



# Financial Stability Report 2010:2





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## ■ Foreword

The Riksbank has the Riksdag's mandate to promote safe and efficient payments. This entails safeguarding the stability of the financial system, which is also a prerequisite for an effective monetary policy.

An ongoing analysis of stability provides possibilities for the early detection of changes and vulnerabilities that together can lead to a serious crisis. A thorough analysis also facilitates the management of a crisis if one were to occur. The Financial Stability Report, which is published twice a year, presents the Riksbank's overall assessment of risks and threats to the financial system and an evaluation of the capacity for coping with 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 making the analysis available to financial market participants and other interested parties we can share our viewpoints and contribute to the debate on this subject. The Executive Board of the Riksbank discussed this Report at its meetings on 10, 25 and 30 November. The Report uses data available as at 30 November.

Stockholm, December 2010

*Stefan Ingves*

GOVERNOR OF SVERIGES RIKSBANK

## The Riksbank and financial stability

**T**he Riksbank has the Riksdag's mandate to "promote safe and efficient payments". Payments are material to every economic activity and a central feature of the financial system. The government therefore has a particular interest in overseeing the functioning of payment systems. A serious crisis in the financial system is liable to entail extensive economic and social costs.

The commercial banks are responsible for the central components of payment systems. At the same time, banking has a number of special characteristics. Liquidity risk is a natural part of banks' activities since they normally obtain short-term funding and provide long-term loans. Moreover, the similarity of the operations in different banks entails a risk of problems elsewhere hitting many banks simultaneously.

**In Sweden the four major banks (Handelsbanken, Nordea, SEB and Swedbank) have a dominant position, with a combined market share of around 75 per cent.** Besides the banks, the financial system comprises other institutions, market places and the financial infrastructure for registering and settling transactions. The infrastructure also includes the public framework, that is, rules and legislation.

**Stability is founded on confidence in the financial system.** The occurrence of a problem in one institution may suffice to generate apprehensions that spread to similar operations elsewhere. A loss of confidence can make it difficult for the banks to undertake their operations, in which case the system will be in danger. The basic requirements for confidence are sound institutions and efficient markets.

**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 analysis focuses on the systemically important institutions: the four major banks. 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. Knowledge is also disseminated in other ways: by arranging dialogues with market participants, publishing speeches and participating in the public debate. Moreover, the Riksbank is in a position to influence the framing of laws and rules that pertain to supervision and crisis management, for instance by submitting opinions and by participating in international organisations.

**The Riksbank is the authority that has the possibility to provide emergency liquidity assistance if problems arose of such a serious nature as to threaten the entire system.** To be able to use this possibility in a good way requires adequate crisis preparedness. This in turn requires an appropriate crisis organisation with good information channels and analysis tools and well-developed forms of cooperation with other authorities.

**The Riksbank cooperates closely with Finansinspektionen and the Ministry of Finance.** The Ministry of Finance is responsible for the regulation of financial enterprises and Finansinspektionen (the Swedish Financial Supervisory Authority) 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.



## ■ Summary of the stability assessment

### In brief

Since the previous Financial Stability Report was published in June, the situation has improved for the Swedish banks. The economic recovery has been stronger than expected and loan losses have been revised downwards. At the same time, the functioning of the financial markets has improved. This has enabled the Riksbank to wind up the extraordinary measures that have provided the Swedish banking system with extra liquidity since the autumn of 2008. The resilience of the Swedish banks to negative events is high.

However, significant uncertainty remains. A significantly lower level of growth abroad may lead to a renewed increase of the banks' loan losses. The Swedish banks are also sensitive to disruptions on the financial markets. This is primarily because they obtain funding by issuing securities, often in foreign currencies. If the functioning of the financial markets were to deteriorate again (for example, due to increased unease over lower growth in the global economy or developments in fiscally weak countries), funding for the Swedish banks would become more expensive and harder to obtain.

As in previous stability reports, the Riksbank has in a stress test investigated the banks' resilience to significantly higher loan losses than expected. The result of this test indicates that the banks' ability to handle higher loan losses is strong. The Riksbank has also investigated the Swedish banks' liquidity risks in this report. The result indicates that the Swedish banks' liquidity risks are slightly greater than the average for a selected group of European banks. Among other reasons, this is because the Swedish banks hold a greater proportion of less liquid assets (mortgages, for example), at the same time as securities funding is short-term to a certain extent.

The Riksbank's assessment is that the Swedish banks should maintain or increase their present levels of capital. The banks should also continue to extend the maturities of their funding. Moreover, the banks should take greater account of the refinancing risk in their mortgage lending. Finally, the Riksbank's assessment is that the clarity of the banks' public liquidity reporting needs to be improved.

## THE FINANCIAL SYSTEM IN SWEDEN IS STRONGER THAN IN MANY OTHER COUNTRIES

The economic recovery has continued in Sweden, with growth being stronger than in many other countries. Unease on the financial markets decreased during the summer as countries within the euro area with weak public finances presented credible programmes to correct these. However, unease increased again during the autumn due to the increased costs faced by the Irish government for the recapitalisation of the country's banking system. At the same time, in the last six months, the functioning of the markets where the Swedish banks obtain funding has improved, making it easier for the banks to gain access to market funding.

Demand among the banks for loans from the Riksbank has thereby decreased. The loans at longer maturities provided by the Riksbank during the financial crisis fell due for payment in the summer and autumn, and were not replaced by new loans. The Riksbank's balance sheet has thus decreased significantly in extent.

As the Riksbank's loans have not been extended, the liquidity surplus that has characterised the banking system over the last year has been withdrawn and the banking system has returned to a normal situation. However, this development has not been free of friction, and disruptions have occurred on the money market during the transitional period. However, this is natural, as the market is adjusting from a situation with low interest rates and large amounts of liquidity to a more normal situation. The Swedish banking system is in a favourable position to cope with the continued adjustments, without appreciable disruptions.

## THE SWEDISH BANKS HAVE STRONG RESILIENCE

Loan losses in the banks, not least in Sweden, have been lower than previously assessed by the Riksbank. This is partially because the corporate sector entered the financial crisis with strong balance sheets, at the same time as the low interest rates have maintained borrowers' debt-servicing-ability. In Denmark, loan losses from companies and households have been greater than in the rest of the Nordic region, which, to a certain extent, is related to the severe downturn of the housing market.

In the Riksbank's main scenario, the economies of the Nordic countries are expected to develop well, implying that the banks' loan losses will decrease further in the period ahead, reaching normal levels by the end of the forecast period. The situation has also improved in the Baltic countries, and the facts that Estonia will be adopting the Euro at the end of the year while Latvia's government is planning further improvements of public finances are having a positive impact on confidence.

The banks' earnings are expected to increase in the period ahead. Together with lower loan losses and a comparatively strong capital situation, this suggests that the banks would be well able to cope with weaker economic development abroad.

#### GLOBAL UNCERTAINTY REMAINS

Even if the Swedish banks are financially robust and are deemed to remain so in the period ahead, there exist risks that may impact the Swedish banks.

Should the macroeconomic development of the world economy be considerably worse than expected, it is not unlikely that the Swedish banks' loan losses may start to increase again. For example, this would apply to loan losses connected with Swedish companies. The corporate sector's debt-servicing ability has strengthened in the last six months, but it is still weaker than it was before the financial crisis. Other weak borrower groups can be found in the Baltic countries.

The dependence of the Swedish banks on market funding, often in foreign currencies, also makes them vulnerable to disruptions on the financial markets. Many markets have yet to return to a normal situation, which is largely connected with the uncertainty surrounding the future prospects of fiscally weak countries such as Ireland and several southern European countries. The failure of these countries to implement the necessary strengthening of public finances may lead to decreased investor confidence and to increased expectations that one or more euro area countries may be forced to restructure central government debt. Such a situation may lead to a further increase of unease on the financial markets. This could make it more difficult and more expensive for the Swedish banks to refinance debts in foreign currencies.

#### THE BANKS' REFINANCING OF MORTGAGE LOANS ENTAIL RISKS

Household indebtedness is continuing to increase at a rate that exceeds the rate of growth in incomes. On the whole, the debt-servicing-ability of households is strong – but, at the same time, households have become more vulnerable in recent years, due to increased loan-to-value ratios and a large proportion of variable-rate loans. Surveys also indicate that households with larger debts also have higher loan-to-value ratios. This means that if housing prices were to fall, it is the households with the highest debts who would first risk ending up in a situation where the size of the mortgage would exceed the value of the property. The likelihood of the Swedish banks being affected by comprehensive loan losses due to high levels of household indebtedness is deemed to be slight. On the other hand, indebtedness and the development of house prices may have

consequences for the banks' ability to finance mortgages, which largely takes place on the international capital markets. Falling house prices may impact foreign investors' confidence in Swedish covered bonds and make the Swedish banks' possibilities of refinancing these more difficult and more expensive. Ultimately, such a drop in confidence may spread into the financial system and impact other markets.

#### STRESS TEST OF THE BANKS' CREDIT RISKS

Even if the Swedish economy is expected to continue to develop well, there are risks, such as those outlined above, that may disrupt this development. Consequently, in this report, the Riksbank presents the result of a stress test in which the world economy develops less favourably than in the main scenario at the same time as unease on the financial markets picks up. The stress scenario runs from 2011 until the end of 2013. In this scenario, the Swedish banks are primarily impacted by the severe deterioration of debt-servicing ability among companies in Sweden and the rest of the Nordic region. This is due to impaired earnings capacity and higher interest rates due to increasing risk premiums. All in all, loan losses in the test amount to about SEK 200 billion for the four major banks over the period. However, the result of the stress test shows that the banks' capital ratios are only impacted to a limited extent by the high loan losses.

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

The liquidity risk in the financial system became apparent during the financial crisis. Unease over which areas of the financial system were at risk of losses led to a decline in mutual confidence between banks and other financial institutions, with the banks finding it increasingly difficult to obtain funding. In order to reduce the banks' liquidity risk, demands will be placed on the banks' liquidity management as a part of the new regulations (Basel III). The new regulations to be gradually introduced by 2018 will mean that the banks' liquidity reserves must maintain higher quality (that is, be more liquid), and that the proportion of long-term and stable funding must increase.

For some time now, the Riksbank has carried out regular stress tests of the banks' capital cover against higher than expected loan losses. These tests are now being complemented by stress tests investigating the banks' liquidity risks. Through these stress tests, the Riksbank wishes to improve the transparency of the banking sector and to reduce the risks present in the financial system. The result of the stress test indicates that the Swedish banks are taking slightly higher liquidity risks than the average of a selected group of European banks. The Swedish banks are taking slightly higher liquidity risks partially because they hold a large proportion of less liquid assets (such as mortgages) at the same time as securities funding is short-term, to a certain degree.

## CONSIDERATIONS AND RECOMMENDATIONS

The Riksbank's recommendations to the participants in the financial system, aimed at reducing vulnerability to the risks discussed in this report, are presented below.

The first recommendation concerns the banks' capital. The Riksbank's assessment is that the Swedish banks should maintain or increase their present level of capital. This is because of the prevailing uncertainty surrounding the international economic situation, the fiscal unease and the state of the financial markets. There also remains uncertainty over the capital requirements to be set under the framework for Basel III.

The second recommendation concerns the banks' funding. The Riksbank's assessment is that the banks should continue to extend the maturities of their funding. The reason for this assessment is the Swedish banks' dependence upon market funding on short maturities. Furthermore, a significant share of the banks' funding is in foreign currency. This means that the Swedish banks would be vulnerable if the functionality of the markets they utilise for funding was to deteriorate. The Swedish banks have started the transition to more long-term funding. When it is introduced, Basel III will entail more stringent demands on the matching of the maturities of the banks' assets and liabilities. However, changing a banks' funding structure from short-term to long-term is a lengthy process. Consequently, the Riksbank's assessment is that the banks should continue to extend the maturities of their funding.

The third recommendation deals with the banks' refinancing risk in their mortgage lending. The Riksbank's assessment is that the banks should take into consideration the refinancing risks related to mortgage lending. The Swedish banks fund a significant part of lending for housing purchases by issuing bonds on the international capital market. Due to their construction, these bonds are of very high credit quality. The rapid increase of loan volumes through the entire financial crisis and the continued rise of housing prices may nevertheless lead to questions regarding how the liquidity and price of these bonds may be impacted by any future unease on the housing market. The banks are running a refinancing risk which, as the financial crisis of 2008 demonstrated, may be problematic. The banks thus have reason to contribute towards avoiding serious imbalances on the housing market.

The fourth recommendation deals with the lack of access to public information on the banks' liquidity risks. The Riksbank's assessment is that the transparency of the banks' public liquidity reporting needs to be improved, as shortcomings in public liquidity reporting create uncertainty. Better public information would increase the transparency of the banking system, making it easier to judge any risks and vulnerabilities in the financial system.



# ■ 1. Financial markets

*The financial unease decreased during the summer and autumn. This was due to the introduction of coordinated support programmes and clear reform plans in the European countries facing fiscal problems, which reduced the risk of contagion to other submarkets. In the late autumn, investors concern about fiscal problems in the euro area increased. This unease is expected to remain as long as the market remains uncertain of the countries' ability to handle their problems. Investors' main questions are how these countries will refinance central government debt despite the high costs, and how large the costs of recapitalising their banking systems will be. Furthermore, during the autumn, the uneven and uncertain recovery of the international real economy has disquieted participants in the financial markets.*

Swedish banks and corporations operate in global financial markets. Consequently, this chapter takes global developments as its starting point. An overall picture of the conditions in the financial markets and the real economy is first presented. This is followed by a section analysing in detail the markets that are important for Swedish banks' funding, such as the bond and money markets. The final section analyses the markets that are important for supplying capital to Swedish businesses, that is the corporate bond and commercial paper markets.

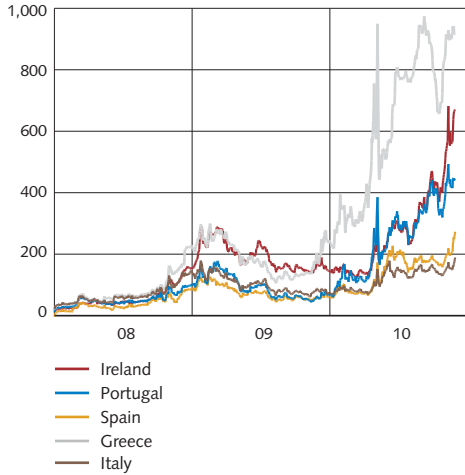
## Recent developments

**The financial markets are characterized by less concern now than was the case during the spring and summer.** Although developments in countries with weak public finances in the euro area is uncertain, the risk of contagion to other sub-markets has decreased. This is primarily because comprehensive measures for crisis management have been put in place. Two different stability facilities have been established with the ability of providing loans to EU member states.<sup>1</sup> Furthermore, the European Central Bank (ECB) and the Committee of European Banking Supervisors (CEBS) conducted a stress test of a large number of European banks. This increased transparency regarding the banks' financial strength and temporarily calmed financial markets. At the same time, most of the countries that formed the cause of the fiscal unease have implemented robust measures to improve their central government finances.

