclical buffer will vary over time. This box discusses the reasons for the introduction of countercyclical capital buffers. It also presents an example of a simple calculation to illustrate the potential effect of the buffers in the Nordic and Baltic countries.

### *Why is a countercyclical capital buffer being introduced?*

It is a well-known fact that economic activity moves in cycles. Economic upturns and downturns succeed one another and the financial system, which forms part of the economy, exhibits the same pattern. Events in the real economy affect the financial system, and vice versa. The financial crisis also demonstrated that the regulations governing the banks may have reinforced these cycles and thus have contributed to putting financial and economic stability at risk.

Given this, countercyclical buffers will now be introduced in the new capital adequacy regulations for banks. These buffers have two main aims. The first and primary aim is to protect the banking sector against future losses that may follow a period of excessive credit growth.<sup>61</sup> The second aim is to reduce the procyclicality of credit growth by helping to dampen excessive fluctuations in the credit cycle. In economic upturns, substantial credit expansion will activate the buffers, which means that the banks will gradually have to hold more capital. This will restrict lending and thus reduce the risk of excessive credit growth and rising asset prices. During downturns, the buffer requirement will be reduced, thus making more capital available to the banks. The banks will therefore not need to reduce their lending to the same extent, which would otherwise reinforce the downturn.

### *The basic principles for calculating and applying the capital buffers*

As the aim of the countercyclical capital buffers is to counteract risks that arise as a result of an excessive growth in credit, the buffers must be related to a measure of credit growth. In practice, the authority responsible for this will need to define a variable that measures the growth of credit in the economy and a statistical tool that divides

<sup>60</sup> See also Box "Basel III – effects on the Swedish banks and Sweden, *Financial Stability Report 2010:2*, Sveriges Riksbank.

<sup>61</sup> Financial crises are often preceded by a dramatic growth in credit. See for example "Global recession and financial stability", *Financial Stability Report 2009:1*, Sveriges Riksbank, for a review of previous financial crises.

this measure into a trend and a cyclical component. The level of the buffer will then be determined by how much the cyclical component (the credit gap) deviates from the trend.

Although each country will decide for itself how to measure credit growth and the statistical tool it will use, the Basel Committee has drawn up some guidelines for this. These guidelines use the relation between total lending<sup>62</sup> and GDP as a measure. The Basel Committee has also developed a formula that provides a buffer level that depends on the size of the deviation from the long-term trend.<sup>63</sup> The buffer, which must consist of core Tier 1 capital, will be positive if lending in relation to GDP exceeds the long-term trend by more than 2 percentage points, and will reach its maximum level of 2.5 per cent of the risk-weighted assets when the deviation is 10 percentage points or more. The authorities may, however, decide that a higher buffer than 2.5 per cent should apply if the situation in the country requires this.

Domestic banks that do not lend to customers abroad must fully comply with the new capital adequacy requirement within one year, irrespective of their size and their contribution to the expansion of credit.<sup>64</sup> For banks with lending to customers in several countries the capital buffer will be calculated as a weighted average of the buffer levels in those countries where the banks' exposures lie.

This can be illustrated by a simple example. Assume that a bank with its head office in country A has exposures to three countries: A, B and C. Half of the bank's total lending is to borrowers in its home country while 30 and 20 per cent is to borrowers in country B and country C respectively. Based on credit growth in their own countries, the authorities in countries B and C have stipulated countercyclical capital buffers of 1 and 2 per cent respectively. In country A the capital buffer has been set at zero. In this situation, the bank concerned would need to have a capital buffer of

$$0.5 \times 0\% + 0.3 \times 1\% + 0.2 \times 2\% = 0.7\%$$

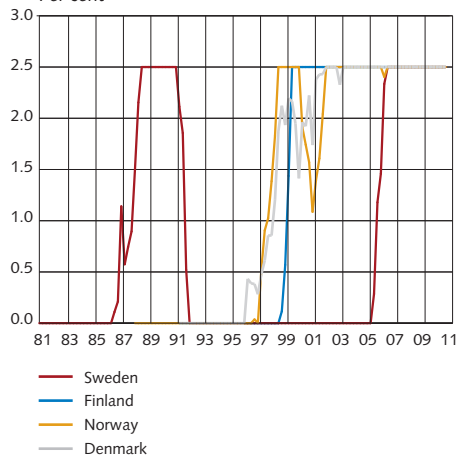
According to the proposal of the Basel Committee, a country only needs to comply with another country's buffer level up to 2.5 per cent. This means that if country C in the example above sets its capital buffer at 4 per cent then it is up to the authorities in country A to decide whether they want to comply with this level or stay at 2.5 per cent.

62 The Basel Committee recommends that a broad definition of credit be used, that is a definition that not only comprises the banks' lending but also in principle all private sector debt funding, including direct market funding.

63 The use of a statistical tool called the Hodrick-Prescott-filter is recommended for calculating the long-term trend. In the calculations performed in this box the equalisation factor (often called lambda) is set at 400,000.

64 If a bank fails to reach its stipulated buffer level within one year, it will be subject to restrictions on its dividends and share buy-backs etc.

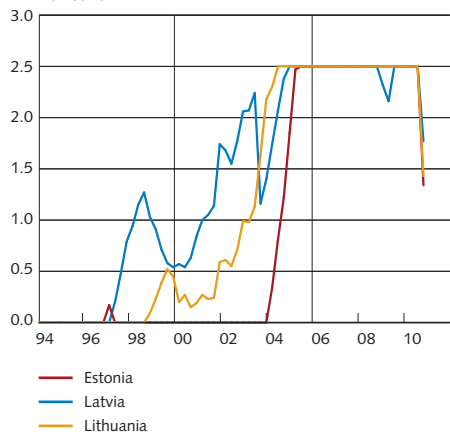
**Chart B3:5 Countercyclical capital buffers in the Nordic countries**  
Per cent



Note. All countries reach the maximum level of 2.5 per cent by the end of 2005, which makes the lines in the chart overlapping until the end of 2010.

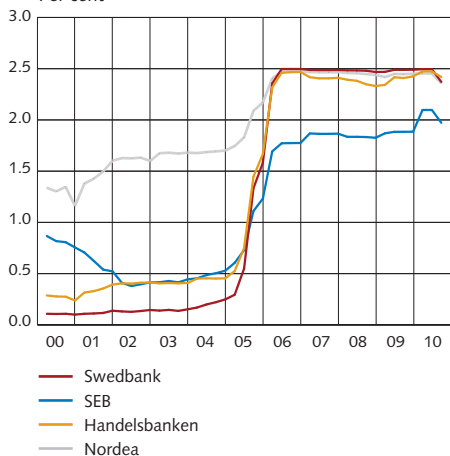
Sources: Reuters EcoWin and the Riksbank

**Chart B3:6 Countercyclical capital buffers in the Baltic countries**  
Per cent



Sources: Reuters EcoWin and the Riksbank

**Chart B3:7 Countercyclical capital buffers for Swedish banks**  
Per cent



Sources: Bank reports and the Riksbank

### *The countercyclical buffer would have been triggered before the crisis*

In order to illustrate how the countercyclical buffers would, according to the formula, have affected the major Swedish banks the Riksbank has calculated how high the buffer levels would have been in the Nordic and Baltic countries if they had been in accordance with the Basel Committee's guidelines.

In Sweden the buffer would have been positive on two occasions: first in 1987, some years ahead of the crisis of the 1990s, and, second, a few years before the recent international financial crisis. In the other Nordic countries the capital buffers would have been activated in 1997-1999 and been at a maximum level from 2002 onwards (see Chart B3:5).

In the Baltic countries, the buffers would first have been activated in Latvia in 1997, then in Lithuania in 1999 and, finally, in Estonia in 2004. However, in the case of Latvia and Lithuania the buffer levels would have been relatively moderate up to 2001. For all three countries the buffer levels would have been at the maximum of 2.5 per cent from 2005, that is a few years before the latest crisis began (see Chart B3:6). It is worth noting that the expansion of credit in some countries was so strong at that time that it could have led to a capital buffer higher than 2.5 per cent.

As the countries' buffer levels have been calculated after the event it is primarily the build-up phase that is of interest. This is because it is reasonable to expect that if the buffer levels had been applied, they would have affected lending in these countries once the build-up of the buffers began. For example, it would have been relatively more expensive (would have cost more capital) to lend in Sweden's neighbouring countries than in Sweden in the period 2000 to 2005, which could have steered some lending from these countries to Sweden and thus also have changed the buffer levels in the respective countries.

It is also interesting to investigate the size of the countercyclical buffers that would have been imposed on the major Swedish banks, according to the formula, from 2000 onwards if the regulations concerning countercyclical buffers had existed at that time (see Chart B3:7). In the period 2000 to 2005, the Swedish countercyclical capital buffers would have been set at zero, but the major Swedish banks would nevertheless have had positive countercyclical buffers due to their international activities, which varied in terms of size and location. For example, Nordea's relatively high buffer level during this period is due to the bank's presence in Denmark, Finland and Norway, which would all have had high national buffer levels at this time (see Chart B3:5). The buffer levels for all of the banks would then have increased substantially from 2005 and onwards, which would have coincided with the expansion in the Baltic countries but above all with



the increase in the countercyclical capital buffer for Sweden.<sup>65</sup> The existence of a countercyclical capital buffer would thus have meant that the Swedish banks, all else being equal, would have been better capitalised at the outbreak of the crisis than they actually were.

It should also be pointed out that the banks' positions in Chart B3:7 could have been different if some of the countries had chosen to set higher national buffer levels than 2.5 per cent, and if the Swedish authorities had chosen to follow these higher levels (see Charts B3:8 and B3:9). As far as Sweden is concerned, this would have meant that the countercyclical capital buffer would have exceeded 2.5 per cent in mid-2006. A general point with regard to the calculations performed in this box is, however, that they do not take into account the cyclical interaction that takes place between credit growth and capital requirements. Credit growth will probably decline as the capital requirements are increased, thus reducing the credit gap. This means that it is unlikely that the introduction of capital requirements of the magnitude sometimes indicated in Chart B3:8 and Chart B3:9 will ever be considered.