**However, the unease in the euro area remains.** This is because it is unclear what effects the fiscal problems and tighter fiscal policies will have on demand in the economy. Both Spain and Greece have, so far, successfully implemented their reforms according to plan. Spain has also

<sup>1</sup> These two are the European Financial Stabilisation Mechanism (EFSM) and the European Financial Stabilisation Facility (EFSF). The EFSM allows the European Commission to raise up to EUR 60 billion for lending to troubled EU Member states. The euro area countries established the EFSF to provide loans of up to a total of EUR 440 billion to euro area countries with fiscal problems. On 15 June, the EFSF agreement entered into force, and, on 4 August, the facility became ready for use. However, loans from both the EFSM and the EFSF are subject to strong policy conditionality in the context of joint euro area and IMF programmes. For further information, see [www.ecb.int](http://www.ecb.int), [www.efsf.europa.eu](http://www.efsf.europa.eu) and Sveriges riksbank (2010) "Financial Stability Report 2010:1".

**Chart 1:1. Difference between ten-year government bond yields in countries with fiscal problems and corresponding bond in Germany**  
Basis points



Source: Reuters EcoWin

successfully renewed loans that matured during the summer, which has contributed towards a decrease of concern over the situation there. On the other hand, the view of developments in Ireland and Portugal has mainly been negative, which has also spilled over onto the development of government bond yields in Spain and Greece (see Chart 1:1). These have also increased following Germany's proposal that, in future, it should be possible for private investors to shoulder a large share of the costs arising from restructuring of euro area countries' debt.<sup>2</sup> At the end of November the European Council agreed upon a new European Stabilisation Mechanism (ESM). ESM will be based on the already established EFSF which expires in mid-2013. In this new mechanism also private investors have to carry some of the debt restructuring costs if a country is deemed insolvent.

**Concern over the final cost of the Irish banking crisis has led to rising risk premiums for both the Irish government and the Irish banks.** The government has already adopted forceful measures in order to handle the public finances. This has led to decreased expenditure, but also weaker economic development. Combined with the high costs for the consolidation of the banks, this may further impede the economic recovery. For more about the measures implemented in Ireland, see the box "Support package for Ireland".

**In Portugal, reforms of government finances and particularly the country's labour market have proceeded more slowly than expected, with rising risk premiums as a result.** In November, the Portuguese government decided on a budget including important steps towards the stabilisation of public finances. In central Europe, Hungary, Romania and Bulgaria are struggling with budgetary problems and a large proportion of foreign currency loans among households and companies. Hungary and Romania have been forced to apply for support from the International Monetary Fund (IMF) and EU. Bulgaria has coped without emergency loans, but the country's extensive private foreign debts have left it vulnerable (see Chapter 4 for a discussion of these fiscal problems and their risks).

**The strength and sustainability of the US recovery are uncertain.** Above all, this is because unemployment continues to be high and the situation on the housing market remains uncertain. The weak development of the housing market has led to a steep fall in housing investment. Furthermore the development of the labour market has been surprisingly weak.<sup>3</sup> Together, this has led to a slower recovery in the United States than was expected in the spring, and to a tendency for inflation to fall rather than rise. GDP growth is expected to reach 2.7 per cent this year, followed by a dampening.

<sup>2</sup> At the end of October, the Chancellor of Germany, Angela Merkel, proposed that a new, permanent crisis-resolution mechanism be set up when the EFSF expires in mid-2013. The aim of the new mechanism would be to divide the cost of restructuring a country's debts between governments and private investors.

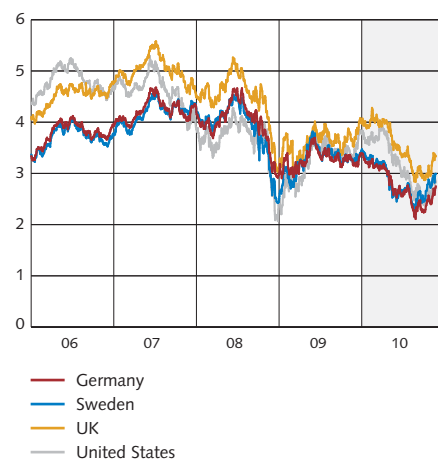
<sup>3</sup> See Sveriges riksbank (2010) "Monetary Policy Report", October



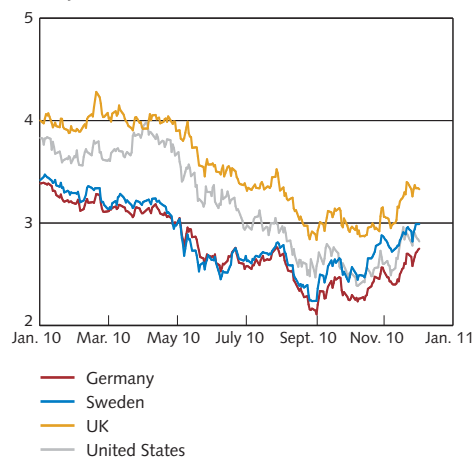
**Macroeconomic developments have led to renewed unease over deflation in the United States among investors in the financial markets.** Together with indications from the US central bank that the policy rate will remain low for a longer period than previously signalled, this has contributed to government bond yields in the United States and the rest of the western world remaining at low levels (see Chart 1:2). This uncertainty is also being emphasised by the existing imbalances. For example, the United States is showing large current account deficits, corresponding to substantial current account surpluses in other countries, such as China.

**However, growth prospects are favourable in Sweden.** As a small, export-dependent country, Sweden was hard hit by the financial crisis, when global trade decreased drastically. However, now that global trade is increasing again strongly, Sweden is benefiting.<sup>4</sup> Another reason for the rapid growth of the Swedish economy is the very strong state of public finances, which means that Sweden, unlike many other countries, does not need to carry out any fiscal policy restraints. Relatively strong increases in disposable income, combined with wide scope for the reduction of saving by households, will allow strong growth in private consumption in the years ahead. The Swedish housing market was hardly affected at all by the crisis, unlike (for example) the United States and many countries in the euro area. Another factor to be emphasised is the stability of the Swedish banking sector (see Chapter 3). Unlike the banks of the euro area and United States, the Swedish banks have been able to avoid major loan losses and are well capitalised, facilitating lending to households and companies. Conditions thus look significantly better than in many other parts of the world. Swedish GDP growth is expected to amount to 4.8 per cent this year, before increasing at a slower rate.<sup>5</sup>

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



Grey area in detail



Source: Reuters EcoWin

<sup>4</sup> See Sveriges riksbank (2010), "Monetary Policy Report", October, "Why higher growth in Sweden than in the euro area and the United States?"

<sup>5</sup> See Sveriges riksbank (2010), "Monetary Policy Report", October, for details of this forecast.

**U**nease gradually increased on the financial markets during the autumn as a result of the weak of public finances in Ireland. This unease mainly related to the Irish state's costs for restructuring the nation's banking sector. Declining confidence in the Irish banks meant that they became increasingly dependent of the ECB for funding and that the Irish state's funding became increasingly expensive. Eventually, the Irish government decided to seek financial support from the EU and the IMF. The Swedish banks have limited exposures to Ireland, which indicates that any direct contagion effects would also be limited. On the other hand, Swedish banks may be indirectly affected if the events in Ireland have an impact on the global capital markets and the unease spreads.

*Latest developments in countries with weak public finances*

During the summer and early autumn, the situation for euro area countries with weak public finances stabilised. A contributing factor to this stabilisation was that most of the countries announced credible programmes for coming to terms with their public-finance problems. Spain and Portugal also managed to issue government bonds during the summer.

In the early autumn, signs of weaker macroeconomic development in the United States began to increase concern that lower global growth could affect the recovery in the euro area. Lower growth abroad could in turn undermine the chances of successful fiscal policy consolidation in the countries with weak public finances. At the same time, the attention of the financial markets began to turn to the problems in the Irish banking sector. As it became increasingly uncertain what it would cost the state to restructure the banking sector, yields on Irish government bonds increased. Proposals from Germany to make the euro areas' crisis mechanism permanent and to let private investors cover some of the costs in

connection with future funding programmes also increased unease on the financial markets. On 20 November, the Irish prime minister confirmed that discussions had begun on a crisis package from the IMF and the euro area.

One difference compared to the unease that arose in May before Greece applied for support from the IMF and the EU is that unease over the situation in Ireland has not had such strong contagion effects on other sub-markets. Nor has the functioning of the markets been affected to the same extent.<sup>B1</sup> This is probably because all the components of a system for providing financial support are in place given the creation of the EFSF/EFSM during the spring of 2010. In addition, it can be noted that the crisis in Greece stemmed from public finance problems that then spread to the Greek banks, while the crisis in Ireland stems from problems in the banking sector that spilled over into the realm of public finances.

*Background to the crisis in Ireland*

Starting at the end of the 1990s, and particularly between 2005 and 2007, a generous provision of credit led to a dramatic increase in the prices of housing and commercial property in Ireland. In parallel with this, rapid wage increases also helped to undermine the competitiveness of the country. All in all, this led to the build-up of significant risks, particularly in the Irish banks. The banking system increased in size and in 2009 the banks' assets in relation to GDP amounted to over 300 per cent of GDP (see Chart 3:4). Consequently, Ireland was hit hard when the financial crisis began. GDP fell by over 7 per cent in 2009 as a result of reduced consumption and decreased investment. The crisis led to a fall in property and housing prices, which had serious negative effects on the Irish banks. The crisis also seriously undermined public finances in Ireland and the budget deficit for 2009 reached -14 per cent of GDP.<sup>B2</sup>

B1 Read more about the developments in Greece in Sveriges riksbank (2010), "Financial Stability Report 2010:1".

In the autumn of 2008, the Irish government responded by launching a major savings programme that aimed to achieve a budget deficit of under 3 per cent by 2014. At the same time, the government introduced a guarantee for depositors and creditors in the domestic banks. The guarantee, which covers approximately 260 per cent of GDP, is more extensive than in other countries.<sup>B3</sup> In addition, one of the domestic banks (Anglo Irish Bank) was completely taken over by the state in 2009 and the authorities set up the National Asset Management Agency (NAMA) to restructure the banking sector. The idea behind the NAMA was that it would purchase impaired property assets from the banks at reduced prices. The banks would then be recapitalised using either private or public funds. All of these measures helped to increase confidence in economic policy in Ireland. Unlike Greece, the country did not therefore need to apply for financial assistance from the IMF and the EU/euro area when the first wave of unease about public finances arose in the spring.

However, it became clear in the autumn of 2010 that the costs of restructuring the Irish banking sector would be much higher than expected. It was calculated that the budget deficit for 2010 would be over 30 per cent of GDP if the restructuring costs were included. In parallel with this, there was also increasing concern that the ongoing fiscal policy

consolidation could threaten the weak recovery of the real economy in Ireland. All in all, this led to an increase in funding costs for the Irish state. Irish banks also faced increasing interest rates, which meant that they had problems funding their operations and that they became increasingly dependent on the ECB. Following the steady increase in the interest on the Irish national debt, the Irish government decided to seek support from the countries in the euro area (within the framework of the European Financial Stability Facility (EFSF)) and the International Monetary Fund (IMF). The aid package to Ireland will total 85 billion euros. Of this sum, Ireland contributes with 17.5 billion euros from its reserve funds. The remaining 67.5 billion euros will be received from the IMF, the euro area countries and through bilateral loans from the UK, Denmark and Sweden. Sweden will contribute with 600 million euros. The main terms of the program concern the banking sector restructuring and fiscal policy.

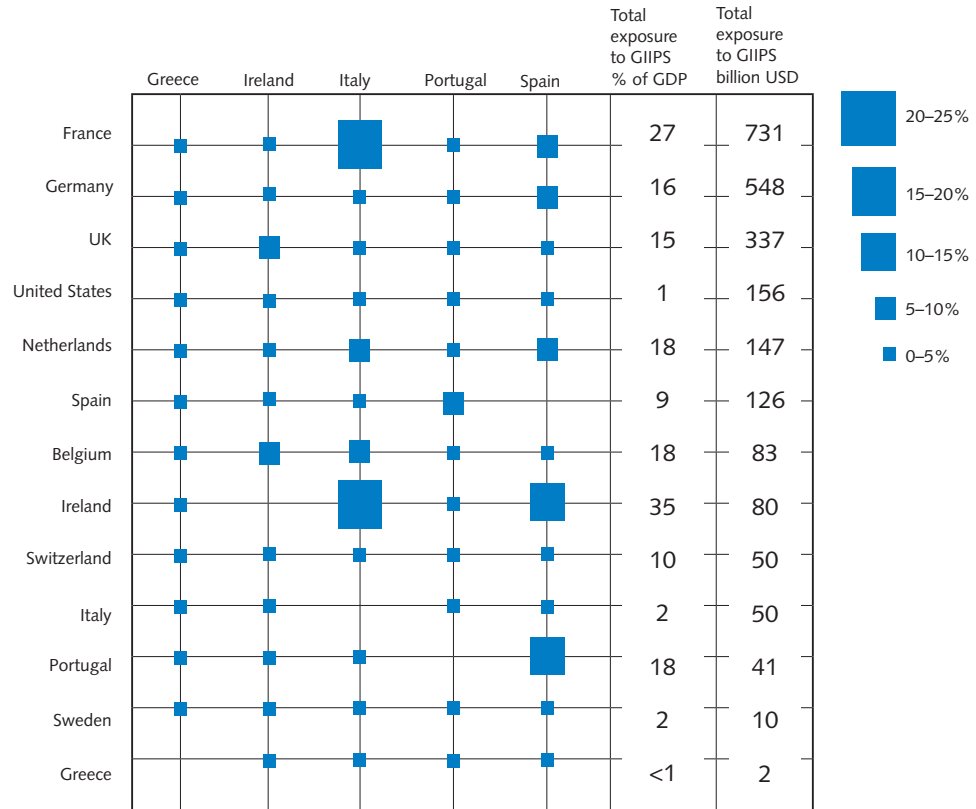
The Irish banking system is dominated by three banks (Bank of Ireland, Allied Irish and Anglo Irish Bank).<sup>B4</sup> In Europe, it is above all banks in the UK and Belgium that have substantial exposures to Irish banks (see Figure B1). Irish banks, on the other hand, have relatively large exposures to Italy and Spain. The direct exposures of Swedish banks to the Irish banking system are, however, very limited.

B2 See IMF (2010), "Staff Report for the 2010 Article IV Consultation".

B3 See IMF (2009), "Staff Report for the 2009 Article IV Consultation".

B4 Of these three banks, Anglo Irish is now wholly-owned by the state, while the Irish government has considerable holdings in the two other banks.

**Figure B1. Banks' exposures to Greece, Ireland, Italy, Portugal and Spain (GIIPS), by country**  
Percentage of GDP, June 2010



Note. GDP relates to 2009.