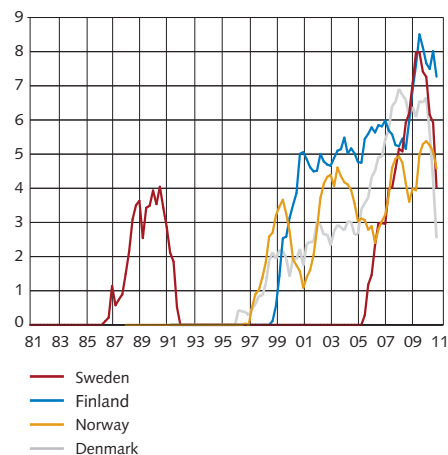
#### *Who will determine the size of the buffer?*

According to the agreement in the Basel Committee, the countries should appoint an authority that will be responsible for deciding, each quarter, what the size of the national countercyclical capital buffer should be. This flexibility will make it possible for the countries to select the arrangement that suits them best. This may be an advantage given that the buffer is one of several tools that will form part of a stronger framework for the prevention of systemic risks.

Whether responsibility for deciding on the countercyclical capital buffers is given to an existing authority, is shared between several authorities or is perhaps allocated to a newly-formed committee or a council is an open question in Sweden and in many other countries. In early 2011, the Swedish government appointed an enquiry which will, among other things, analyse the distribution of responsibility and the interplay between the Riksbank, the National Debt Office, Finansinspektionen and the Government Offices (primarily the Ministry of Finance) in this area.<sup>66</sup> In addition, the enquiry will review the possibility of the authorities to hold the banks accountable and to propose necessary improvements.

The financial crisis clearly showed that it is not enough to focus supervision on individual financial institutions alone. Supervision must also focus on the system as a whole. The recently established European Systemic Risk Board (ESRB) has been given the task of identifying systemic risks and should therefore be involved in the EU discussion on how the capital buffers should be applied.

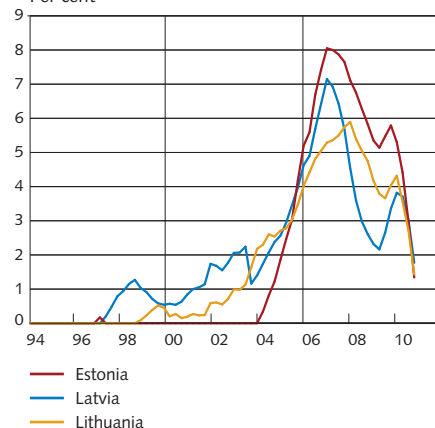
**Chart B3:8 Countercyclical capital buffers without ceiling in the Nordic countries**  
Per cent



Note. "without ceiling" means that the countercyclical buffer is given the possibility of exceeding 2.5 per cent.

Sources: Reuters EcoWin and the Riksbank

**Chart B3:9 Countercyclical capital buffers without ceiling in the Baltic countries**  
Per cent



Note. "without ceiling" means that the countercyclical buffer is given the possibility of exceeding 2.5 per cent.

Sources: Reuters EcoWin and the Riksbank

<sup>65</sup> For SEB, it is the banks' operations in Germany that mean that the bank's buffer level would have been somewhat lower than for the other banks.

<sup>66</sup> See "Submission on certain areas that require investigation as a result of the financial crisis", 2009/10 RB4, 2010, Sveriges riksdag.



## ■ 4. Future prospects, risks, stress tests and recommendations

The economic recovery in Sweden and the rest of the world is expected to continue in the next few years and developments for the banks and their borrowers look favourable. But the financial markets will probably continue to be characterised by concern that the sovereign debt problems in the euro area will worsen and spread. The uncertainty in the global economy is thus high. The Riksbank's stress tests show, however, that the Swedish banks have good resilience to higher loan losses than those expected in the main scenario. However, they are still taking higher

liquidity risks compared with many other European banks. The Riksbank recommends that the Swedish banks should retain or increase their capital ratios. Thus the repurchase programmes for own shares that have been announced by the banks should not be used so that they reduce capital ratios. In addition, the banks should continue to extend the maturity of their funding and reduce their dependence on short-term funding. To reduce uncertainty about the size of liquidity risk the banks need to improve their public liquidity reporting as well.

This chapter presents the overall assessment by the Riksbank of developments in Swedish banks in the period 2011–2013. On the basis of the main scenario for the expected outcome in the real economy on the financial markets and for the banks' borrowers, the Riksbank forecasts the banks' net interest income and loan losses in the three years.<sup>69</sup> Following that, there is a discussion of the risks that may threaten the main scenario. The Riksbank then uses stress tests to assess Swedish banks' resilience to these disruptions. The chapter ends with the Riksbank's recommendations to the Swedish banks.

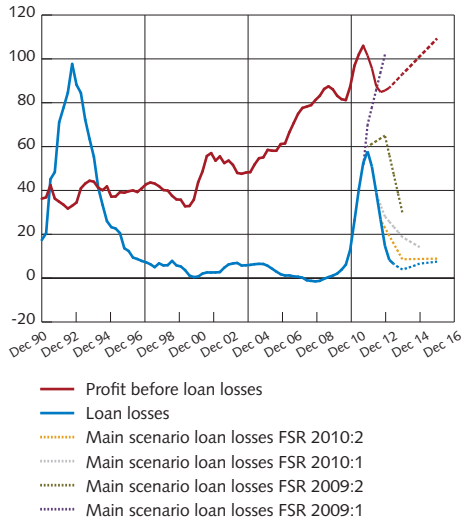
### Main scenario

**International growth is expected to be positive in the next few years.**<sup>70</sup> Development is mainly driven by the rapidly growing emerging economies in Asia. In the United States the expansive fiscal and monetary policy has meant that economic recovery has increased in strength. Next year, however, growth is expected to slow down as a result of the fiscal policy tightening to reduce the country's large budget deficit. In the euro area several countries have already taken measures to rectify fiscal problems, but further austerity measures can be expected. This indicates slow GDP growth in the euro area. The different conditions for growth in the emerging economies on the one hand and the United States and euro area on the other, could mean that capital flows to the emerging economies will continue due to investors seeking higher returns on their investments.

<sup>69</sup> The main scenario for the real economy follows the Riksbank's April forecast, see *Monetary Policy Update April 2011*, Sveriges Riksbank. The main scenario for the financial markets and banks' borrowers is described in Chapters 1 and 2.

<sup>70</sup> The world economy is expected to grow by almost 4.5 per cent annually in 2011–2013. Growth in the United States is expected to be 2.8 per cent this year, which is slightly lower than in 2010, see *Monetary Policy Update April 2011*, Sveriges Riksbank. The emerging economies in Asia are expected to grow by 6 per cent, see *World Economic Update*, January 2011, IMF.

**Chart 4.1. Earnings before loan losses and loan losses in the major Swedish banks**  
Totalled over four quarters, SEK billion, fixed prices, March 2011



Note. The broken lines represent the Riksbank's main scenario according to the current and previous Financial Stability Reports. Estimates for earnings before loan losses according to the consensus estimate presented in SME Direkt, April 2011.

Sources: Bank reports, SME Direkt and the Riksbank

**The Swedish economy continues to show strong growth.** Exports are benefitting from increasing world trade while strong central government finances mean that Sweden, unlike many other countries, does not have to tighten fiscal policy.<sup>71</sup> The economies in the other Nordic countries are also developing well on the whole (see Table 4:1). Altogether this implies good conditions for companies to increase their borrowing in Swedish banks. Household borrowing is however expected to continue to slow down, due to higher interest rates. Borrowers' creditworthiness is expected to be good in the next few years due to improvement in the labour market and to companies having better profitability (see Chapter 2).

**The financial markets are still characterised by uncertainty.** The Federal Reserve is expected to close its programme for purchases of government securities in June. It is conceivable that this will lead to some volatility in financial asset prices when the financial market participants try to establish new equilibrium prices and adapt to a normal situation after several years of liquidity surpluses. In other respects, concern is mainly expected to be related to the risk that governments in the countries with weak public finances will not manage to implement the planned budget tightening measures. In addition, more banks in the euro area may need capitalisation, which puts an additional burden on public finances, as governments indirectly guarantee the banks' commitments (see Chapter 1). As before, this is expected to mainly affect certain submarkets and mainly the countries with weak public finances. In the Riksbank's main scenario the contagion to Sweden is limited and the Swedish banks' access to market funding is not impaired.

**Good prospects for the Swedish economy mean that the Swedish banks' net interest income is expected to increase in the coming years** (see Tables 4:1 and 4:2). This is partly due to an increase in borrowing in the Nordic countries (see Chapter 2) and partly to higher interest rates enabling the banks to increase their deposit margins.<sup>72</sup> It is true that the banks' funding costs are expected to increase due to the coming Basel III rules<sup>73</sup>, but the Riksbank considers that this will probably not affect the banks' net interest income to any great extent. The higher funding costs are instead to some extent expected to be passed on to the banks' customers in the form of higher lending rates.

71 The Swedish economy is expected to grow by about 4.5 per cent this year and then grow at an average historical rate. See *Monetary Policy Update April 2011*, Sveriges Riksbank.

72 The deposit margin is the difference between the short-term interest rate at which the banks can invest and the average interest rate they pay for deposits. See Chapter 3 for a more detailed discussion of the deposit margin.

73 See the article "Basel III – Effects on the Swedish banks and Sweden" in *Financial Stability Report 2010:2*, Sveriges Riksbank.

**Table 4:1. GDP development in the main scenario**  
Annual percentage change

	2011	2012	2013
Sweden	4.6	2.7	2.5
Other Nordic countries	2.0	2.1	2.1
The Baltic countries	3.3	3.3	3.5

Note. Other Nordic countries refer to Denmark, Finland and Norway. The figures for other Nordic countries and the Baltic countries refer to average growth in the respective years.  
Sources: The IMF and the Riksbank

**Table 4:2. Forecast for Swedish banks' net interest income**  
SEK billion

	2011	2012	2013
Riksbank's forecast	111	117	122
Consensus according to SME Direkt	110	119	127

Sources: SME Direkt April 2011 and the Riksbank

Loan losses in the Swedish banks are expected to be lower compared with the previous Financial Stability Report (see Chart 4:1). This is mainly due to the expectation of large recoveries and reversals of previous reserves in the Baltic countries in the coming period. The economic recovery has also been stronger than expected in the previous Report, which also has contributed to lower credit losses. The recovery is expected to continue in the Nordic countries, which will also contribute to expectations of low loan losses in the coming three years (see Charts 4:2, 4:3 and Tables 4:3 and 4:4).

**Table 4:3. Loan losses in the main scenario**  
SEK billion

	Outcome 2010	2011	2012	2013	2011–2013
Handelsbanken	1.5	1.0	1.1	1.1	3.2
Nordea	8.4	5.0	4.0	4.0	13.0
SEB	1.9	-0.5	1.0	1.2	1.7
Swedbank	2.8	-1.5	0.5	1.2	0.2
Total	14.6	4.0	6.6	7.5	18.1

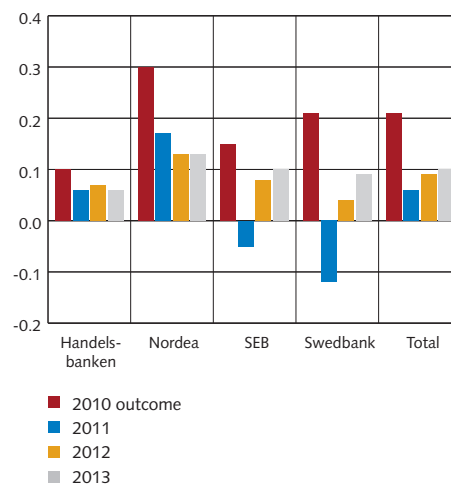
Source: The Riksbank

**Table 4:4. Loan loss level and loan losses per year in the main scenario for the major Swedish banks**  
Per cent of lending and SEK billion

	Outcome 2009	Outcome 2010	2011	2012	2013
Sweden	0.20	0.03	0.06	0.07	0.07
Companies			0.09	0.11	0.12
Households			0.03	0.03	0.03
Other Nordic countries	0.53	0.32	0.20	0.14	0.13
The Baltic countries	5.43	1.29	-0.89	-0.02	0.25
Estonia	2.45	0.85	-0.06	0.10	0.23
Latvia	7.48	2.12	-1.47	-0.12	0.28
Lithuania	6.54	1.00	-1.35	-0.08	0.24
Other countries	0.65	0.09	-0.03	0.12	0.13
Total	0.72	0.21	0.06	0.08	0.10
Total loan losses, SEK billion	56.2	14.6	4.0	6.6	7.5

Note. Other countries include Germany, Poland, Russia, Ukraine and the United Kingdom.  
Source: The Riksbank

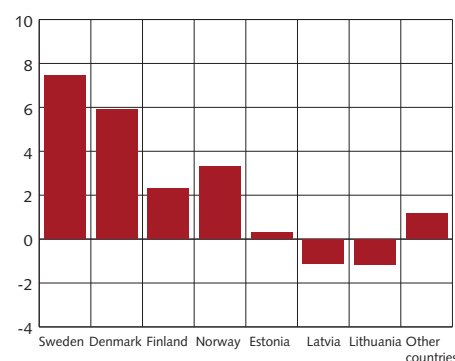
**Chart 4.2. Loan loss levels per bank and year in the main scenario**  
Per cent



Note. A negative figure means that recoveries and reversals of earlier provisions are greater than new provisions for loan losses and write-offs.

Source: The Riksbank

**Chart 4:3. Distribution of loan losses per region in the period 2011–2013 in the main scenario**  
SEK billion



Note. A negative figure means that recoveries and reversals of earlier provisions are greater than new provisions for loan losses and realised loan losses.

Source: The Riksbank

**In summary developments for the Swedish banks are expected to be good in the coming period.** In the Riksbank's main scenario, the real economy in Sweden and in countries where the Swedish banks are active, continues to strengthen, which contributes to increased earnings for banks. At the same time loan losses are low. These factors together with high capital ratios mean that the Swedish banks are expected to have good access to market funding, despite uncertainty in the financial markets.

### Risks in the main scenario

The financial markets are still characterised by great uncertainty and there is a risk that developments will be worse than in the Riksbank's main scenario.

**The largest risk in the short term is that the unease on the financial markets might increase if the situation in the fiscally-weak European countries deteriorates.** Risk premiums and yields on government bonds issued by Greece, Ireland and Portugal have already been pushed up to record-high levels as a result of concern that public finances in these countries might deteriorate further. The markets have also recently begun to show concern regarding the situation in Spain and Belgium. If the fiscal problems continue, the Greek, Irish and Portuguese banks may need government aid as they do not currently have access to market funding. At the same time, it is uncertain whether it is politically possible, particularly in the case of Greece, to implement the measures agreed with the EU and the IMF in connection with the support programmes. If the measures are not implemented, the support payments may be delayed or cancelled. This would make it difficult or even impossible for the country affected to gain access to market funding. The final resort would then be to suspend payments on its national debt and thus force it to be renegotiated. However, it is not clear how renegotiation of the national debt in one of the countries concerned could be achieved. If the market perceives that the EU's institutions and member states lack the capacity to manage such a situation, this could further exacerbate the problems on the financial markets.

**Renegotiation of the national debt in one of the fiscally-weak countries would risk having substantial contagion effects in Europe.**

This is because the financial system in Europe is integrated to a large extent, which means that problems in the financial sector of one country can quickly spread to other countries. If a country suspends the payments on its national debt, speculation may arise as to which foreign banks have large direct and indirect exposures to this country (see Chart 4:1). In a worst case scenario this will affect the functioning of the financial markets and ultimately also Swedish banks, which may have difficulty obtaining funding despite their small exposures

to the countries concerned. Poorer developments could affect the Swedish banking groups in two main ways. Firstly, the Swedish banks are sensitive to disruptions in the financial markets, as more than half of their funding comes via the market. Moreover, almost two thirds of this funding is in foreign currency. In a situation where market functioning deteriorates this could affect the Swedish banks in that it becomes both more expensive and more difficult to obtain access to funding, particularly in foreign currencies.<sup>74</sup> If that happens, the banks might experience difficulty in refinancing their covered bonds, which largely finance the long-term mortgage lending in Sweden.<sup>75</sup> Secondly, increased unease in the financial markets could entail a worsened macroeconomic situation, both in Sweden and globally, which would also contribute to higher loan losses for the banks. Moreover, several of the European banks need to refinance large loans in the coming years. Increased concern on the financial markets may mean that these loans become more expensive and more difficult to refinance.<sup>76</sup>

**In the longer run, the fiscal problems in Europe could contribute to long-term market rates increasing.** The concerns regarding the public finances of the GIIPS countries have already drawn market attention to the situation in other countries with large government debt, many of them with the highest credit ratings. A large public sector borrowing requirement in several countries in Europe over the coming years and problems with public finances in the United States could cause financial market participants to reconsider their views on these countries. This could lead to yields on government bonds issued by countries with large national debts rising substantially, which could have major consequences for the global financial system. If market rates rise further, Swedish banks and companies may also be affected.

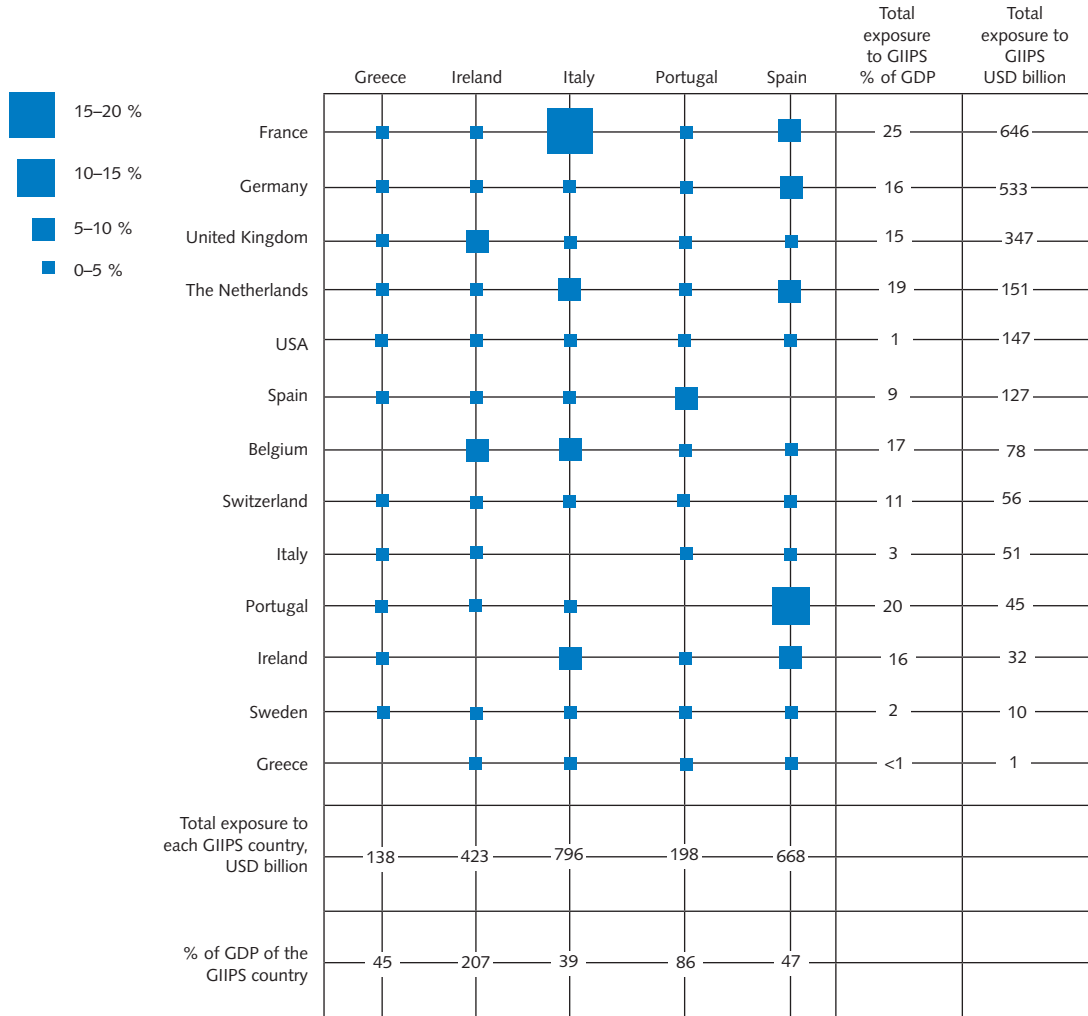
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74 See the box in Chapter 3 for a more detailed description of the banks' liquidity risk in foreign currencies.