Sources: Bank for International Settlements and IMF

### The aggregate stress level of the international financial markets

**has decreased after the summer's unease.** This is illustrated by the Riksbank's stress index<sup>6</sup> being close to the historic average (see Chart 1:3). Internationally, investors' risk propensity has increased during the summer and autumn. Since the renewed unease over fiscal problems in Europe (above all the situation in Ireland) has not spread to other submarkets, it is not reflected in the stress index. On the other hand, the Swedish stress index rose slightly during the autumn, as uncertainty on the interbank market increased when the Riksbank decreased the supply of liquidity. The Swedish index has also been affected to a certain degree by an increase in the volatility of the Swedish krona. Changes in the value of a currency need not necessarily be something bad, and, during the summer and autumn, the Swedish krona appreciated significantly. However, high exchange rate volatility creates uncertainty, which impacts liquidity and thereby also the efficiency of the foreign exchange market.

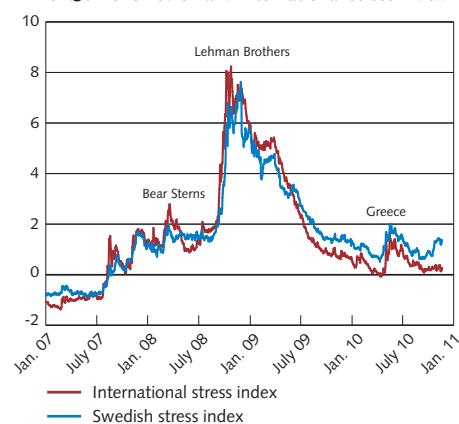
### The Riksbank's heat-map indicates that some markets are still experiencing stress.

The heat-map is a graphic illustration of developments over time. Unlike the stress index, which is intended to show the systematic, overall stress in the market, the heat-map provides specific information about individual markets, both internationally and in Sweden. The heat-map is based on asset prices and volatility measurements, but does not consider other factors, such as issuance volumes, turnover or qualitative information. However, the heat-map can still be used to illustrate how different submarkets have been impacted by the crisis. The fact that an individual market is experiencing stress will not necessarily have consequences for financial stability as a whole. Figure 1:1 shows that money markets were hardest hit by the various phases of crisis and are still showing signs of stress. This applies particularly to the euro area. A more comprehensive discussion of this is presented later on in the chapter. The chart also reveals that stress on the credit markets has decreased, which is also confirmed by the increase of activity there. The crisis affected the credit markets of the emerging economies at a later stage and to a lesser extent than other countries' credit markets. The explanation for this is that the recovery of the real economy of these countries has been stronger, and that investors thus chose to invest their capital there. In addition, the banking systems of these countries were not impacted by the crisis.

### Risk premiums for European corporates and European sovereigns

**differ.** Among others, this is reflected by premiums for Credit Default Swaps (CDS) (see Chart 1:4).<sup>7</sup> During the autumn, when unease over

Chart 1:3. Swedish and international stress index

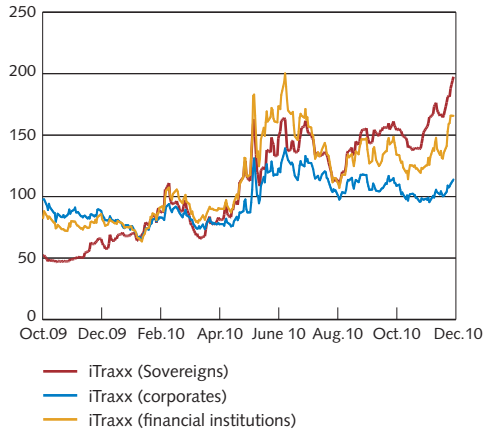


Sources: Reuters EcoWin, Bloomberg and the Riksbank

<sup>6</sup> The stress index is based on four broad indicators: equity 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 about the stress index, Sveriges riksbank (2009) Financial Stability Report 2009:2.

<sup>7</sup> Developments in the CDS premiums of the index for European sovereigns are partially driven by developments in the CDS premiums of countries with fiscal problems, as the CDS index is equally weighted, thus giving these countries a relatively high weighting.

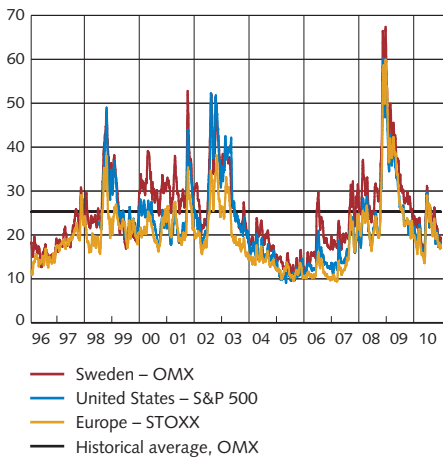
**Chart 1:4. CDS premiums for European sovereigns and corporates**  
Basis points



Note. iTraxx Sovereigns Europe represents an equally-weighted mean value for the CDSs of 15 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom). iTraxx corporates consists of an sector-weighted mean value of CDSs for 125 companies with credit ratings of BBB- or higher according to Standard & Poor's definition or at least Baa3 or higher according to Moody's definition.

Source: Bloomberg

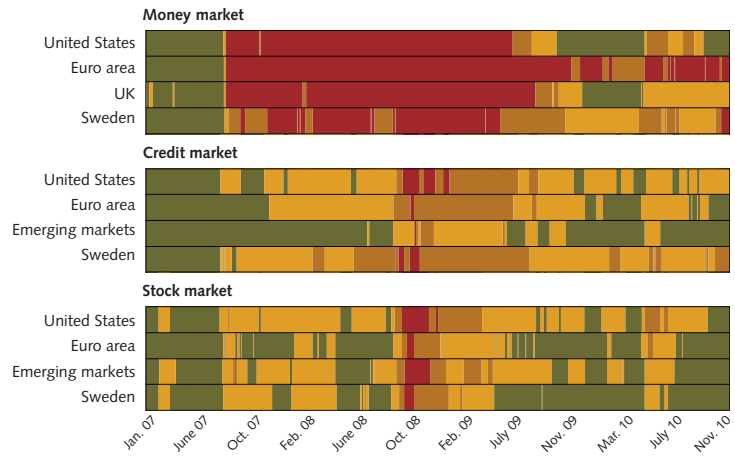
**Chart 1:5. Implied stock market volatility**  
Per cent, 10-day moving average



Note. The historical average represents the period January 1996 – October 2010.

Source: Reuters EcoWin

**Figure 1:1. Heat map**



Note 1. The heat map measures the daily levels of spreads and volatility for various asset types relative to an historical mean calculated between 2003 and 2007. Deviations from the historical mean, that is larger spreads and higher levels of volatility, 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 more than 9 standard deviations. The heat map is based on asset prices and volatility measurements and does not take other factors into account such as issue volumes or turnover.

Note 2. In Sweden, there is no index to represent the credit market. Consequently, the differential between mortgage bond yields and government bond yields is used as a proxy for Sweden.

Sources: Reuters EcoWin, Bloomberg and the Riksbank

the situation in Ireland and Portugal arose, the index for European sovereigns increased sharply, while the index for European corporates was only affected to a minor degree and even decreased slightly. The risk of these problems spreading to other countries still exists, and also depends on the progress of the world's real economy. The exposure of the Swedish banks in Ireland is limited, but, given the exposure of the Swedish banks in the Baltic countries, possible contagion to these countries may also be significant for Sweden (read more on developments in the Baltic countries in Chapter 2 and the Swedish banks' operations in Chapter 3).

**Uncertainty in the stock market, measured as volatility, has decreased** (see Chart 1:5). This happened as the second quarter reports for corporates showed better-than-expected results. The decreased volatility on the stock market, together with the general decrease in risk premiums, signals a rise in confidence in the development of the financial markets. In Sweden, equity prices have increased significantly, following last spring's decline and the turbulence surrounding Greece's fiscal problems, and are now higher than before the problems came to light. The United States and Europe have also largely recovered from the decline following the financial crisis (see Chart 1:6).

**Risk premiums in the European interbank market remain, in principle, unchanged, compared with the situation in June, when the previous Financial Stability Report was published.** The risk premium, usually called the basis spread<sup>8</sup>, is calculated here as the difference between

<sup>8</sup> See The Swedish Financial Market 2010 for a more in-depth description of the basis spread.

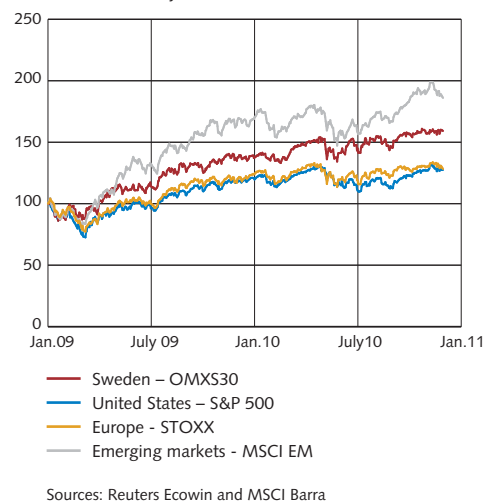
the three-month interbank rate and the expected overnight rate<sup>9</sup> and gives an indication of the risk attached to interbank lending, as well as the degree of confidence between the banks (see Chart 1:7). When the financial unease increased last spring, risk premiums on the international interbank market also increased. However, risk premiums in the United States have decreased since then.

**On the other hand, the risk premium in the Swedish interbank market increased during the autumn** (see Chart 1:7). This happened when the Riksbank wound up the extraordinary measures adopted during the crisis, thereby reducing the extra liquidity in the banking system and returning to more normal levels. During a transitional period, this meant increased uncertainty, with rising interest rates on the interbank market as a result (see the box "Temporary market unease following the winding-up of the Riksbank's loan facilities"). However, it is difficult to determine a reasonable level for the risk premium. Before the crisis, the risk premium was deemed to be too low and to be a sign of over-optimism and excessive risk-taking<sup>10</sup>, while the situation was the reverse in the autumn of 2008, when the crisis was at its most acute phase and Lehman Brothers was filing for bankruptcy. In future, the risk premium will probably stabilise on a higher level without the market experiencing stress.

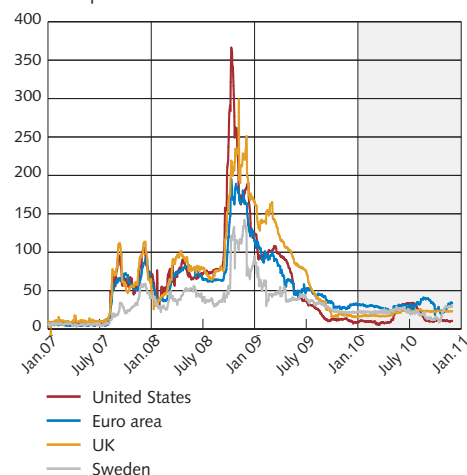
**Low interest rates in the United States and large parts of Europe and expectations of low future interest rates are leading investors to look for alternative investments to increase yields.** There are several signs that the search for yield is increasing in parts of the financial markets. For example, commodity prices are increasing and are close to the peaks prevailing just before the crisis (see Chart 1:8). At the same time, high-yield bonds in the United States are decreasing, which indicates an increased demand for risk (see Chart 1:9).

**Another example of search for yield is the increased capital inflows to the emerging markets of Asia and Latin America.** However, these capital inflows are not just being caused by low interest rates in the western world, but also by strong growth prospects in these countries. This has led to the continued increase in equity and bond prices in the emerging economies (see Chart 1:6). A common procedure for investors wishing to invest in emerging economies is to borrow money in a country with a low interest rate (such as the United States), and invest this in emerging economies with higher interest rates, thus earning money on the interest rate differential. This is usually called a carry trade and is based on the uncovered interest parity<sup>11</sup> not holding. Speculation in the form of carry trades risks leading to the build-up of

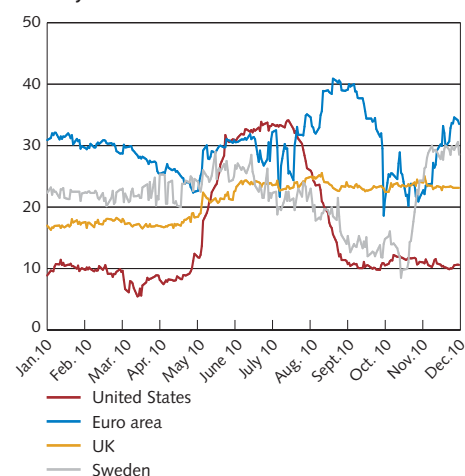
**Chart 1:6. Stock market developments**  
Index, 2 January 2009 = 100



**Chart 1:7. Risk premiums in the interbank market, 3 months**  
Basis points



**Grey area in detail**



Note. In Sweden, the differential between three-month interbank rates and expected overnight rates refers to the difference between the three-month Stibor and the overnight index swap rates (STINA).

Source: Reuters EcoWin

<sup>9</sup> The expected overnight rate is based on STINA-swaps.

<sup>10</sup> For example, see Sveriges riksbank (2006 and 2007), Financial Stability Reports 2006:2 and 2007:1 for discussions of too low risk premiums.

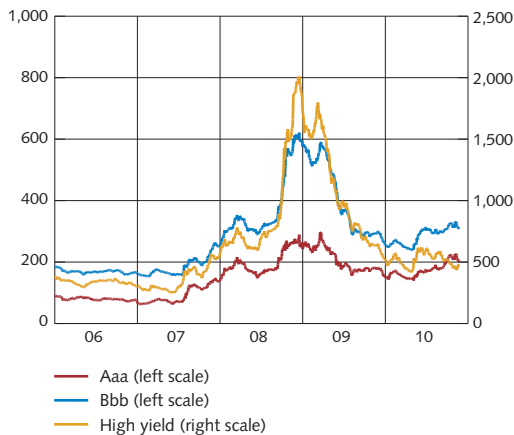
<sup>11</sup> The uncovered interest parity (UIP) says that the expected interest rate change between two countries must correspond with their interest rate differential. A country with a low (high) interest rate is expected to receive an appreciation (depreciation) of its currency.

**Chart 1:8. Commodity prices**  
Index 2005 = 100, USD



Source: The Economist

**Chart 1:9. Credit spread for US corporate bonds**  
Basis points



Note. The grouping of high-yield bonds has been made by Merrill Lynch. High-yield bonds have a credit rating that is Ba/BB or lower according to Moody's/Standard & Poor's.

Source: Reuters EcoWin

asset price bubbles. However, increased foreign capital inflows need not be a problem if they are based on well-grounded valuations of the country's growth potential. On the other hand, they can entail problems if they are based on over-optimism about future economic developments. The inflow of capital can also decline if investors' risk propensity decreases due to increased unease on the financial markets. This, in turn, can lead to rapid price falls.