75 See Chapter 2.

76 See Chapter 1 for a more detailed discussion of the public finance problems in Europe and their links to the banking system.

**Figure 4.1. International banks' exposures to Greece, Ireland, Italy, Portugal, Spain (GIIPS), country breakdown**  
Per cent of GDP, 2010 Q4



Note. The heading, International banks, refers to banks that report their holdings to the Bank for International Settlements.

Source: Bank for International Settlements



## Stress tests of the banks' resilience

The Riksbank regularly conducts stress tests to assess the banks' resilience to unexpected serious negative events. This section describes the outcomes of the three stress tests conducted by the Riksbank in spring 2011. Contagion risks associated with the major banks' exposures to each other and other major actors, called counterparty exposure, are dealt with first. Then we describe the result of a stress test of the banks' capital in a scenario in which loan losses increase substantially. Finally, there is a presentation of the Riksbank's measures of the banks' liquidity risks.

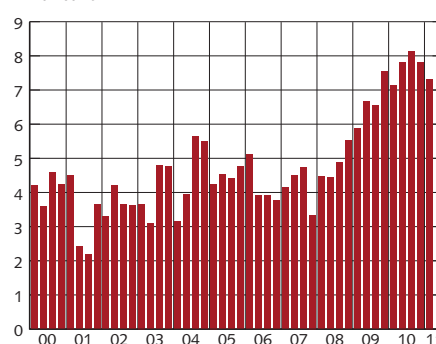
### COUNTERPARTY EXPOSURES – CONTAGION RISKS

The major Swedish banks' central role in the financial system means that they have considerable loans and commitments, called counterparty exposures, to each other and to individual firms. If a bank or a company experiences problems and suspends payments, this can lead to significant losses for the banks' counterparties. Counterparty exposures can in that way give rise to contagion risks. By limiting their counterparty exposures and requiring collateral for their loans, the banks can, however, limit contagion risks. To assess the risk of contagion the Riksbank investigates how much the respective major bank's Tier 1 capital ratio is changed if the bank loses one or more of its large exposures. The tests are based on data on the major banks' 15 largest counterparty exposures, which the Riksbank compiles each quarter.<sup>77</sup>

**The Riksbank's tests show that the direct contagion risk via counterparty exposures in the Swedish banking system has declined in recent years.** No bank has an exposure that, given the assumptions in the Riksbank's tests, could lead to the Tier 1 capital ratio falling below the statutory requirement of four per cent in the event that another Swedish bank suspended its payments (see Chart 4:4). The tests also show that the banks can lose their two largest exposures, to another bank or a company, without the Tier 1 capital ratio falling under four per cent. So the direct contagion risks are small.

**There are indirect contagion risks that may be difficult for the banks to influence.** If one bank has problems the market may have misgivings that other banks could also have problems. Fear that a counterparty will not be able to meet its commitments may lead to the banks restricting their lending to each other, which in turn can create funding and liquidity problems. Tests of counterparty exposures are static tests that only look at the consequences of an isolated event and thus do not take into account the above-mentioned effects.

Chart 4:4. Tier 1 capital ratio of the major Swedish bank with the lowest ratio after another Swedish major bank has defaulted on payments

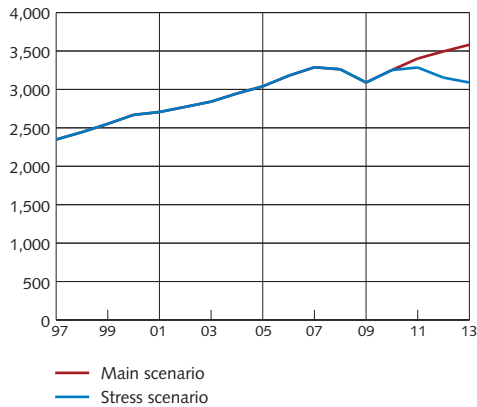


Note. The major bank with the lowest Tier 1 capital ratio is not necessarily the same bank on every occasion. The Tier 1 capital ratios are calculated in accordance with Basel II transition rules.

Source: The Riksbank

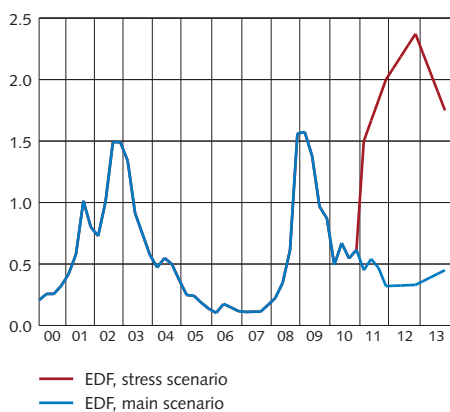
<sup>77</sup> See also the article "The Riksbank's counterparty data" in the *Financial Stability Report 2008:2*, Sveriges Riksbank.

**Chart 4:5. GDP for Sweden in the stress test and in the main scenario**  
SEK billions, fixed prices



Sources: Statistics Sweden and the Riksbank

**Chart 4:6. Expected default frequency (EDF) for the Swedish non-financial companies in the stress test and in the main scenario**  
Per cent



Sources: Moody's KMV and the Riksbank

## STRESS TEST OF THE BANKS' RESILIENCE TO INCREASED LOAN LOSSES

The stress test of the banks' resilience to increased loan losses illustrates how the major Swedish banks' capital adequacy could be affected if loan losses increased substantially compared with the loan losses in the main scenario.

### The stress test reflects a scenario where the recovery in Sweden, and in countries important to Sweden, is affected by a severe setback.

Growth is expected to be negative over several years, which can be compared with the positive growth on which the main scenario is based. At the same time, there is increasing uncertainty in the financial markets and risk premiums are rising. For Swedish banks' borrowers this would mean that interest rates on their debt, a large part of which is bank loans, would rise while firms' earning capacity is impaired. This results in lower creditworthiness of the Swedish banks' borrowers, which in turn can lead to increased loan losses. A trigger factor in such a scenario could be that the sovereign debt problems in Europe seriously worsen and that the US economy is weaker than in the main scenario (see the section on risks in the main scenario). Charts 4:5, 4:6 and Tables 4:5, 4:6 and 4:7 describe how GDP, expected default frequency, interest rates and loan losses develop in the stress scenario.

In comparison with the macroeconomic scenario on which the European Banking Authority (EBA) bases its stress tests, the Riksbank's scenario reflects a weaker development.<sup>78</sup> The EBA bases its calculations on a main scenario where GDP growth is around three per cent a year during 2011 and 2012 in the countries that are most relevant to the major Swedish banks. In EBA's stress test it is assumed that GDP growth will on average be around three percentage points lower per year than in the main scenario, that is, around zero per cent growth. In the Riksbank's main scenario the average annual growth is around as high as in the EBA's main scenario, but in the Riksbank's stress test GDP growth is instead assumed to be on average six percentage points lower a year than in the main scenario. Moreover, the Riksbank's stress test also includes the development for 2013, which the EBA's stress test does not.

**Table 4:5. GDP in the stress test**  
Annual percentage change

	2011	2012	2013
Sweden	1.0	-4.0	-2.0
Other Nordic countries	-3.6	-1.8	-0.5
The Baltic countries	-3.0	-9.2	-4.8

Note. Other Nordic countries refers to Denmark, Finland and Norway. The figures for other Nordic countries and the Baltic countries refer to average growth in the respective years.

Source: The Riksbank

<sup>78</sup> See also Chapter 1.

**Table 4:6. Three-month interest rate in the stress test**  
Per cent

	2011	2012	2013	Average 2011–2013 in the main scenario
Sweden	2.6	4.2	4.9	2.7
Other Nordic countries	2.0	2.8	3.0	1.7

Note. Other Nordic countries refer to Denmark, Finland and Norway. The interest rate refers to the rate on a three-month treasury bill.

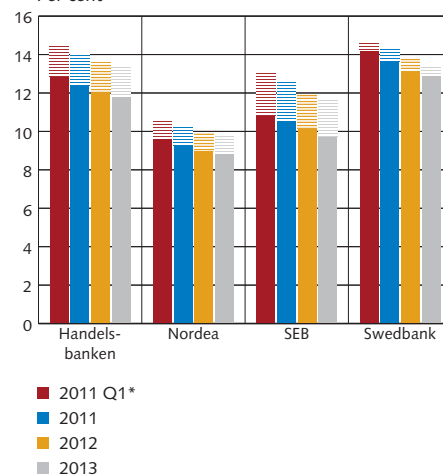
Source: The Riksbank

To assess how the economic scenario in the stress test affects the banks' loan losses the Riksbank uses econometric models and assessments that link developments in GDP and interest rates to expected default frequencies for different borrower categories in different countries. These expected default frequencies are then combined with the size of the banks' lending and expected degrees of recovery which enable calculation of the expected default frequencies in the stress scenario. The stress scenario plays out from 2011 to 2013 inclusive. To calculate its effect on the banks' capital ratios the Riksbank also makes the following assumptions:

- The banks' earnings decrease due to weaker economic developments and rising funding costs. Profit before loan losses falls by 15 per cent compared with the market participants' forecast for the respective bank in the same period.
- The banks' risk-weighted assets for credit risk increase by 5 per cent per year as a result of increased credit portfolio risk.<sup>79</sup>
- The banks pay 40 per cent of the profits as dividends in the years they make a profit. The banks do not make any buy-backs of own shares in the scenario.
- The banks are passive in the sense that they do not act to reduce their risk-weighted assets, take in new capital or change their operations.

**The banks' Tier 1 capital ratios are above the statutory minimum requirement throughout the stress test, despite large loan losses.** The total loan losses are SEK 186 billion (see Table 4:7). Compared with the last Financial Stability Report, the relation between the stress test and the main scenario is about the same in the sense that the loan losses in relation to the banks' lending (the loan-loss level) increase about the same: about 10 times in both the stress tests. Altogether the banks' Tier 1 capital ratio falls by between 0.8 and 1.3 percentage points during the three years and at its lowest is between 9.8 and 13.6 per cent, given full application of the Basel II rules (see Chart 4:7 and Table 4.8). Even when calculated in accordance with the new Basel III rules, the fall in the banks' Core equity tier 1 (CET 1) capital ratios is only relatively small, to a lowest figure of 8.9 per cent.

**Chart 4:7. The major Swedish banks' core Tier 1 capital ratios according to Basel II and Basel III, initially and in the stress test**  
Per cent

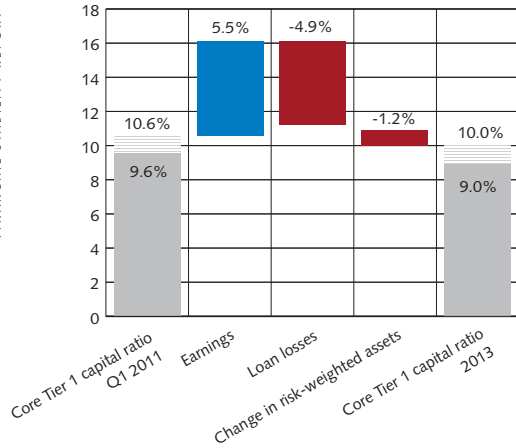


Note. Solid bars represent core Tier 1 capital ratios according to Basel III, striped bars represent core Tier 1 capital ratios according to Basel II. The core Tier 1 capital ratios according to Basel II have been calculated according to the fully-implemented regulations. The core Tier 1 capital ratios according to Basel III are based on the Riksbank's own estimates. \* indicates the observed capital relation in Q1 2011.

Source: The Riksbank

<sup>79</sup> Risk-weighted assets for market risk and operational risk are not assumed to increase due to the weaker economy.

**Chart 4:8. Factors that contribute to changes in the banks' core Tier 1 capital ratios according to Basel III in the stress test**  
Per cent



Note. Average for the four major banks. The ratios are based on the Riksbank's estimates. The striped areas of the grey bars show how much lower the banks' core Tier 1 capital ratios would have been if the banks were fully utilising their buy-back programmes at present.

Source: The Riksbank

**Table 4:7. Loan loss level and total loan losses per year for the major Swedish banks in the stress test**

Percentage of total lending in the respective country or industry and SEK billion

	2011	2012	2013
Sweden	0.6	0.7	0.7
Non-financial companies	1.4	1.6	1.5
Property companies	0.9	1.4	1.1
Financial companies	0.2	0.2	0.2
Households	0.2	0.2	0.2
Total other Nordic countries	0.9	1.0	0.8
Total Baltic countries	1.6	4.7	3.3
Other countries	0.9	1.2	1.0
Total	0.7	1.0	0.9
Total loan losses, SEK billion	51.9	74.1	60.0

Note. Other countries include Germany, Poland, Russia, Ukraine and the United Kingdom.

Source: The Riksbank

**The loan losses that arise in the stress test can be absorbed by the banks for most of the period with the help of their annual earnings.** This is possible despite the fact that earnings are assumed to be considerably lower than in the main scenario. The increase in the banks' risk-weighted assets certainly affects their capital ratios negatively, but this effect is relatively limited. However, it is assumed in the stress test that the banks will not repurchase their own shares. If they were to do so their capital ratios would fall (see Chart 4:8).

**Sharply rising loan losses can make access to market funding more difficult and more costly for the banks.** Although the loan losses in the stress test are not so great as to weaken the banks' capital bases, they severely reduce the banks' profits compared with the main scenario and increase the risk of a downgrading of the banks' credit ratings. Lower profits mean in turn that the banks will find it difficult to build up their capital bases by restoring profits from their operations, which normally banks can do to offset the negative effects of a downgraded credit rating. For the same reasons, large loan losses may also affect the banks' possibilities to reinforce their capital bases prior to the transition to the new Basel III regulations.

**Confidence in all four major banks may be negatively affected even if only one of them suffers large loan losses.** In addition, a substantial deterioration of the entire European economy as assumed in the stress test would probably also adversely affect other European banks, which in turn would make it less interesting for investors to buy the banks' bonds and certificates. A development as described in the stress test would therefore probably make it more difficult for all Swedish banks to borrow on both the capital and interbank markets, at least temporarily. This in turn would mean that for a period it would be difficult for banks to refinance their funding and, in the worst case, they would experience liquidity problems. The Riksbank's stress test of the banks' resilience to increased loan losses does not capture such indirect effects on the banking sector. The banks' ability

to deal with liquidity problems is therefore tested in the Riksbank's stress test for liquidity risks in the Swedish banks.

It is also important to point out that the historical correlation between loan losses and macroeconomic developments need not be representative of the relationship in a potential future crisis. If the relationship between the macroeconomic development and loan losses is non-linear it is possible that the loan losses will increase more in a real crisis than what is indicated in the stress test, even if the downturn in the economy were to be as large as in the stress scenario.

**Table 4:8. Profits and capital ratios in the stress test for the four major banks**  
SEK billion and per cent

	Handelsbanken			Nordea			SEB			Swedbank		
	2011	2012	2013	2011	2012	2013	2011	2012	2013	2011	2012	2013
Profit before loan losses	11.7	16.5	17.6	27.1	39.8	43.1	10.3	15.0	16.2	10.2	14.7	16.0
Loan losses	-10.1	-14.1	-11.7	-25.0	-32.0	-25.2	-8.7	-14.0	-11.6	-8.0	-14.0	-11.5
Profit after loan losses	1.6	2.4	5.9	2.1	7.8	17.9	1.7	1.0	4.5	2.2	0.8	4.5
Taxes	-0.4	-0.6	-1.5	-0.5	-2.0	-4.7	-0.4	-0.2	-1.2	-0.6	-0.2	-1.2
Profits after tax and dividends	0.7	1.1	2.6	0.9	3.5	8.0	0.7	0.4	2.0	1.0	0.3	2.0
Tier 1 capital at start of year (Basel II)	89	90	91	191	192	195	102	103	104	84	85	85
Tier 1 capital at year-end (Basel II)	90	91	93	192	195	203	103	104	106	85	85	87
Risk-weighted assets at year-end (Basel II)	539	566	594	1 700	1 791	1 886	707	743	777	543	569	594
Core Tier 1 capital ratio at year-end (Basel II)	14.0%	13.5%	13.3%	10.3%	9.9%	9.8%	12.6%	12.0%	11.8%	14.4%	13.8%	13.6%
Tier 1 capital ratio at year-end (Basel II)	16.6%	16.0%	15.7%	11.3%	10.9%	10.8%	14.6%	13.9%	13.6%	15.7%	15.0%	14.7%
CET 1 ratio at year-end (Basel III)	12.4%	12.0%	11.8%	9.3%	9.0%	8.9%	10.6%	10.1%	9.8%	13.7%	13.1%	12.9%
CET 1/total assets (Basel III) at year-end	3.0%	3.0%	3.0%	3.3%	3.3%	3.4%	3.6%	3.5%	3.6%	4.3%	4.2%	4.2%

Note 1. The incoming balances for the banks' capital and risk-weighted assets are as of Q1 2011. Profits before loan losses are based on SME Direkt Consensus forecast in April 2011 adjusted for the income in Q1 2011.

Note 2. Leverage ratio is defined as Tier 1 capital/total assets including off-balance sheet items defined in the Basel III rules. In the Riksbank's calculations in the table above Core Tier 1 capital is put in relation to total assets including off-balance sheet items. This means that the banks have not been allowed to include their hybrid instruments currently included in their Tier 1 capital.

Sources: Bank reports, SME Direkt and the Riksbank

## STRESS TEST OF LIQUIDITY RISK IN THE SWEDISH BANKS

**Liquidity risk in the Swedish banks is higher than in a sample of European banks, which is shown by the Riksbank's two liquidity measures.** While Swedish banks have reduced their liquidity risk somewhat in the past year, the sample of European banks has also done so. The fact that the liquidity risk is relatively large in the Swedish banks is partly due to their large degree of dependence on short-term funding, and partly due to their having a large proportion of illiquid assets in the form of loans to the general public. The level of the Riksbank's two liquidity measures is also affected by the type of business model the individual banks use.