**The effects of increased capital flows have led to a discussion of how these should be handled.** During the financial crisis, the G20 countries were agreed on the importance of global cooperation to handle the effects of the crisis. This political unity has decreased recently. Above all, this is because the industrialised countries wish to continue conducting an expansionary policy to mitigate the downturn in their economies. Meanwhile, the emerging economies do not wish to continue to experience impaired competitiveness due to the appreciation pressures to which large capital inflows contribute. An example of this is formed by the discussions taking place between the United States and China over the large US current account deficit and the correspondingly large surplus in China. In addition, Brazil has introduced taxation on foreign capital inflows into bonds and stocks. This does not need to be a problem, but when it occurs in combination with interventions on the foreign exchange market, there is a risk that this will be seen as protectionism and will lead to the introduction of trade barriers.

**These global imbalances are being countered with different economic policy measures.** Several central banks in the western world have chosen to introduce new extraordinary monetary policy measures, or extend existing ones, to support the recovery of the real economy. The Federal Reserve has not just signalled a low interest rate for a long period ahead, it has also introduced a new programme for the purchase of Treasury securities (see the section on central bank measures). The Bank of England has also discussed further purchases of assets due to the weak development of the real economy. Both the Swiss and Canadian central banks have put their interest rate increases on hold due to the uncertain development of the real economy globally. In October, the Bank of Japan cut its policy rate and initiated a new asset purchase programme with the aim of keeping long-term market rates down. Emerging markets, primarily in Asia and Latin America, are seeing faster growth rates in the real economy and are implementing monetary policy tightening in the form of interest rate increases. These countries are discussing measures aimed at reducing appreciation pressures on their currencies. For example, the Chinese government is only allowing a moderate appreciation of its currency against the US dollar. The authorities' unease over a too-rapid strengthening of the currency means that this appreciation will also be slow in the future.



## Temporary market unease following the winding-up of the Riksbank's loan facilities

**F**rom October 2008, in conjunction with the filing for bankruptcy of Lehman Brothers, the Riksbank provided extra liquidity to the Swedish banking system via a number of long-term loans. Over the last year, the banks have repaid these loans and the surplus liquidity has now been withdrawn. In the wake of this return to normal conditions, temporary unease arose on the fixed income and money market.

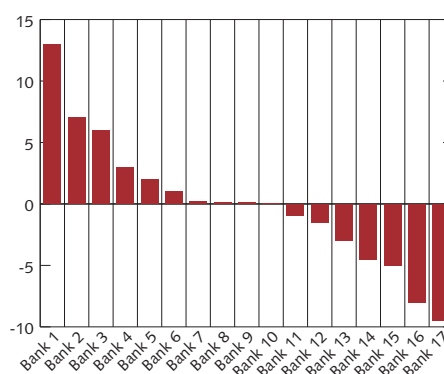
### *The Riksbank's payment system and the banks*

The Riksbank's payment system enables the distribution of liquidity in SEK between different market participants. It is often difficult for individual banks to determine exactly how much liquidity they will need from one day to the next. This means that some banks normally have a shortage of liquidity at the end of the day, while others have a surplus. In other words, some banks need to borrow while other banks need to invest their surplus funds. Such transactions are conducted every day between the banks on the overnight market. Seventeen banks use the Swedish overnight market to manage their daily deficits or surpluses in relation to each other (see Chart B1). Providing that the banks that have a surplus of SEK are willing to lend to those banks that have a deficit, the latter will not suffer a shortage of SEK. However, if the banks that have a surplus of SEK choose not to lend this surplus but instead to deposit it with the Riksbank, a shortage of SEK will then arise for those banks that have a deficit. The Riksbank solves this problem by providing loans against collateral to those banks that need to borrow. The deposit and lending rates that the Riksbank offers for such transactions are less attractive than those offered by the market (see Chart B2).<sup>B5</sup> The banks thus have an incentive to borrow from or deposit money with each other instead of borrowing from or depositing money with the Riksbank.

*The Riksbank eases problems on the money market from the autumn of 2008 and onwards*

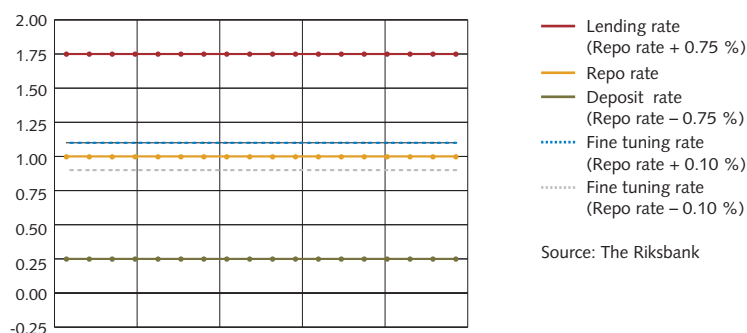
The overnight market was seriously disrupted during the crisis and the banks became less willing to lend to each other. The Riksbank therefor chose to offer long-term loans to the banks at both fixed and variable interest rates. As the Riksbank offered several long-term loans at low interest rates, the banks liquidity reserves with the Riksbank increased. This relieved the banks' of all liquidity risk in SEK, which led to a fall in short-term Swedish money market rates. Chart B3 below illustrates how the difference between the shortest market interest rate and the Riksbank's repo rate decreased sharply during the period in which the Riksbank offered loans to the banking system.

**Chart B1. Example of possible relative daily positions in the payments system for the participants involved**  
SEK billion



Source: The Riksbank

**Chart B2. The Riksbank's lending and deposit facilities**  
Per cent



Source: The Riksbank

B5 For more detailed information on the overnight market and the payment system in practice see "The Riksbank's management of interest rates – monetary policy in practice" and "Steering interest rates in monetary policy – how does it work?" in Sveriges Riksbank Economic Review 1/2001, [www.riksbank.se](http://www.riksbank.se)

*Following repayment of the Riksbank's extraordinary loans, responsibility for the overnight market again lies with the banks*

As the crisis subsided, the markets began to work more efficiently. Against the background of the improved funding situation, the Riksbank announced a gradual phase-out of its lending programme. The banks' utilisation of the Riksbank's loan facilities ended during the summer of 2010. The banks themselves chose not to extend their borrowing from the Riksbank and instead allowed the outstanding loans to mature. This meant that the banks' liquidity reserves with the Riksbank decreased. The banks were thus forced once again to even out the surpluses and deficits that arise as a result of the daily payment flows by using the interbank market.

At the same time, uncertainty arose about what amounts, and at what interest rates, the banks were prepared to lend to each other from one day to the next. It is the Riksbank's policy to always supply the system with sufficient liquidity to enable the banking system to even out its imbalances. A deficit, as seen above, can only arise at a bank if another bank chooses to deposit its surplus with the Riksbank at the lower deposit rate. There may, however, be limits to the amounts a bank is willing to lend to other banks without collateral even if the

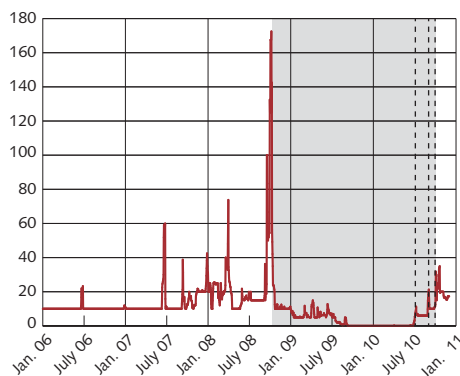
loan only runs from one day to the next, for example because of counterparty limits. This may mean that imbalances between the banks are not evened out and that a bank may actively choose to deposit money with the Riksbank at the lower deposit rate, thus forcing another bank to instead borrow from the Riksbank at the higher lending rate. To reduce the risk of having to cover temporary deficits by borrowing from the Riksbank, the banks began to demand more liquidity at somewhat longer maturities at the same time as they were less willing to lend other than at very short maturities. The uncertainty on the overnight market thus created upward pressure on the longer-term money market rates too.

#### *Problems spread to other markets*

The relatively inexpensive funding from the Riksbank had been used by a number of participants to fund longer-term assets, for example mortgage bonds. When this inexpensive funding was no longer available, some investors chose to sell their holdings in mortgage bonds. This led to falling prices and higher interest rates (see Chart 1:14), which in turn spilled over into rising mortgage rates for the households.

Uncertainty regarding short-term rates also affected the currency swap market<sup>B6</sup> where it became more expensive to borrow SEK. Both domestic and foreign participants borrow SEK on the currency swap market. Foreign banks borrow SEK for investment in (for example) Swedish mortgage bonds. When the cost of borrowing SEK on the currency market increases and becomes volatile, investors, both foreign and Swedish, may be forced to sell their holdings in Swedish securities, with falling prices as a result. This contributed to a decline in the interest in investing in Swedish assets. Swedish banks also borrow large amounts of SEK from foreign counterparties by issuing securities in, for example, euro which are then swapped for SEK with another foreign counterparty in a

**Chart B3. The difference between short-term interbank rates and the Riksbank's repo rate**  
Basis points



Note: The graph illustrates the difference between Stibor tomorrow next and the Riksbank's repo rate. The grey-shaded surface shows the period (October 2008-October 2010) during which the Riksbank added extra liquidity to the Swedish banking system by providing loans. The broken lines show the points at which the three major Riksbank loans fell due in June, August and October.

Source: Reuters EcoWin

<sup>B6</sup> In a currency swap, banks use EUR (for example), which they exchange at a spot rate to SEK, which are then exchanged back in the future. As the bank has access to SEK during the duration of the contract, this can be seen as a way of borrowing SEK with EUR as collateral.

cross-currency interest rate swap.<sup>B7</sup> In practice, this means that the Swedish banks borrow SEK from the foreign banks for the duration of the contract. The premium, or spread, in the swap can be interpreted as the extra cost that a Swedish bank must pay to issue in foreign currency and then convert this borrowing to SEK, as compared with borrowing directly in SEK (see Chart B4). This premium increased substantially when the Riksbank loans matured due to the greater uncertainty about the foreign participants' costs for funding their borrowing in SEK with which they match their lending in SEK.

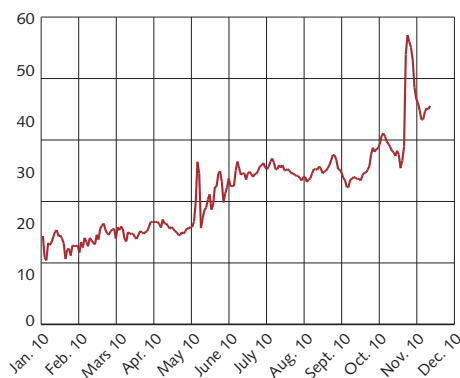
#### *Less uncertainty on the overnight market*

Following a brief period of uncertainty about the new situation on the overnight market after the phase-out of the Riksbank's loans, the banks reached agreement and a new equilibrium was established. There was thus no longer any uncertainty about the price of, and access to, overnight loans. This in turn led to a fall in long-term interest rates and access to liquidity increased for the market participants. The domestic bond market began to work more effectively in the latter part of October as the possibility of investors to fund bond purchases improved and the spreads on the currency swap markets decreased.

#### *Conclusion*

It is natural for a certain degree of friction to arise as the market adjusts from a situation with great liquidity surpluses in the banking system to a more normal situation. This may partly explain the recent increase in and volatility of interest rates. Establishing new equilibrium prices is, however, the responsibility of the banks, not the Riksbank. This is why the Riksbank has chosen not to offer any new loans. However, these events demonstrate how friction on the overnight market can spill over into and create problems on other markets.

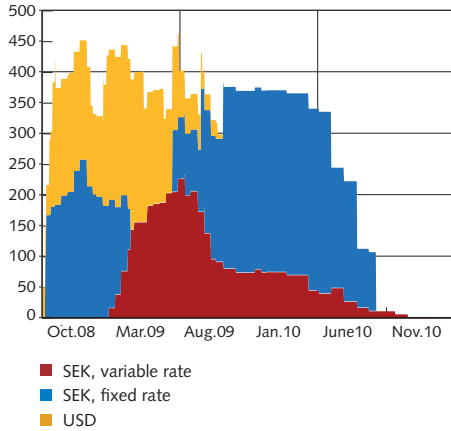
**Chart B4. Extra cost for the long-term borrowing of SEK abroad compared to domestic loan costs**  
Basis points



Note. Five-year SEK-EUR cross-currency interest rate swap  
Source: Bloomberg

B7 A cross-currency interest rate swap (or currency swap) is an exchange of interest payments in two currencies, for example Swedish interest against euro interest. A swap of this kind normally has a maturity of one year or longer (see the box "Swapping covered bonds in euro to Swedish kronor – a decomposition of costs", in Sveriges riksbank (2009), Financial Stability Report 2009:2).

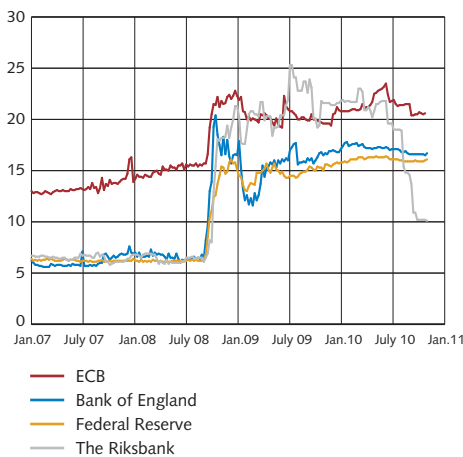
**Chart 1:10. The Riksbank's outstanding loans**  
SEK billion



Note. The chart does not include the Riksbank's lending in commercial papers.

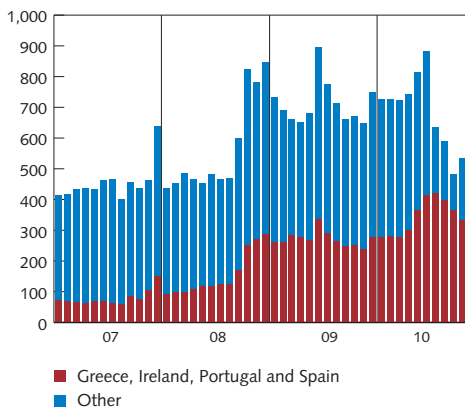
Source: The Riksbank

**Chart 1:11. Central banks' balance sheets**  
Percentage of GDP



Sources: Respective central banks

**Chart 1:12. ECB outstanding loans**  
EUR billion



Sources: ECB and the respective central banks

## THE CENTRAL BANKS' MEASURES

**In Sweden, the Riksbank has wound up its extraordinary lending as the financial markets and the banks' access to funding has improved.**

The maturity of the three major loans provided by the Riksbank for monetary policy purposes in 2009 took place in the summer and autumn. At the same time, demand from the banks for borrowing in the other, remaining facilities has diminished. The Riksbank increased the price for renewing loans by stages and, at the same time, decreased maturities. As the last major loan was repaid at the start of October, the extra liquidity in the banking system has been reduced and has returned to more normal levels (see Charts 1:10 and 1:11).

A total of SEK 6 billion remains. This will mature successively until January 2011. This normalisation has worked smoothly, even though disruptions arose during a certain period (see the box "Temporary market unease following the winding-up of the Riksbank's loan facilities"). Currently, no institutes are affiliated with the Swedish guarantee programme provided by the national debt Office. However, the programme has been extended until the end of June 2011 in accordance with the proposal of the European Commission due to the unease over the continued impact on the financial markets of countries with fiscal problems.

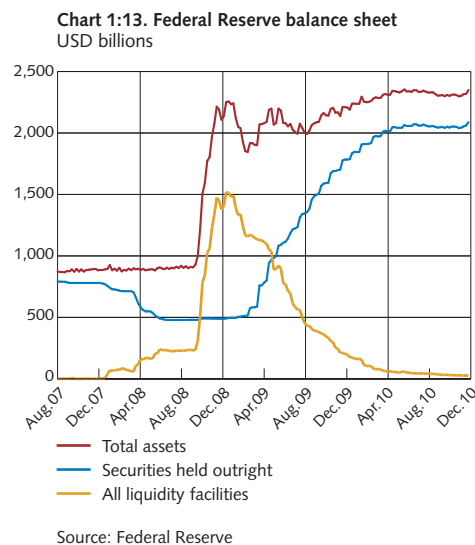
**The European Central Bank (ECB) has extended its crisis measures, postponing their planned winding-up.**

As the fiscal problems in southern Europe and Ireland in particular are affecting the countries and banks in the euro area, the ECB increased its support measures in the spring and summer. It is still offering loans at longer durations to improve access to liquidity in both euros and US dollars.<sup>12</sup> Despite continued lending, the outstanding amount of loans decreased sharply during the summer. However, a significant difference between the various banks' need for support remains. Banks from countries with sound fiscal finances do not have any problems with their liquidity supply. Neither do they need to borrow money from the ECB in the same extent as previously. In contrast, banks in countries with weak fiscal finances increased their borrowing from the ECB during the year and now stand for most of the ECB's lending (see Chart 1:12 and the box "Support package for Ireland"). The programme for the purchase of government bonds, the Securities Market Programme (SMP) that was introduced in May is also still active. The programme is aimed at maintaining a functioning securities market in countries with fiscal problems. By the start of November, the total amount of purchases totalled about EUR 64 billion. On the other hand, the programme for the purchase of covered bonds that was introduced in the summer of 2009 was concluded in July, according to plan. In total, the ECB purchased covered bonds worth EUR 60 billion. The ECB's total purchases of securities amounts to about 1.3 per cent of the euro area's GDP. The government guarantee

<sup>12</sup> The ECB offers euro loans with durations of 7, 28 and 84 days, and dollar loans with durations of 7 days.

programmes are still in effect in several euro area countries and will remain so until the end of June 2011.

**The US central bank has extended parts of its crisis measures due to the development of the real economy.** In November, the Federal Reserve decided to expand its programme of holding securities, aimed at keeping market interest rates for longer maturities down for a longer period. This means that, until the end of June 2011, the Federal Reserve will purchase Treasury securities worth USD 600 billion. The principal payments from the securities it has already purchased, mortgage-backed securities and agency debt, will also be reinvested in Treasuries. The total purchase sum will thus amount to about USD 850–900 billion. By the end of October, the Federal Reserve's purchases of securities amounted to about 14 per cent of GDP. The Federal Reserve's previous liquidity support measures packages have now all been concluded and the outstanding volumes are decreasing as these mature (see Chart 1:13).



### Important markets for the Swedish banks' funding

About half of the Swedish banking groups' funding consists of market funding.<sup>13</sup> About two thirds of this is in other currencies than SEK. The currency risk, to the extent it arises, is managed via various types of hedges. This section discusses developments in the markets that are important for Swedish banks' funding. Swedish banks are then analysed in detail in Chapter 3.

#### MARKETS FOR LONG-TERM FUNDING

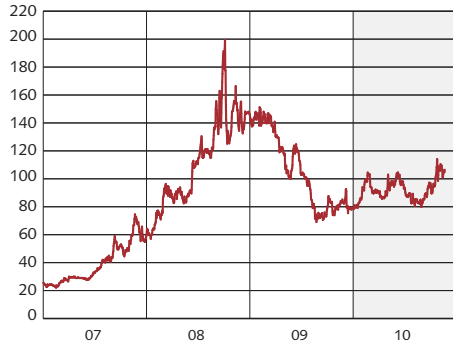
The banks' long-term funding on the market takes place through the issuance of unsecured bonds and covered bonds. The banks mainly issue in the Swedish and European markets.

**Investors in the secondary market require an extra premium for bonds issued by institutions from countries with fiscal problems.** This means that the yield for both covered and unsecured bonds from southern Europe and Ireland are higher than the yield for corresponding bonds from institutions in countries such as Sweden and Denmark, which are deemed to have sound fiscal finances. This happens even though, for example, covered bonds from these countries have strong credit ratings, showing that the credit risk of these securities is low. Investors thus weight both sovereign risk and liquidity risk when purchasing bonds from institutions domiciled in countries with fiscal problems.

**Funding through bond issuance is again functioning on the European market.** Due to the unease over central government finances in May, demand for both covered and unsecured bonds largely ceased.

<sup>13</sup> The remaining borrowing is mainly formed of borrowing from households and companies.

**Chart 1:14. Difference between 5-year Swedish covered bond yields and government bond yields**  
Basis points



**Grey area in detail**



Sources: Reuters EcoWin and the Riksbank

However, during the summer, demand has increased and the markets have picked up again, although activity is somewhat lower than before. Neither does the market functioning seem to have been impacted by the conclusion of the ECB's programme for the purchase of covered bonds. The higher premium required by investors at the secondary market is spilling over to the primary market. Financial institutes from euro area countries with poor government finances must also pay a higher premium to investors when issuing new bonds.

**Swedish banks have not had any problems obtaining funding in the bond market.** This applies to both covered bonds and unsecured bonds. The costs for funding have also been lower than previously, but they have not returned to the pre-crisis level. More details of the Swedish banks' market funding are given in Chapter 3.

**The difference between the yield on Swedish covered bonds<sup>14</sup> and government bonds has increased since the previous report.** Even though the yield differential decreased as unease declined during the summer, it has increased again during the autumn (see Chart 1:14). This was mainly due to uncertainty over the banks' funding costs as the Riksbank's loans for monetary policy purposes matured. This is also confirmed by the responses in the risk survey conducted by the Riksbank in October/November. In this survey, the market participants state that uncertainty arose on the market about the banks' funding situation, which led to poorer pricing and a reduced demand for bonds. Several of the respondents also stated that price formation on the market for covered bonds worked well, and that the depth of the market was satisfactory, up to the point when the loan facilities were phased out<sup>15</sup> (see also the box "Temporary market unease following the winding-up of the Riksbank's loan facilities").

**On the European primary market for covered bonds the issue size is smaller and durations shorter than previously.** Previously, issues of jumbo bonds were made in volumes of at least EUR 1 billion.<sup>16</sup> Before the crisis, the average volume was about EUR 1.3 billion, but this fell below EUR 1 billion during 2010. These decreased volumes are partially due to reduced interest in large issues among investors. The reason for this is credit rating agencies' increased focus on how institutions match their assets and liabilities. This means that investors wish to spread the refinancing risk by investing smaller amounts in different bonds and in several maturities. It has also led to a decrease of the durations of covered bonds. These are now around three to five years, instead of five to seven years as they were previously. A further explanation for the low volumes is that the number of issuers of covered bonds has increased. Previously, only a smaller number of institutions from a few

<sup>14</sup> The majority of the Swedish banks' covered bonds are issued in SEK in the Swedish market.

<sup>15</sup> For more information see Risk survey autumn 2010 at [www.riksbank.com](http://www.riksbank.com).

<sup>16</sup> A jumbo bond is a type of secured bond that is subject to certain specific trading standards, is denominated in euros, and has an issue volume of at least EUR 1 billion.

countries issued covered bonds. Today, covered bonds are issued by an increased number of smaller institutions and from more countries.

#### MARKETS OF IMPORTANCE TO LIQUIDITY MANAGEMENT

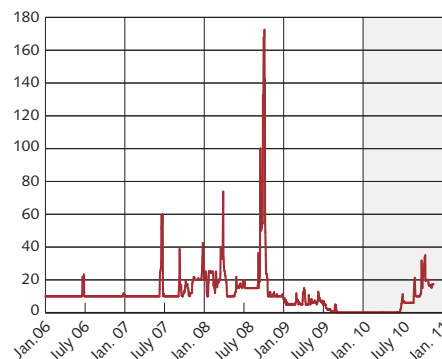
**The markets for the Swedish banks' liquidity management have largely functioned well, despite the reduction of the extra liquidity in the banking system.** The Swedish money market has been impacted by the fiscal unease prevailing during the spring and the autumn to a relatively minor extent compared with foreign markets. Strong access to funding contributed towards the reduction of the Swedish banks' utilisation of the loans offered by the Riksbank.

**The return to a more normal liquidity situation has not been without problems.** This is shown, for example, by the Riksbank's risk survey in which several of the participants say that uncertainty arose when the Riksbank's loans matured.<sup>17</sup> Interest rates in the very short-term of the market (that is the interest rate from tomorrow until the day after (tomorrow next)), have been characterized by increased risk premiums and volatility (Chart 1:15). The problems on the very short-term of the market indicate that the banks are uncertain of how best to balance daily liquidity now that the market no longer has access to the unusually large amount of liquidity (see the box "Temporary market unease following the winding-up of the Riksbank's loan facilities").

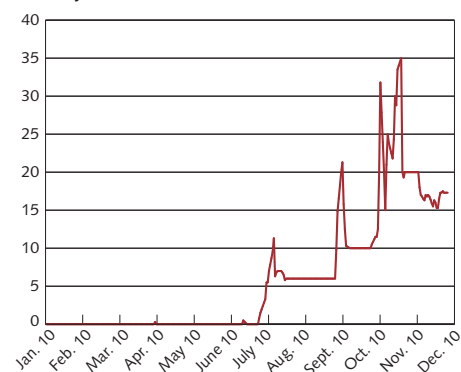
**The risk premium in the Swedish interbank market has primarily consisted of credit risk.** This becomes clear if the risk premium (here represented by the basis spread) is split into two parts related to credit risk and liquidity risk respectively (see Chart 1:16).<sup>18</sup> This decomposition makes it possible to see how the relationship between these two risks has varied since the autumn of 2007. The recent unease on the Swedish interbank market has led to a certain increase of liquidity risk, which has partially been reflected in the risk premium. However, the risk premium can sometimes underestimate the liquidity risk in Sweden, as the liquidity risk of this decomposition is measured as a residual from the credit risk.

**The repo market offers the banks a way of managing their liquidity.** In order to further facilitate liquidity management and, at the same time, reduce counterparty risk, Nasdaq OMX Stockholm launched a central counterparty clearing system for the settlement of repo transactions in government bonds and covered bonds during the autumn. This is positive from a stability perspective, as a covered market that is also centrally cleared should be more resilient to disruptions than a bilateral and non-secured market.

**Chart 1:15. Difference between the tomorrow-next rate and the repo rate**  
Basis points

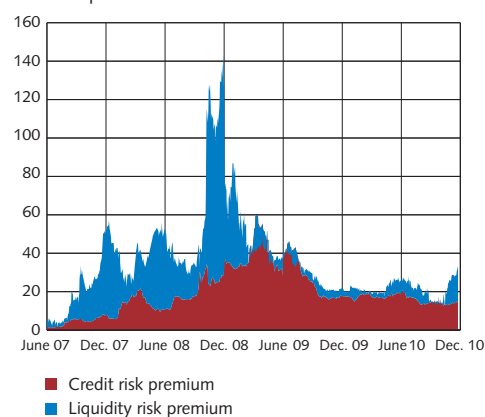


**Grey area in detail**



Sources: Reuters EcoWin

**Chart 1:16. Indicative decomposition of the Swedish risk premium, 3 months**  
Basis points



Note. The model utilises certain assumptions to derive a credit risk-related premium from CDS prices. The remaining risk premium is equivalent to the liquidity premium. See Economic Commentary no. 14, 2009.

Source: The Riksbank

<sup>17</sup> For more information see Risk survey autumn 2010 at [www.riksbank.com](http://www.riksbank.com).

<sup>18</sup> See Sveriges riksbank (2009), "The Risk Premium on the Swedish Money Market – Experiences from the Crisis", Economic Review and Sveriges riksbank (2009), Economic Commentary no. 14.

**The development of risk premiums on the international money markets has mainly been positive, although for different reasons.** In the United States, credit risk premiums have fallen partially because the US banks only have minor exposure towards European countries with fiscal problems. In turn, this has led to the decrease of risk premiums on the US money market. At the same time, the amount of surplus liquidity in dollars continues to be very high, which is contributing towards keeping short-term interest rates low.

**In Europe, credit risk premiums have continued to be relatively high as a consequence of the fiscal unease.** However, demand among the banks for loans from the ECB has fallen sharply, contributing towards the reduction of surplus liquidity. This has led to rising overnight rates, at the same time as longer-term interest rates have largely remained unchanged. The lower rate of utilisation of the ECB's loan facilities is a positive sign, as it indicates reduced liquidity risk in that the banks are more willing to lend each other money. However, the aggregate figures obscure the fact that banks from countries with weak fiscal finances is still dependent on ECB lending. Despite this, financing opportunities have improved for Spanish banks in that repo transactions for Spanish government bonds can now be performed via a central clearing counterparty. This means that they no longer need to utilise the ECB's loan facilities to the same extent. The decreased liquidity risk may also be due to the previously-mentioned crisis management measures now in place in Europe.

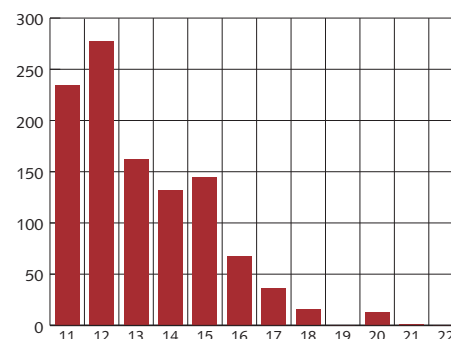


### MARKETS THAT ARE IMPORTANT FOR SWEDISH COMPANIES' FUNDING

The funding situation for Swedish non-financial companies is affected by developments in the credit market. Loan-based funding is primarily conducted through bank loans from Swedish credit institutions. The remaining part of the loan-based funding is largely conducted in euros and dollars on the international markets, making a review of the functioning of these markets of interest. Apart from bank loans and syndicated loans, Swedish non-financial companies also use the money and bond markets to obtain funding.<sup>19</sup>

**This year, issuance volumes on the Swedish market for corporate bonds have been lower than in the previous year.** This is largely because many companies have plenty of capital, at the same time as the need for investment is low. Swedish companies issued record volumes in 2008, meaning that large parts of the amounts falling due in 2010 have already been funded. However, over the coming years, 2011–2013, Swedish companies have large maturities, particularly syndicated bank loans, which must be refinanced (see Chart 1:17). This can take place either through renewed bank loans (bilateral or syndicated loans) or through market funding. In the Riksbank's company interviews from September 2010, several companies state that their funding structure should become more diversified than before – that is they wish to become less dependent on bank loans. This could mean increased demand for bond issuance and raising of syndicated loans, in addition to traditional bank loans. During the spring and summer, a number of companies issued bonds for the first time. However, activity in the Swedish market for commercial papers continues to be low, mainly due to companies opting for borrowing in longer maturities.