**The purpose of the stress tests is to assess the banks' resilience to liquidity risks, which proved to be very tangible during the financial crisis.** The Riksbank is the authority that in these situations must intervene and supply the banks with liquidity, which means that the Riksbank has a special reason to assess the risks in the banks' liquidity management. It should be pointed out that the stress tests are based on public data that lacks the degree of detail that would enable more correct and comparable test results between the banks (see the recommendations on improved liquidity management later in this chapter). The purpose of the stress tests is that the banks themselves shall gain a clearer picture of how their liquidity situation relates to those of other banks. This should in turn increase the banks' incentive to strengthen their liquidity positions.

**The liquidity measures the Riksbank uses should not be confused with the liquidity ratios proposed in Basel III.** The Riksbank's long-term measure is however close to the liquidity ratio Net Stable Funding Ratio (NSFR), that banks eventually will have to adapt to according to the Basel rules and can therefore be seen as an indication of how well the Swedish banks comply with forthcoming Basel rules for stable financing. In this section, the results for the Riksbank's structural liquidity measures are reported first. After that the results for the short-term liquidity measure are reported.<sup>80</sup>

<sup>80</sup> For more information on the method and data used, see "Method for stress testing the banks' liquidity risks", *Financial Stability Report 2010:2*, Sveriges Riksbank.

*The Riksbank's structural liquidity measure –  
stable funding in relation to illiquid assets*

The Riksbank's structural liquidity measure examines the banks' ability to manage a stressed situation that persists over a year. This measure puts the banks' stable funding in relation to their illiquid assets. For example, it is assumed that equity and all liabilities with a remaining maturity of more than one year are stable funding. Deposits from households and small enterprises are also seen as relatively stable funding, while market funding that matures within one year is assumed to be unstable. Of the assets, those with an outstanding maturity of more than one year are illiquid. But some other assets are also regarded as illiquid. The asset regarded as most illiquid is lending to the public. Given the assumptions in the stress test, a bank with a structural liquidity measure of at least 100 per cent would have enough funding for the assets that would then remain on the balance sheet after a year. The measure is calculated on the basis of maturity figures for the banks' assets and liabilities. At present the banks publish this information only once a year.<sup>81</sup>

**The test shows that the major Swedish banks have reduced their structural liquidity risks** (see Chart 4:9). The improvement is largely because in 2010 the banks issued bonds to a value in excess of the refinancing requirement, which increases the banks' percentage of stable funding in the test. SEB, however, has reduced its stable funding by more than the decrease in illiquid assets, which has meant a lower structural measures for the bank. Altogether long-term securities of about SEK 600 billion matured in 2010, while the banks issued long-term securities to the value of more than SEK 900 billion (see Table 4:9).

**Table 4:9. Issue and maturity of long-term securities in major Swedish banks in 2010**  
SEK billion and per cent

	Issued long-term securities	Maturity long-term securities	Issued securities/maturity
Swedbank	265	153	173 %
Nordea	324	187	173 %
Handelsbanken	236	159	148 %
SEB	102	121	84 %

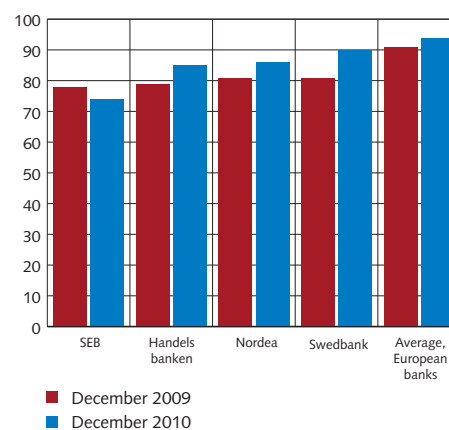
Note. Excluding Danish covered bonds, the figures for Nordea amount to SEK billion 295 and SEK billion 123 respectively.

Sources: Bank reports, Bloomberg and the Riksbank

**The Swedish banks still have a greater structural liquidity risk than the European average.** While the major Swedish banks in general have improved their structural liquidity measures, the average for a European sample of banks has also improved. Moreover, the European banks, which had a lower value than the average for 2009,

**Chart 4:9. The Riksbank's structural liquidity measure for the major Swedish banks compared with the average for a selection of European banks**

Stable funding in relation to illiquid assets, per cent



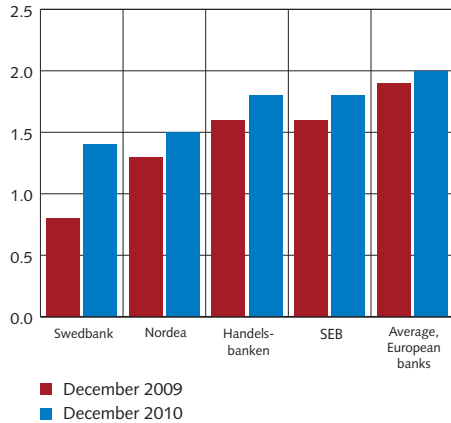
Note 1. The selection consists of 41 European banks with varying business models. Total assets per bank amount on average to SEK 4 500 billion.

Note 2. If the measure amounts to at least 100 per cent, this means that the bank's funding is stable enough to be able to manage its assets, according to the assumptions made in the test.

Sources: Liquidatum and the Riksbank

81 Apart from Swedbank, which reports quarterly maturity figures.

**Chart 4:10. Survival period for the major Swedish banks in the stressed scenario, compared with the average for a selection of European banks**  
Number of months



Note. See Notes 1 and 2 to Chart 4:9.  
Sources: Liquidatum and the Riksbank

have improved more than the banks that had higher than average values. The spread of the liquidity measure in the European sample is, however, great – from about 75 per cent to almost 120 per cent. The difference between banks can largely be explained by their use of different business models. Banks largely funded through deposits from private individuals and small businesses tend to score high in the test since these deposits are considered to be the most stable form of funding. Market-funded banks that mainly issue securities with long maturities also score higher since they have a smaller percentage of debt maturing within one year. The opposite applies to banks with a large proportion of market funding with maturities of less than one year. But it is not only stable funding that determines a bank's score in the test, but also the types of assets the bank holds. Banks with a large proportion of liquid assets, such as securities, all else being equal, will also have a high score. Banks with a large proportion of illiquid assets, such as lending to the public and businesses, all else being equal, will have low scores in the test.

**A large proportion of mortgages contribute to a higher structural liquidity risk in the Swedish banks.** While mortgages have a low credit risk, at the same time they are illiquid. In many other countries it is common to securitise mortgages (convert them to bonds that can then be sold), which means that to some extent they do not remain on the banks' own balance sheets. In Sweden, however, the banks retain mortgages on their balance sheets, which increases the stable funding requirement in the test. Moreover, Swedish banks use the short-term securities markets for funding to a somewhat greater extent than the European sample of banks.

*The Riksbank's short-term liquidity measure – stressed liquidity reserve*

In the Riksbank's short-term liquidity measure the banks' ability to handle liquidity problems arising in the short term is tested. The banks' liquidity reserves are put in relation to an estimated cash flow. The stress that is assumed to last for three months is calculated under three assumptions. In the first place, the bank can only refinance half of the market funding that matures in the next three months. In the second place, the bank is affected by households and small firms withdrawing 10 per cent of their deposits and large firms withdrawing 25 per cent. Finally, customers take up 10 per cent of the banks' credit assurances, which also give rise to an outflow. Under the simplified assumption that the stressed outflow is constant over the 3 months, it is possible to calculate how long the bank would survive in the stressed scenario. For example, a short-term liquidity measure of 50 per cent is equivalent to 1.5 months. In a stressed situation it is,



however, probable that the outflow (mainly withdrawal of deposits) would be greater to start with and then diminish. This means that there would probably be some overestimation of the survival period in the test.

**The Swedish banks have reduced their liquidity risk measured in terms of the Riksbank's short-term liquidity measure.** The improvement is mainly due to the banks having increased their liquidity reserves. Expressed as a survival period in the stressed scenario the Swedish banks have improved on average by about one week in the past year (see Chart 4:10).

**The Swedish banks still take a greater liquidity risk than many other banks.** The difference between the banks in the sample group can also in this case be explained by the banks' different business models. Banks that to a great extent are deposit-funded or have a large proportion of market funding, have a high score in the Riksbank's short-term liquidity measure. These banks have a small stressed outflow that is related to a large liquidity reserve. However, not all deposit-funded banks have high liquidity ratios in the test. This is because these banks normally do not hold such large liquidity reserves, which results in a low score. One reason that some banks choose to hold small liquidity reserves may be that they are perceived by investors to be banks with a low business risk.

**The Swedish banks are more dependent on short-term market funding than most European banks.** A large share of the short-term funding means that the stressed outflow is large in this test. However, the liquidity reserves are roughly the same size in the Swedish banks as the average for the sample of European banks. The Swedish banks have a survival period of just over 1.5 months (under the simplified assumption that the stress is evenly divided over the three months the stress test covers), while the European sample of banks has an average survival period of just over 2 months. The spread is, however, great – the outcomes vary from a couple of days to more than six months. It is important to remember that the Riksbank's stress test is only based on public data and therefore cannot take into account the type of securities the liquidity reserve consists of. Hence banks with more liquid reserves are at a disadvantage in the stress test since they are treated in the same way as banks whose liquidity reserves are less liquid. This means that banks with a high quality liquidity reserve should have an incentive to publish more information about the composition of the reserve.

## Considerations and recommendations

The work of the Riksbank to promote financial stability takes place to a large extent by drawing attention, in speeches and written documents, to the risks and weaknesses that can threaten financial stability in the long term. The Riksbank has a function to fulfil in this context, since such risks – known as systemic risks – are associated with external effects. These external effects arise because the consequences of a financial crisis affect more than just the participants in the financial system. This means that the participants themselves do not have sufficient incentive to prevent systemic risks.

Experience from the build-up phase of the latest crisis shows that the Riksbank needs to increase the effectiveness of its communication by more clearly formulating its observations regarding the risks and weaknesses it wishes to draw attention to. As part of this work, in the previous Financial Stability Report the Riksbank made recommendations for measures to reduce risks and weaknesses that could have a potential impact on the stability of the financial system.