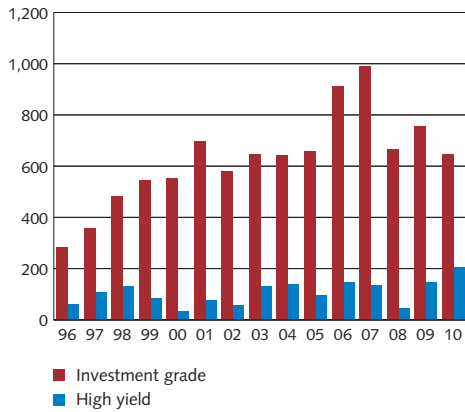
Chart 1:17. Maturity structures for syndicated loans of Swedish companies and their subsidiaries  
SEK billion



Source: Dealogic

<sup>19</sup> However, the market for corporate issues in Sweden is dominated by a number of major companies. The four greatest issuers on the Swedish market [Vattenfall, Volvo, TeliaSonera and Atlas Copco] represent over half of the outstanding bonds (August 2010).

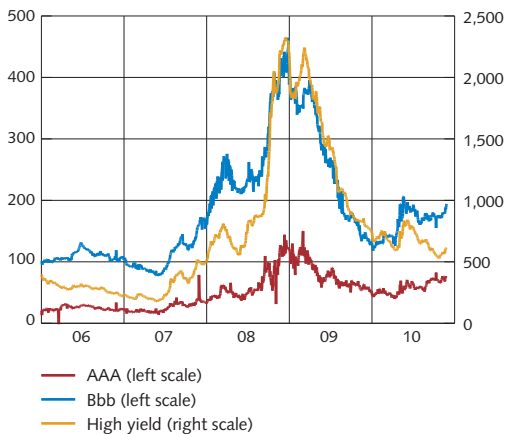
**Chart 1:18. US Corporate bond issuance**  
USD billions



Note. The issuance volume for 2010 has been calculated for the period until the end of September 2010. High yield bonds have a credit rating that is Ba/BB or lower according to Moody's/Standard & Poor's.

Source: SIFMA

**Chart 1:19. Credit spread for European corporate bonds**  
Basis points



Note. The grouping of high-yield bonds has been made by Merrill Lynch. High yield bonds have a credit rating that is Ba/BB or lower according to Moody's/Standard & Poor's.

Source: Reuters EcoWin

**There is reason to believe that the Swedish market for corporate bonds may grow in the future.** Bank loans to companies may be limited in the future, due to stricter capital requirements for the banks under the new Basel III regulations. This implies that Swedish companies may need to seek alternatives to their current funding. Swedish companies are currently well capitalised and thus should have no problems renewing loans (see box "Basel III – effects on the Swedish banks and Sweden"). However, foreign banks are responsible for about half of the syndicated loans. If the foreign banks decide to decrease lending to Swedish companies due to the new rules, these companies will have to find alternative funding. The companies may turn to the Swedish banks to increase their loans, but the regulations may limit the scope for this. The cost of borrowing from the banks may also be higher than it was for the syndicated loans. A combination of these two changes may mean that companies will instead have to issue corporate bonds to a greater extent than before.

**Issuance on the US corporate bond market remained high in the first three quarters of the year.** Although these volumes have not reached the same levels as in 2009, companies are continuing to issue to a relatively high degree. For most US non-financial companies, market funding is the most important form of funding. This distinguishes them from European and Swedish companies. The low interest rates in the United States have contributed towards the greater issuance of securities with longer maturities by companies, which is reflected in the continued high issuance of bonds. Bonds issued by companies with lower credit ratings (high yield) continue to be favoured by investors, searching for more risk. This is reflected by decreased credit spreads, above all in this high-yield segment (see Chart 1:9). Issuance volumes within this high-yield segment have continued to rise in recent months and are approaching new record volumes (see Chart 1:18). One reason for this trend is formed by the Federal Reserve's strong stimulus measures, which have contributed towards the low, long-term interest rates.

**Issuance volumes are lower now on the market for corporate bonds in euros than in the spring.** Several companies have plenty of capital and are not demanding new capital to any great extent. One reason for this is that issuance volumes in 2009 reached a record high level and investment propensity is now low. During the summer, European companies issued bonds on the US market to take advantage of the favourable prices and to participate in a more active market. Increasing amounts of issuance on the European market have been made by high-yield companies. These made up about a third of issues in 2010. Just as on the US market, credit spreads have fallen for this segment (see Chart 1:19).

**Outstanding volumes on the US market for commercial paper are increasing.** Commercial paper in the United States is primarily issued by major companies with high credit ratings and is mainly used to fund short-term liquidity requirements such as accounts receivables and stocks of goods. The increase in 2010 signals increased activity among both investors and issuers (Chart 1:20). Interest rates for commercial paper remain extremely low, making it possible for companies to obtain cheap funding. In contrast, the outstanding volumes of euro commercial paper (ECP) steadily decreased in 2010, but increased again in September (Chart 1:21). The money market funds, which are major purchasers of ECP and are important sources of liquidity in the market, experienced major capital outflows during the summer, leading to reduced opportunities to purchase ECP. This may explain the small volumes. In addition, this market was impacted by the fiscal unease in Europe.

**Chart 1:20. Outstanding volumes of non-financial commercial paper issued in the United States**  
USD billions



Source: Federal Reserve

**Chart 1:21. Outstanding volumes of euro commercial paper**  
USD billions



Note. Euro commercial paper is the designation for short-term loans without collateral issued by a bank or a company on the international money market which are denominated in a currency other than that company's domestic currency. For example, if a US company issued a certificate in CAD, that company would have issued a Euro Commercial Paper.

Source: Euroclear

## How life insurance companies can affect financial stability

**T**hrough their significant holdings of financial assets, insurance companies, particularly life insurance companies, form an important part of the financial system. If life insurance companies rapidly sell their assets on markets in which they have significant interests, this may have consequences for financial stability. At present, life insurance companies are facing two situations that could unleash a wave of sales. The first of these is related to the historically low interest rates, and the second to the new solvency regulations for insurance companies, Solvency II, which will enter into force in the autumn of 2012.

The Swedish insurance companies' holdings of financial assets amount to just above SEK 2 800 billion, with life insurance companies standing for almost 85 per cent of this figure. Life insurance companies' large holdings of financial assets (see Chart B5) make them significant from the perspective of financial stability. As an example, Swedish life insurance companies hold around a quarter of the bonds issued by Swedish mortgage institutions, i.e. Swedish covered bonds (see Chart 3:21). If the holdings of foreign life insurance companies are included, this proportion increases further. These companies thus form an important source of funding for the major Swedish banks, which largely obtain funding through covered bonds. They also contribute liquidity to markets where these assets are traded. If the life insurance companies were to sell off their assets rapidly on those markets in which they own major interests,

this would have an impact on the way these markets function and also, in the end, on the banks' funding.

### *Low long-term interest rates and the life insurance companies*

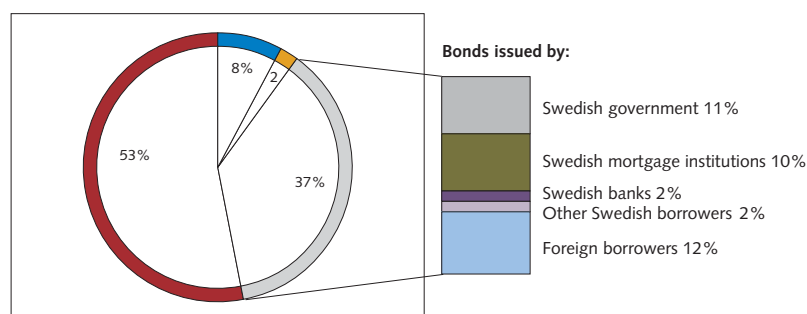
During 2010, long-term interest rates reached historically low levels (see Chart B6). If interest rates fall further, a vicious circle may arise among life insurance companies. This is because, as interest rates fall, the size of the life insurance companies' debts increases. A life insurance company's debt consists primarily of the present value of the commitments it has undertaken. In order to calculate this present value, a discount rate is used. This is determined on the basis of the yield on Swedish government bonds, Swedish interest rate swaps and covered bonds issued by Swedish mortgage institutions. When the discount rate falls, the present value of commitments rises. Above all, this takes place when long-term interest rates fall because life insurance companies have commitments that sometimes extend more than 50 years in the future.

The solvency of life insurance companies must exceed a certain level prescribed by law. This means that as a minimum requirement, they must have a capital base (i.e. assets minus liabilities) above or equal to the solvency margin. When the solvency of life insurance companies decreases to the statutory level, they buy bonds whose value follows the discount rate and sell other assets, including their holdings of shares.<sup>B8</sup> However, when life insurance companies buy these bonds, the price rises and the discount rate falls accordingly.

**Chart B5. The Swedish life insurance companies' holdings of various financial assets, including property, in relation to their total holdings for Q2 2010**  
Per cent

- Shares and holdings in funds
- Other financial assets
- Properties
- Bonds

Note. Shares and holdings in funds also include funds in unit-linked insurances and bond funds and money market funds.  
Source: Statistics Sweden



<sup>B8</sup> By increasing their holdings of assets that increase in value when the discount rate decreases, the solvency of the life insurance companies is affected to a lesser extent than it would be were the discount rate to change.

And when life insurance companies sell shares, the prices of these shares fall. The life insurance companies thus enter a vicious circle with falling interest rates and share prices, which, in turn, results in that the solvency falls further and the life insurance companies selling even more shares.

As life insurance companies are among the largest investors on the Swedish stock market, such a vicious circle may lead to a fall on this market. In turn, a major fall on the stock market may result in a decrease in risk-taking among other financial market participants, or that other financial institutions must redistribute their holdings of financial assets, among other reasons to comply with statutory requirements. In this way, the vicious circle spreads to other financial markets, with the consequence of falling prices and reduced liquidity in assets that are important to the funding of the banks.

As well as the risk of vicious circles among life insurance companies, the low long-term interest rates and expectations of continued low interest rates may lead to a search for yield, as described in Chapter 1, among Swedish and foreign life insurance companies. In particular, it is the willingness of life insurance companies with large guaranteed commitments to invest in alternative and higher-risk interest-bearing investments that is increasing. This search for yield is taking place because, if these life insurance companies cannot receive a higher return than at present from more traditional investments, they will not be able to meet their future guaranteed commitments to their policyholders.

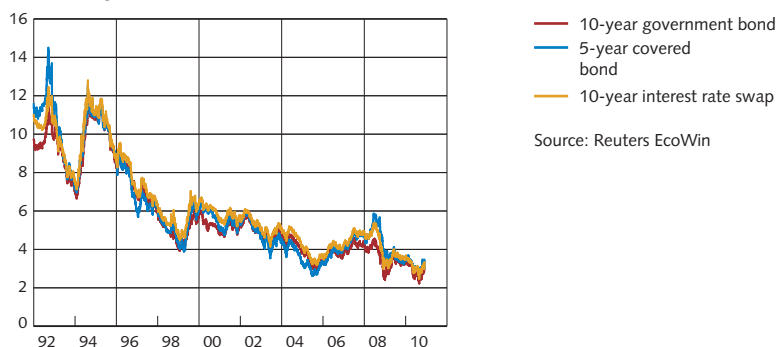
#### *Solvency II and the life insurance companies*

In the autumn of 2012, the new EU solvency regulations for insurance companies, Solvency II, will enter into force.<sup>B9</sup> Under Solvency II, life insurance companies must have a capital base exceeding the solvency capital requirement, just as in current legislation. However, in the current regulations, the solvency capital requirement (that is the solvency margin) for life insurance companies is largely based solely on the size of the companies' commitments.

Under Solvency II, the solvency capital requirement is based on the insurance risks existing in the life insurance companies' operations and on the risks arising when the companies invest in financial assets, such as covered bonds.

It is presently unclear how large the solvency capital requirement will be for life insurance companies under Solvency II. If the life insurance companies' capital base is less than the new solvency capital requirement, the life insurance companies will have to reduce their risks, thus decreasing their solvency capital requirements. The life insurance companies can do this by increasing investments in those financial assets with the lowest capital requirements (which are government bonds), and at the same time reducing their holdings of other financial assets. The introduction of Solvency II may thus result in that life insurance companies adjust their holdings in financial assets, among other means by reducing their holdings in covered bonds. If this happens, an important source of financing for the Swedish banks will disappear.

**Chart B6. The yield on 10-year Swedish government bond, 10-year Swedish interest rate swap, and 5-year Swedish covered bond**  
Percentage



Source: Reuters EcoWin

B9 Originally, Solvency II should have entered into effect on 31 October 2012, but it now seems as though it will be 31 December 2012.



## ■ 2. The Swedish banking groups' borrowers

The strong economic recovery in Sweden and in the other Nordic countries means that most borrowers are well able to service their loans. However, there are still weaknesses among certain groups of borrowers. One such group is made up of households and companies in the Baltic countries, where creditworthiness is still very low and is expected to remain so for some time to come. Another group that stands out consists of borrowers in Denmark, where the ability to service loans has on average been weaker than among households and companies in the other Nordic countries. The indebtedness of Swedish households has continued to increase, but the assessment is that the risk that the banks will be hit by extensive loan losses stemming from the households is limited.

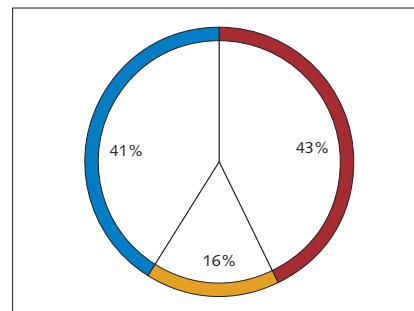
This chapter discusses developments among the Swedish banking groups' borrowers. The risk that these borrowers will be unable to service or repay their loans (the banks' credit risk) is the greatest risk the banks are exposed to. The banks' earnings and profits are also directly affected by the loan volume. The chapter reviews borrowing, the accumulation of debt and the ability to pay in the Swedish household and corporate sectors. Property companies are analysed separately, as this is the individual business sector to which the banks are most exposed (see Chart 2:1). In recent years, an increasingly large portion of the banks' lending has been to borrowers outside Sweden, primarily in the Nordic and Baltic countries (see Chart 2:2). Consequently, these borrower groups are also analysed.