The recommendations the Riksbank makes often state a desired "direction" the banks or other participants in the financial system are encouraged to take, and are normally of such a nature that they cannot be met within a short period of time. The Riksbank's recommendations therefore constitute the first step in a process that is regularly followed up in the Financial Stability Report.

In the previous Financial Stability Report the Riksbank recommended that the Swedish banks should retain their capital levels, continue to extend maturities in their funding, take the refinancing risk more into consideration in their mortgage lending and increase the clarity of public liquidity reporting.

A follow-up shows that the banks to some extent have acted in line with the recommendations. For instance, they have increased their core Tier 1 capital ratios (capital levels) and to a varying degree begun the transition to more long-term funding. But the Riksbank considers for several reasons that the recommendations made at the end of 2010 essentially still apply. An examination is made below of the Riksbank's recommendations and the reasons for retaining them.

**The Riksbank considers that the Swedish banks should retain or increase their capital ratios.**

In the previous Financial Stability Report the Riksbank recommended that the banks retain or increase their capital ratios. The background to this was the uncertainty that prevailed in autumn 2010 with regard to economic developments abroad and to the implementation of the new capital adequacy requirements under Basel III.<sup>82</sup>

Since then the major banks have increased their core Tier 1 capital ratios somewhat (see Chart 3:13), which is in line with the Riksbank's recommendation. Several of the Swedish banks have high core Tier 1 capital ratios in an international perspective. But at the same time, all of the major banks have been given permission by their annual general meetings to repurchase their own shares.

Despite the changes the major banks have made since December 2010, the Riksbank still assesses that the banks should retain or increase their capital ratios.

The Riksbank considers accordingly that the banks should not utilise the buyback programmes or distribute dividends so that their core Tier 1 capital ratios decrease.

There are two reasons why the Riksbank is allowing the recommendation to stand. One is that the uncertainty over economic developments abroad and on the financial markets remains, or as in the case of Europe, has intensified (see Chapter 1). If concern over the fiscal situation increases and spreads, the functioning of the financial markets may be affected and the Swedish banks that are dependent on short-term funding in foreign currencies may experience difficulties in obtaining funding.

Another reason is that it is still not clear how all the parts of Basel III will be implemented in Sweden and what capital adequacy requirements will apply to the Swedish banks. However, the Riksbank considers there is reason for the major Swedish banks to be subjected to higher capital adequacy requirements than those prescribed by Basel III. The Riksbank's stance on this question is based on the following.

82 For more information about the new regulatory framework, see the article "Basel III – Effects on the Swedish banks and Sweden" in the Financial Stability Report 2010:2, Sveriges Riksbank.

*The Riksbank considers the Swedish banks should be subjected to higher capital adequacy requirements than those specified in Basel III.*

The global Basel III agreement states the minimum requirement for the regulations that each country should introduce. However, it quite clearly allows each country the scope to introduce higher requirement for its banks, on the basis of the country's own specific conditions. Several countries have far-reaching plans to introduce higher requirements than the minimum stipulated by Basel III. This applies, for instance, to Switzerland, the United Kingdom, Canada and China.

The Swedish government has announced that it intends to test different measures – such as higher capital adequacy requirements – than will apply when Basel III is implemented, to safeguard financial stability.<sup>83</sup> How large the extra capital adequacy requirement should be and when it should begin to apply are questions that require further investigation. The Riksbank is therefore positive to this work now being conducted at the Government offices.

The fundamental motive for the Riksbank advocating higher capital adequacy requirements for the Swedish banks in the long run is that there are circumstances in the Swedish banking system that entail risks that are not fully covered by the Basel III regulations.

- One circumstance is that the Swedish banking system is so concentrated. This means that the major Swedish banks have large exposures to one another, primarily through interbank loans and holdings of one another's covered bonds. Risks that arise in the individual bank's operations can thus easily spread to the other major banks (see the section on counterparty exposures – contagion risks earlier in Chapter 4).
- Another circumstance concerns the Swedish banks having a large share of market funding in foreign currencies (see the box "The banks' liquidity risk in foreign currency"). Unexpected negative events or disruptions on the international financial markets can thus cause considerable problems for the major banks and ultimately for the Swedish economy.
- A third circumstance that in the Riksbank's opinion provides an argument in favour of higher capital adequacy requirements is that the market assumes that the major banks have an implicit guarantee from the state (also known as the "too-big-to-fail" subsidy), which means that they can obtain

<sup>83</sup> See the 2011 Spring Fiscal Policy Bill (bill 2010/11:100). See also "Kreditutvecklingen i Sverige och myndigheternas åtgärder" (development of credit in Sweden and measures taken by the authorities), Finansinspektionen's news archive 2 March 2011.

cheaper funding than would otherwise have been the case.<sup>84</sup> The implicit state guarantee thus risks leading to incorrect pricing of credit. This can in turn entail an excessively high growth in credit and imbalances building up in the financial system.

- A fourth circumstance is that the Swedish banks are large in relation to the Swedish economy (see Chart 3:1). One reason for this is that the banks conduct extensive operations abroad (see Chart 2:2). At the same time, there are no effective international agreements on how to manage large cross-border banking groups in a crisis situation. This means that the failure of a major Swedish bank risks being difficult to manage and could create uncertainty as to how the costs would be distributed between the countries involved.

All in all, these circumstances mean that if one or more major Swedish banks has to be saved from failure with the aid of government resources, there is a risk of substantial costs for society as a whole. The costs may arise in the form of direct public expenditure for recapitalisation and discharged guarantees, and also in the form of large falls in production that often come in the wake of a financial crisis.<sup>85</sup>

Higher capital ratios would mean that the banks' resilience to failure increases, at the same time as shareholders would have to bear a greater share of the cost if a failure were nevertheless to occur. In addition, higher capital ratios would make it easier for the banks to obtain access to market funding in a situation where the financial markets are stressed. The banks would thus have better ability to manage stressed situations without public sector intervention. All in all, this would reduce the systemic risk in the Swedish financial system and increase confidence in the Swedish banking system.

Higher capital adequacy requirements might mean that bank services become somewhat more expensive. However, the Riksbank assesses that the positive macroeconomic effects that would follow on from a more resilient banking system would outweigh the disadvantages that slightly more expensive bank services might entail.<sup>86</sup>

84 Preliminary calculations show that this funding rebate could be substantial. For studies on this theme, see Baker, D. and McArthur, T. (2009) "The value of the "too big to fail" bank subsidy", Center for Economic and Policy Research, 2009, Haldane, A.G. (2010), "The \$100 billion question", Mimeo, NOU2011:1, Bedre rustet mot finanskriser - Finanskriseutvalgets utredning, Ueda, K. and di Mauro, B.W., (2010), The value of the too-big-to-fail subsidy to financial institutions, in Financial sector taxation: the IMF's report to the G-20 and background material, eds. Claessens, S., Keen, M. and Pazarbasioglu, C., September.

85 See, for instance, "Impact of the current economic and financial crisis on potential output", Occasional Papers No. 49, June 2009, European Commission.

86 See "An assessment of the long-term economic impact of stronger capital and liquidity requirements", 2010, the Bank for International Settlements, Marcheggiano et al "Optimal Bank Capital" Discussion Paper No. 31, Bank of England, 2010, "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why bank Equity is Not Expensive" Stanford GSB Research Paper No. 2063 and the Independent Commission on Banking (2011), Interim Report Consultation on Reform Options, <http://bankingcommission.independent.gov.uk/>.

**The Riksbank considers that the Swedish banks should reduce their funding and liquidity risks.**

In the previous Financial Stability Report the Riksbank recommended that the banks should both continue to extend the maturity of their funding and take the refinancing risk in their mortgage lending into greater consideration. This is because the banks fund a large proportion of mortgage and corporate lending with short-term market funding, largely in foreign currency. This makes the banks sensitive to disruptions on the financial markets.

The Riksbank's liquidity measures show that the Swedish banks have begun, to varying degrees, the transition to more long-term funding, in accordance with the coming Basel III requirements. During 2010 the Riksbank's structural liquidity measure showed an improvement for three of the four major banks (see Chart 4:9). At the same time, the Riksbank's short-term liquidity measure has shown an improvement for all of the banks (see Chart 4:10). The banks have thus to some extent reduced their financing and liquidity risks in accordance with the Riksbank's recommendations.

However, the Riksbank considers that the banks should continue to reduce their dependence on short-term funding. By doing this the banks would also reduce the refinancing risk in their mortgage lending, which was a special recommendation in December 2010.

The Riksbank's assessment is based on the Swedish banks' exposures to financing and liquidity risk still being high, which is shown in the Riksbank's structural liquidity measure (see Chart 4:9). This measure is not identical to the Net Stable Funding Ratio (NSFR) produced by the Basel Committee to calculate the banks' structural liquidity risks. However, the two measures essentially describe the same thing. The Riksbank's structural measures thus indicate that the Swedish banks at present would probably not attain the NSFR according to Basel III. They therefore need to continue to extend their financing.

But even disregarding the Basel III requirements, there is good reason for the Swedish banks to reduce their liquidity risks. The major Swedish banks' dependence on short-term market funding, not least in foreign currencies (see the box "The banks' liquidity risk in foreign currencies"), means that disruptions to the financial markets can have severe effects on their access to funding. This became clear during the crisis when a substantial part of the responsibility for the Swedish banks' refinancing had to be taken over by the Riksbank (see Chart 3:16). There is every reason to avoid or reduce such a transfer of risk from the private to the public sector in the event of future crises. It is thus in the interests of society in general that the banks reduce their financing and liquidity risks, particularly in foreign currencies.

### **The Riksbank assesses that clarity of the banks' public liquidity reporting needs to be improved.**

In the previous Financial Stability Report the Riksbank recommended that the banks increase the transparency of their public liquidity reporting, as the lack of insight creates uncertainty and can further fuel a negative development in a stressed scenario.