### The Swedish household sector

**In contrast to the situation in many other countries, there were no major corrections in housing prices in Sweden in connection with the financial crisis** (see Chart 2:3). There are several reasons for this but it is mainly due to the combination of the fact that the domestic demand for housing was well maintained during the crisis by an expansionary monetary policy and the fact that the banks found it relatively easy to fund their new lending, which also meant that the supply of loans was maintained. In addition, the level of housing investment in Sweden was low for many years prior to the crisis. One effect was that there was not a surplus of housing that needed to be sold at lower prices as was the case, for example, in the United States, Spain and Ireland.<sup>21</sup> Similarly, there was no deleveraging in the household sector as was the case in several other countries. However, determining how much housing prices have increased in Sweden over time compared with other countries depends on which reference point one uses. If we compare the development from 1995 real housing prices have increased more in Sweden than in Denmark, Spain, UK and US (see Chart 2:3). If we compare the development from 1980 the increase is much larger in Spain and UK (see Chart 2:4).

21 For a detailed review of the differences between the housing market in Sweden and housing markets abroad see the box "The development of house prices and mortgage markets in Sweden and abroad", Sveriges Riksbank (2009) "Financial Stability Report 2009:2", November.

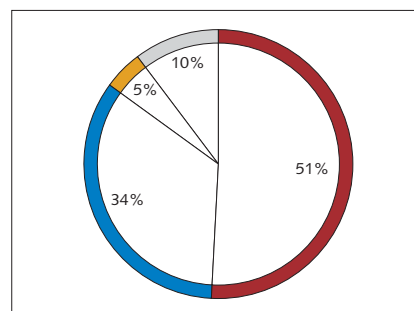
**Chart 2:1. Lending of the Swedish banking groups by borrower category**  
September 2010, per cent of total lending



■ Households  
■ Companies, excluding property companies  
■ Property companies

Sources: Bank reports and the Riksbank

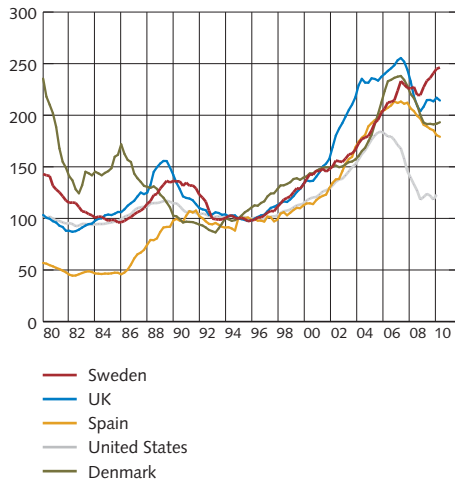
**Chart 2:2. Lending of the Swedish banking groups by geographical area**  
September 2010, per cent of total lending



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

Sources: Bank reports and the Riksbank

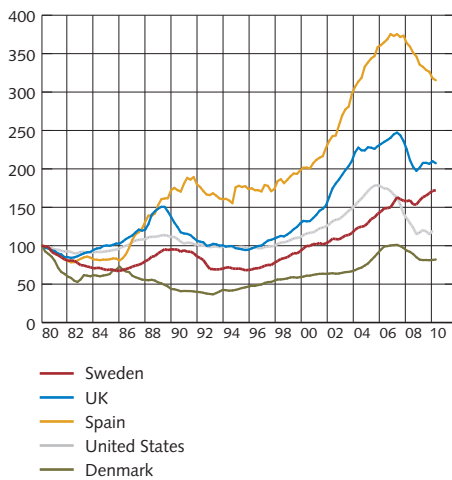
**Chart 2:3. Real house prices**  
Index, 1995 Q1 = 100



Note. Data for housing prices in the United States to end of Q2 2010.

Sources: Reuters Ecowin and Statistics Sweden

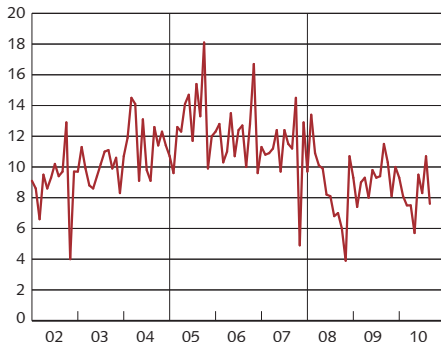
**Diagram 2:4. Real house prices**  
Index, 1980 Q1 = 100



Note. Data for housing prices in the United States to end of Q2 2010.

Sources: Reuters Ecowin and Statistics Sweden

**Chart 2:5. Household borrowing**  
Monthly change in per cent calculated as an annual rate



Source: The Riksbank

**Household indebtedness is continuing to increase at a rate that exceeds the rate of growth in incomes.** It is thus the case that neither the announced repo rate increases nor Finansinspektionen's general guidelines on the maximum permitted loan-to-value ratio have yet had any discernible impact on the credit growth that is evident in statistical data (see Chart 2:5). Housing prices are also developing strongly and it is difficult to see any signs of a slowdown, although there are of course regional differences (see Charts 2:6 and 2:7).

**Some of the new loans taken using housing as collateral have been used for consumption or to invest in financial instruments.<sup>22</sup>**

However, it is often difficult, using data from the National Accounts and the Financial Accounts, to estimate how large a proportion of the lending with housing as collateral is used for purposes that are not housing related and what these purposes are. It is also probable that loans of this type have increased since the crisis in 2008 (see Chart 2:8), which is the same pattern that can be observed in the UK and Australia. At the same time, the saving ratio has risen since the start of the crisis (see Chart 2:9), which indicates that a proportion of the loans has been invested. There are, however, a number of possible sources of error in the data which make the estimate uncertain. For example, the renovation work done in tenant-owned apartments is not included in the figures for housing investment, which means that the withdrawal value is overestimated. Nor is corporate investment in rental property included, which means that the withdrawal value is underestimated.

**In general, the Swedish households are well able to service their debts.** This is revealed by a series of surveys based on micro data on individual households' balance sheets conducted by both Finansinspektionen and the Riksbank.<sup>23</sup> This conclusion applies to the households as a whole and to the borrowers who have recently taken loans from Swedish banks. Although the focus is often on the households' debts, it is important to remember that the households also have considerable assets and high savings in proportion to income (see Chart 2:9). In mid-2010, the total value of the households' real and financial assets amounted to over 500 per cent of their disposable incomes, while the households' debts amounted to 170 per cent of their disposable incomes. Although the buffer is large, assets might decline in value while debt remains unchanged.

<sup>22</sup> Loans that are taken against housing as collateral but that are used for purposes other than investing in housing are usually referred to as Mortgage Equity Withdrawal (MEW) or Housing Equity Withdrawal (HEW). See Reserve Bank of Australia (2003) Bulletin, 2003:2, "Housing Equity Withdrawal" for a more detailed conceptual description of this phenomenon.

<sup>23</sup> See Finansinspektionen (2010), "The Swedish mortgage market and bank lending", February and Sveriges riksbank (2009), "Financial Stability Report 2009:2".



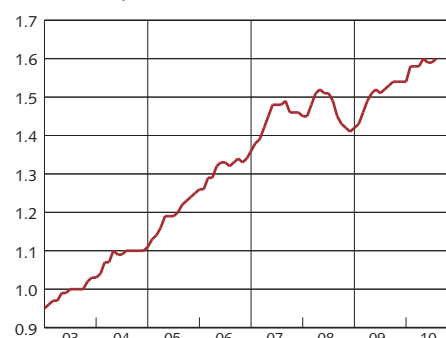
**At the same time, there are considerable differences in the level of indebtedness from household to household.** For example, the majority of the household sector's total debts are to be found at those households that have the highest level of leverage. The 20 per cent of households that have the largest debts in relation to the value of their assets are responsible for 60 per cent of the total debts of the household sector.<sup>24</sup> This means that if housing prices, which constitute the major part of the wealth of the households, were to fall, it is the households with the highest debts who would first risk ending up in a situation where the size of the debt would exceed the value of the property. However, the fact that households have loans that are higher than the value of their real assets does not necessarily constitute a credit risk as long their income can cover interest expenditures and amortisation payments. The heterogeneity of the households also plays a role in price formation as it is the households that take new loans and buy housing, the so-called marginal buyers, that influence prices most and these often have a higher level of leverage than average in relation to both incomes and assets.

**The households' demand for loans will decline in the period ahead.**

Historically, there has been a link, although with a certain time lag, between short-term mortgage rates and household credit growth (see Chart 2:10). This alone indicates that household borrowing will grow more slowly when the short-term mortgage rates increase. At the same time, there are other factors, for example the positive development of the labour market, that have the opposite effect. The overall assessment is therefore that household debt will continue to increase relatively quickly over the next few years, although at a slower rate than present (see Chart 2:11).

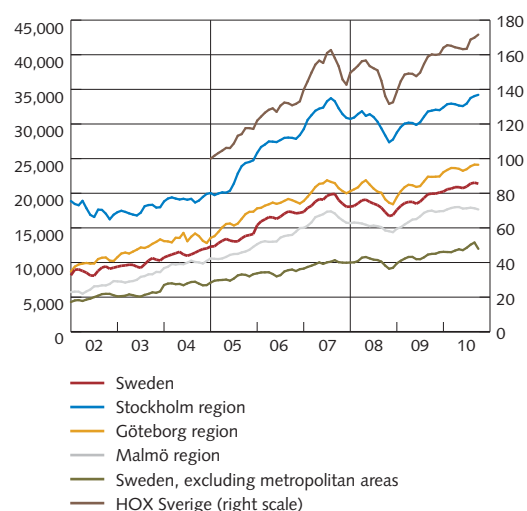
**There are many indications that the ability of the households to service their loans will remain high in the future.** Stress tests also show that those households that have the largest debts generally have two income earners. This, in combination with the social safety net, gives these households the possibility to service their loans even if interest rates were to increase substantially or if unemployment was to increase. However, a high degree of leverage entails clear economic risks for an individual household and there are households, for example those that are not covered by an unemployment insurance scheme, that may be hit hard by unemployment, illness or changed family circumstances.

**Chart 2:6. Prices of single-family dwellings**  
Purchase price coefficient



Source: Statistics Sweden

**Chart 2:7. Prices of tenant-owned apartments**  
Average price per square metre and index, January 2005 = 100

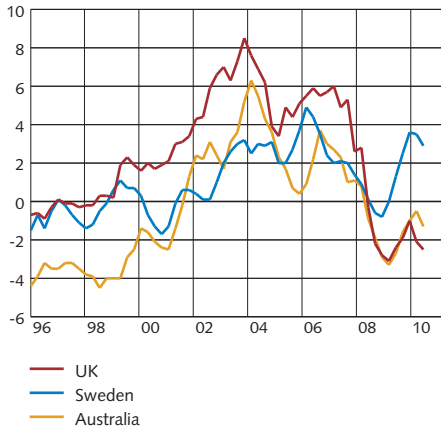


Note. HOX Sverige is an index based on a statistical model that compensates for the fact that different types of housing are sold during different periods. The index shows the overall development of the value of tenant-owned apartments in the 20 municipalities where the turnover is highest. For more information see [www.valueguard.se](http://www.valueguard.se)

Sources: Mäklarstatistik and Valueguard

24 According to the Riksbank's calculations based on 11 000 households from Statistic Sweden's cross-section survey HEK (Household Economy) in 2007.

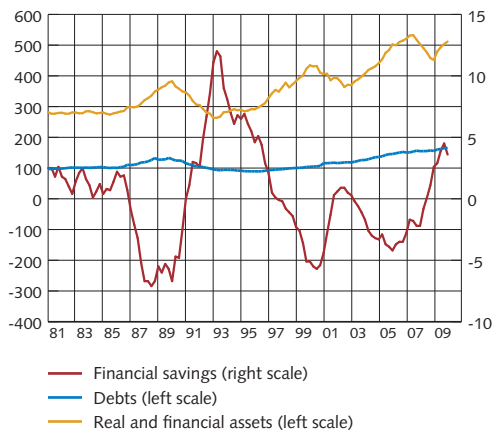
**Chart 2:8. Estimated proportion of mortgages used for non-housing related purposes as a percentage of disposable income**  
Per cent



Note. There are, however, a number of possible sources of error in the data which make the estimate very uncertain. For example, the renovation work done in tenant-owned apartments is not included in the figures for housing investment, which means that the value is overestimated, while the companies' investment in rental properties is included, which means that the value is underestimated. The calculations for the UK and Australia have been made by the central banks of these countries.

Sources: Bank of England, Statistics Sweden, Reserve Bank of Australia and the Riksbank

**Chart 2:9. Households' gross debts, assets and financial saving**  
Percentage of disposable income



Note. Saving excludes fixed-term pension saving.

Sources: Statistics Sweden and the Riksbank

## The Swedish corporate sector

**The economic recovery in Sweden has slowed down the reduction in the level of debt in the corporate sector.**<sup>25</sup> Since the first quarter of 2009, the companies total debts have fallen by SEK 222 billion, or 8 per cent, which above all has been due to a low propensity to invest and a need to adapt the level of debt to a lower level of economic activity (see Chart 2:12). However, the low interest rates have probably meant that the companies have not amortised their debts to the same extent that they would have done if interest rates had been more normal. The recovery of the economy has now increased the propensity to invest and thus the companies' need to increase their borrowing. This means that the companies' borrowing from credit institutions should recover already during the final quarter of this year, which is sooner than expected in the previous Financial Stability Report. The turnaround is primarily due to the fact that gross fixed capital formation will increase more than previously expected thanks to the strong recovery of the Swedish economy. The forecast for the growth of gross fixed capital formation in 2010 has been revised upwards from a figure of 2 per cent in the spring to 5.3 per cent at present.

**It is probable that the companies' need for market funding will also increase in the period ahead.** The percentage of market funding has already increased over the last 10 years, but given that it became increasingly difficult for the companies to get access to bank funding during the crisis it is likely that market funding will continue to increase. The cost of bank loans may also rise as a result of the Basel III regulations, which may also affect the companies' funding structure.

<sup>25</sup> This section generally analyses listed companies. However, borrowing from credit institutions refers to the borrowing activities of the entire corporate sector.

**As the economy has recovered it has also become easier for the companies to access funding.** Some difficulties still remain, however, and in the business tendency survey of the National Institute for Economic Research for November, 17 per cent of the companies interviewed stated that it was more difficult than normal to fund their operations. This percentage has fallen significantly since 2009 (see Chart 2:13). Approximately half of the companies said that access to bank loans had still not returned to normal. However, in the construction industry, which was the sector that found it most difficult to get funding during the crisis, the situation has improved considerably. The companies interviewed in the Riksbank's company survey also feel that funding has become more easily available.<sup>26</sup> In Almi's loan survey for the third quarter, the majority of the bank managers interviewed say that loan conditions have remained unchanged since the second quarter.