The information on liquidity risks that the banks publish in their reports is still inadequate. For example, of the four major banks only Swedbank reports quarterly data on distribution of maturities of their assets and liabilities. To the extent the banks provide information on liquidity risks it is seldom comparable.

The Swedish Financial Supervisory Authority's regulations and general guidelines on risk management data came into force at the beginning of this year.<sup>87</sup> The regulations stipulate, for example, that a bank must provide information to enable market participants to make a well-grounded assessment of the bank's ability to manage liquidity risk. However, the regulations do not at present describe in detail what the banks should report. In July 2011 Finansinspektionen's regulations regarding the reporting of liquidity risk will also begin to apply.<sup>88</sup> These will mean that the banks have to report their liquidity situation to Finansinspektionen once a month. However, this information will not be available to the general public.

Consequently the Riksbank's recommendation on increased clarity in the banks' public liquidity reporting remains. To ensure that the banks provide comparable liquidity reports, the Riksbank considers that the regulations need to be clarified further. The Riksbank's opinion is that the banks should publish their liquidity risks once a quarter by supplying some of the information they report to Finansinspektionen, including:

- Information on the size of the freely available liquidity reserve, broken down into type of liquid asset and currency.
- Information on the time to maturity of their assets and liabilities per currency.
- Relevant and comparable key figures and liquidity measures.

The Riksbank considers that an increased examination of the banking system would provide investors with better opportunities to correctly analyse the risks in the banks. Increased transparency also gives the banks themselves a chance to analyse their liquidity risks in relation to those of their competitors. Moreover, the banks that have larger liquidity risks will then have incentive to reduce them.

<sup>87</sup> See *Finansinspektionens föreskrifter om hantering av likviditetsrisker för kreditinstitut och värdepappersbolag* (FI DNR 08-6765) (Finansinspektionens guidelines on liquidity risk for credit institutions and securities companies) and the Riksbank's consultation response DNR 2010-521-STA.

<sup>88</sup> See *Nya föreskrifter om rapportering av likviditetsrisk för kreditinstitut och värdepappersbolag* (FI Dnr 10-4148) (New regulations on reporting liquidity risk for credit institutions and securities companies) and the Riksbank's consultation response DNR 2011-73-STA.

## Glossary

**Basel II:** Standards regulating how much capital a bank must retain in relation to the risk it faces. The regulations also require adequate risk management and disclosure of public information.

**Basis point:** One basis point is one hundredth of one per cent, i.e. 0.01 per cent. Thus, 100 basis points is equivalent to 1 per cent.

**Basis-spread:** The difference between the three-month interbank rate and the average expected overnight rate (tomorrow-next-rate)

**Bond:** A fixed-interest promissory note or debt instrument issued by a government, municipality, credit market company, mortgage institution or large company. Bonds generally have a long maturity, at least one year. Periodic payments are made prior to maturity, at which time the principal amount is repaid.

**Capital adequacy regulations:** Regulations applying to capital adequacy at the banks. See Basel II and Basel III.

**Capital market:** Umbrella term for the stock, credit and derivative markets.

**Cash flow:** The difference between a company's ingoing and outgoing payments during a given period.

**CDS (Credit default swap):** A contract between two parties in which one of the parties buys protection against the credit risk in a bond by paying a premium. The seller receives the premium in return for accepting the credit risk. The instrument is used as a form of insurance.

**Certificate:** A security for trading in the money market. A certificate is a debt instrument issued by e.g. a bank or a company with the purpose of borrowing money. Maturity is a maximum of one year.

**CET1 (Core equity Tier 1):** Core equity capital calculated according to the Basel III rules

**Credit rating agency:** A company that assigns ratings, i.e. makes an assessment of the credit risk associated with a company.

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

**Creditworthiness:** The debt-servicing ability of a country, a company or an individual.

**Core Tier 1 capital:** Tier 1 capital after deductions for Tier 1 capital supplements.

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

**Counterparty risk:** The risk of a counterparty in a business transaction defaulting on its contractual obligations.

**Covered bonds:** A bond whose holder has a special benefit right in a bankruptcy. Covered bonds are intended to be more creditworthy than non-covered bonds, which reduces the cost of funding.

**Currency transaction:** Transaction when one currency is traded for another currency.

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

**Debt ratio:** Household debt in relation to disposable income.

**Debt/equity ratio:** A company's liabilities in relation to total assets.

**Derivative:** A financial instrument that entails agreements on commitments at a given future point in time. The value of a derivative is linked to an underlying asset. The most common derivative instruments are options, futures and swaps.

**Direct yield requirement:** The difference between an investor's total yield requirement and the expected change in the operating surplus for (or value of) a property. Should not be confused with the term "direct yield", which refers to a property's actual operating surplus in relation to the price an investor paid for the property.

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



**EBA:** European Banking Authority.

**EDF (Expected default frequency):** The probability that a listed company will default within a year. Calculated as the probability of the market value of the company's assets being exceeded by its liabilities when the latter fall due.

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

**Financial savings:** The households' savings in cash, shares and funds.

**FX-swap:** See Currency swap.

**Gross fixed capital formation:** The change in fixed capital, e.g. machinery, property, of domestic producers.

**IMF:** International Monetary Fund.

**Interbank market:** The market where banks trade interest and currencies with each other.

**Interbank rate:** A daily reference rate based on the interest rates for unsecured loans that banks offer to one another. In Sweden the rate that banks charge each other for SEK loans is called STIBOR (Stockholm Interbank Offered Rate). STIBOR is used as a reference for rate setting or pricing of derivative contracts.

**Interest coverage ratio:** A measure of a company's ability to meet financial costs with operating profits.

**Interest ratio:** A household's post-tax interest expenditure in relation to disposable income.

**Issuance:** See new issue.

**Key policy rate:** The interest rates which a central bank sets for the purpose of monetary policy. In Sweden, they are the repo rate and the deposit and lending rates. The repo rate is the most important.

**Liquidity risk:** The risk of not being able to meet payment obligations without the cost of obtaining the funds increasing materially. Liquidity risk in a financial instrument entails that an investment cannot be immediately liquidated at all or without falling sharply in value.

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

**Market risk:** The risk that unfavourable fluctuations on the financial markets, mainly for interest rates, shares and currencies, will result in losses.

**Monetary policy:** Aims to influence inflation, the exchange rate and/or economic activity by altering the amount of money in circulation and adjusting key policy rates.

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

**Net interest income:** Consists primarily of interest income from lending less interest expenditure for funding and deposits.

**Net wealth:** Assets minus liabilities. It is possible for net wealth to be negative.

**New issue:** A limited liability company issues (sells) newly-issued shares thereby strengthening its restricted equity.

**Operating surplus (net operating income):** The difference between rent income and the operating and maintenance costs for a property or property company.

**Primary surplus:** Income minus all expenses except interest expenses.

**Profitability:** A company's operating surplus in relation to its total assets.

**Repo:** A financial instrument resembling a loan. The participant receiving the money (the seller) transfers the security to the purchaser. At the same time, the seller undertakes to repurchase the security from the purchaser, at a predetermined date, for a slightly greater sum of money. The difference between the sale and the repurchase is equivalent to the interest rate on a loan.

**Repo rate:** The Riksbank's primary key policy rate. The rate of interest at which banks can borrow or deposit funds at the Riksbank for a period of seven days.

**Return on equity:** Concept used to assess profitability; the same in principle as return.

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

**Risk-weighted assets:** Total assets and off-balance sheet commitments totalled, valued and risk-weighted in accordance with the prevailing capital adequacy regulations.

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

**Settlement:** Final regulation of debt when money or securities are transferred from one party to another, usually payment from one account to another.

**Spread:** Usually the difference between two interest rates. In the bond market, spread is measured in basis points (see Basis point).

**Stibor:** See Interbank rate.

**STINA-swap (STIBOR Tomorrow Next Average):** In a STINA swap two parties agree to exchange interest payments. One party is given a fixed rate by the other, and in turn pays a variable rate. The fixed interest rate has a predetermined maturity between one month and 12 months. The variable interest rate is equivalent to the average rate for STIBOR Tomorrow Next over the period in which the swap applies.

**Stress test:** Analysis of different scenarios to test the resilience of banks and households to unexpected and negative events.

**Structured products:** Pools of securitised loans. The most common products are collateralised debt obligation (CDO) and mortgage-backed securities (MBS).

**Syndicated loan:** A loan where a bank sells parts of the loan to other banks, often internationally.

**Swap:** A bilateral agreement to exchange a specific currency/interest rate in return for another currency/interest rate for a predetermined period according to specific conditions.

**Tier 1 capital:** Equity less proposed dividends, deferred tax assets and intangible assets such as goodwill. Tier 1 capital may also include certain types of subordinated debt, so-called Tier 1 capital supplements or hybrid capital.

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

**Tier 1 capital supplements:** Certain types of perpetual subordinated notes may be included in the Tier 1 capital if permission is granted by the financial supervisory authorities. For Swedish banks Tier 1 capital supplements can comprise at most 30 per cent of the Tier 1 capital. Debenture loans with step-up, that is, where the interest margin on the loan increases after a given period of time, may amount to a maximum of 15 per cent of the Tier 1 capital.

**Transitional regulations:** As of 2007 Q1, Swedish banks report risk-weighted assets in accordance with the new capital adequacy rules (Basel II). For the major Swedish banks this entails a reduction in the capital adequacy requirement, primarily as a result of their relatively large share of lending to households. However, up to 2010, transitional regulations apply, which means that the banks can only take advantage of the reduced capital requirement in stages. The transitional regulations will probably continue to apply in 2011.

**Vacancy rate:** A property market term for the proportion of unlet units.

**Volatility:** Usually measured as the standard deviation of an asset's rate of return.

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PRODUCTION: SVERIGES RIKSBANK, PRINTING: TMG STHLM AB  
ISSN 1403-0004