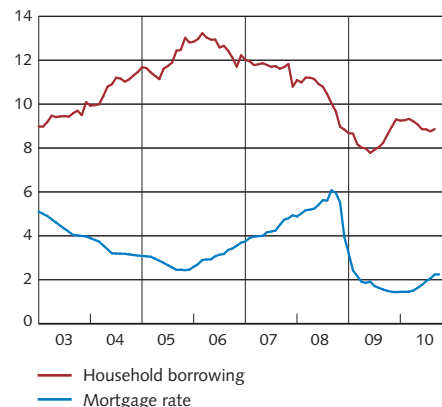
**The companies' ability to service their loans has improved recently.**

This is demonstrated by the fact that interest coverage ratios have continued to increase (see Chart 2:14). Companies can thus fund their loans through current earnings more easily. The improvement in the ability to service debt is above all due to the fact that interest rates are low, while profitability has only increased slightly and largely because the companies have cut their costs. The scope for further cost reductions is probably limited and in the period ahead it is important that the companies can also increase their sales in order to maintain profitability. However, the lower debt to total assets ratio (see Chart 2:15) and the higher current ratio will make it easier for the companies to handle increased borrowing costs in the future.

**The debt-servicing ability of the companies is expected to continue to improve as the economy recovers.**

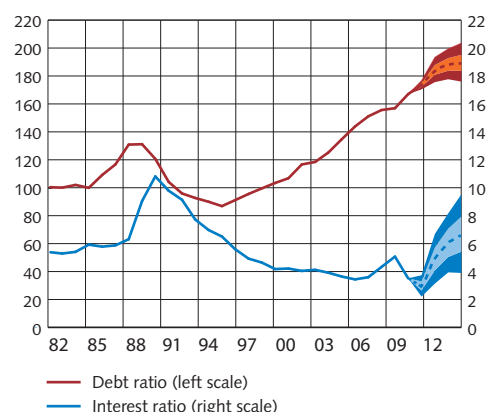
The number of bankruptcies has declined and is now approaching normal levels.<sup>27</sup> The number of payment orders has also continued to fall. This indicates that the number of bankruptcies will continue to fall in pace with the recovery. It is expected that the expected default frequency for listed companies will fall during the forecast period thanks to the recovery in combination with the relatively low interest rates (see Chart 2:16).

**Chart 2:10. Household borrowing from credit institutions and three-month mortgage rates**  
Annual percentage change and per cent



Source: The Riksbank

**Chart 2:11. Household debt and post-tax interest expenditure**  
Percentage of disposable income



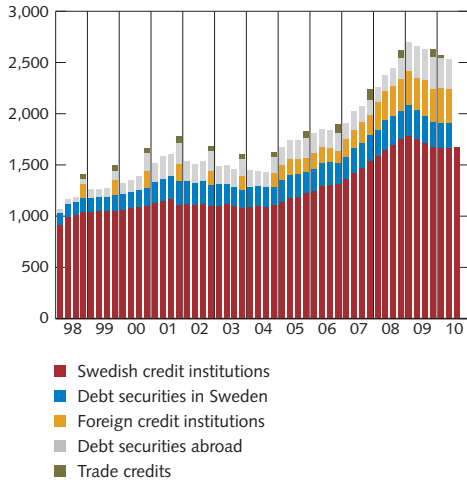
Note. The forecasts for household debt and household interest expenditure are produced using a stationary VAR model in which the change in disposable income and the three-month interest rate for a treasury bill are used as exogenous variables. The forecasts are produced under the assumption that the long-term rate of growth of household debt is 5 per cent per year.

Sources: Statistics Sweden and the Riksbank

26 The Riksbank's company survey is based on interviews with approximately 60 companies. The sample is not the same from survey to survey and is not representative of the business sector as a whole.

27 Refers to bankruptcies among all companies, not just listed companies.

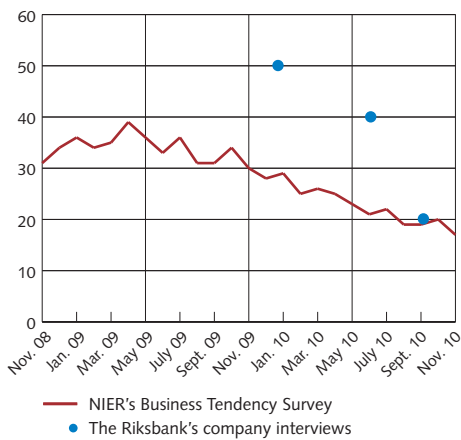
**Chart 2:12. Companies' borrowing from credit institutions and their securities funding**  
SEK billion



Note. Third quarter 2010 shows borrowing from domestic credit institutions

Source: The Riksbank

**Chart 2:13. Percentage of companies stating that it is more difficult than normal to fund the company's operations**  
Per cent



Sources: National Institute of Economic Research and the Riksbank

## The commercial property market and property companies

### THE OFFICE MARKET

#### Activity has continued to increase on the Swedish property market.

In the period January to September, the transaction volume amounted to approximately SEK 59 billion, which is more than the volume for the whole of 2009. Property purchases by international investors accounted for SEK 10 billion of this sum, which is also much higher than for 2009 as a whole. The transaction volume is, however, lower than in previous years (see Chart 2:17). The fact that more properties are being bought and sold is above all due to the continued improvement in access to funding at the same times as the economic recovery has been relatively strong in Sweden, which has once again aroused the interest of foreign investors.

#### The prices of office premises have begun to rise and this trend is expected to continue (see Chart 2:18).

The upturn in prices has above all been due to a reduction in yields. Investors are expected to continue purchasing properties to a greater extent which means that it is likely that yields will continue to decrease while prices will increase somewhat in the short and medium terms. There are also signs that average rents for modern office premises in attractive areas are increasing thanks to a high demand for renting such premises (see Chart 2:19). At the same time there is a shortage of these premises, which is also pushing up rents. Higher rents in the period ahead are expected to contribute to rising prices. However, the vacancy rate, that is the percentage of unlet premises, has not yet fallen in Stockholm.

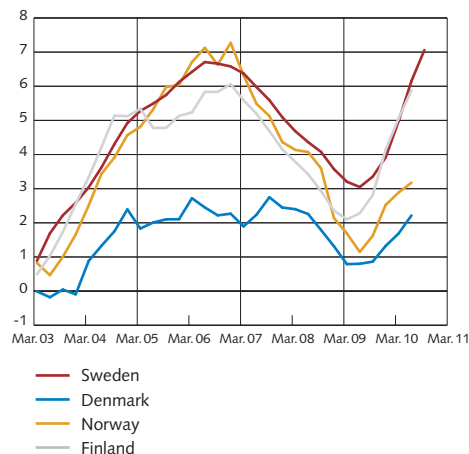
PROPERTY COMPANIES

**It appears that the property companies are funding an increasing share of their operations with corporate bonds.** The property companies' borrowing from the Swedish banks has slightly increased. An increasingly clear trend among the property companies is that they are to a greater extent using other types of funding than bank loans and equity. This has become apparent in that a number of property companies, including smaller companies, have issued bonds during the year.

**The property companies have large loans that need to be refinanced.**

The companies have loans amounting to SEK 500 billion that will need to be renewed over the next two years.<sup>28</sup> It appears that the loans that have fallen due so far have been extended, but large sums still remain. The loans for which there is the greatest risk that they will not be refinanced are high loan-to-value loans from foreign banks. If the global financial markets become more stressed, the property companies may find funding more difficult to get as well as more expensive. If, in addition, the economic recovery were to come to a halt, there is a risk that the earnings of the property companies would decline.

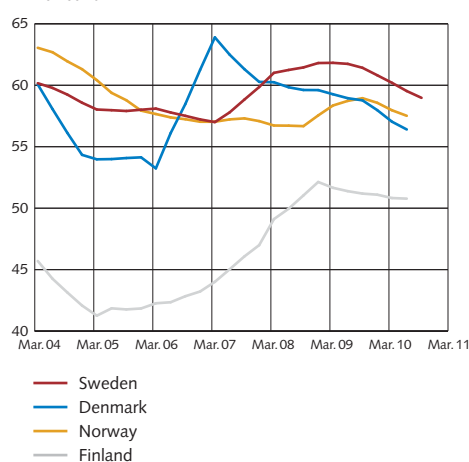
**Chart 2:14. Interest coverage ratio in Nordic listed companies**  
Ratio



Note. Interest coverage ratio is defined as operating profit/loss plus financial income in relation to financial costs.

Sources: Bloomberg and the Riksbank

**Chart 2:15. Debt/equity ratio for listed companies in the Nordic countries**  
Per cent

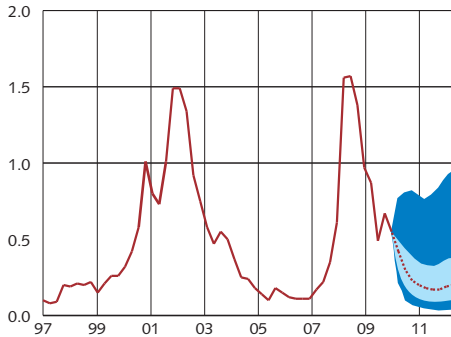


Note. Debt/total assets ratio is defined as total liabilities in relation to total assets. The ratio is calculated as an un-weighted average for each country's listed companies. The numbers of companies included are 116 in Denmark, 115 in Finland, 176 in Norway and 231 in Sweden.

Sources: Bloomberg and the Riksbank

28 See Fastighetsrapport (2010), "Den svenska obeståndsmarknaden", March. This also refers to non-listed property companies.

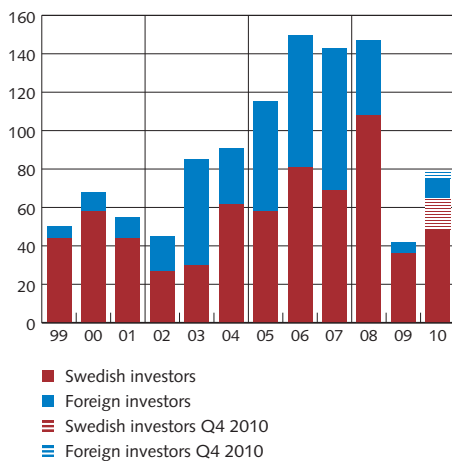
**Chart 2:16. Expected default frequency (EDF), outcome and forecast**  
Per cent



Note. Moody's KMV calculates the expected default frequency (EDF) for listed companies within one year. The EDF is calculated as the likelihood that the market value of the company's assets will be lower than the size of its debts when they fall due for payment.

Sources: Moody's KMV and the Riksbank

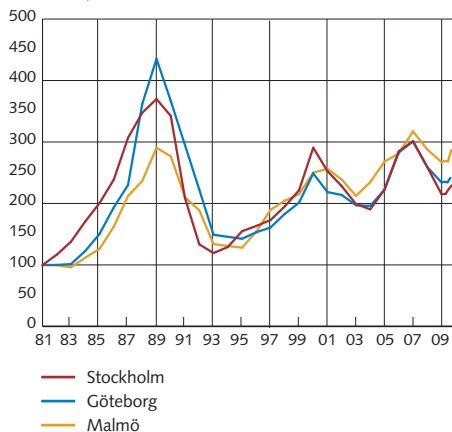
**Chart 2:17. Transaction volumes on the Swedish commercial property market**  
SEK billion



Note. The figure for Q4 2010 is an average of the transaction volumes in quarters 1 to 3.

Sources: Savills and the Riksbank

**Chart 2:18. Real prices of office premises in city centres**  
Index, 1981 = 100



Note. These values have been deflated by the CPI.

Sources: Newsec and the Riksbank

## The Swedish banking groups' borrowers abroad

### THE NORDIC COUNTRIES AND GERMANY

**Companies in the other Nordic countries have begun to borrow again and borrowing is expected to increase more rapidly as economic activity improves.** So far, the trend is somewhat different from the situation in Sweden where corporate borrowing has not yet increased (see Chart 2:20). The fact that borrowing has begun to increase again is primarily due to the strong economic recovery in these countries and to an increasing need to invest on the part of the companies, but also to a further easing of credit terms and conditions. Lending to companies is also expected to increase in Denmark,<sup>29</sup> despite the fact that the credit risk is still high in the Danish corporate sector.

**Household borrowing has continued to increase throughout the Nordic countries, but development is expected to be more fragmented in the period ahead** (see Chart 2:21). Borrowing has increased most rapidly in Sweden, followed by Norway. In both of these countries, a large proportion of the loans has also been used to purchase housing and housing prices have increased (see Chart 2:22). Low interest costs and rising disposable incomes have contributed to this development.<sup>30</sup> In Norway, borrowing has declined recently and the rate of increase in housing prices has slowed down, which may be an effect of the leverage ceiling introduced by the Norwegian supervisory authorities. This indicates that household borrowing in Norway may decline in the period ahead. In Denmark, household borrowing has increased at a slower rate, which can largely be explained by the earlier downturn on the housing market. Between 2007 and 2010, house prices in Denmark fell by approximately 20 per cent. These have now stabilised but it is expected to take a while before house prices increase again, despite the fact that the level of new construction is low. There is a large supply of existing houses for sale, which together with higher interest rates in the period ahead, is helping to keep housing prices down.<sup>31</sup> This indicates that household borrowing will increase moderately in the period ahead.

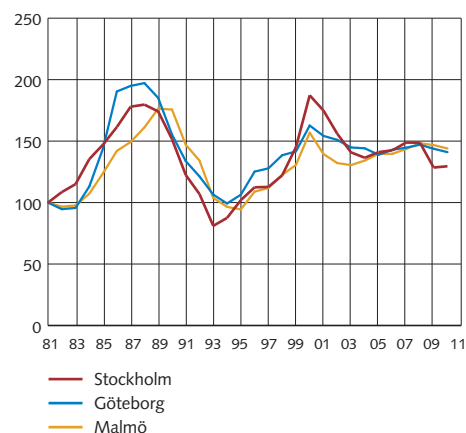
29 See Danmarks Nationalbank (2010), "Nationalbankens udlånsundersøgelse 3. kvartal", October.

30 See Norges Bank (2010), "Financial Stability 1/10", May.

31 See Danmarks Nationalbank (2010), "Kvartalsoversigt 3. kvartal", September.

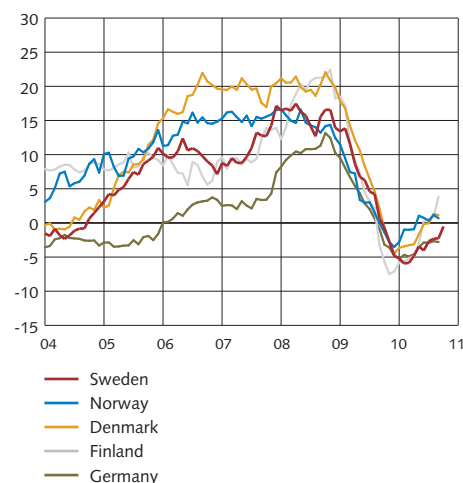
**In Denmark, the debt-servicing ability of the borrowers has been weaker than in the other Nordic countries.** In contrast to the other countries, bankruptcies have continued to increase among the Danish companies, primarily in the construction, agricultural and property sectors (see Chart 2:23). The recovery of the economy has been more prolonged as a result of the downturn on the housing market. At the same time interest rates in Denmark have been higher than in the other Nordic countries as the Danish central bank was forced to raise the policy rate during the crisis to maintain the fixed exchange rate against the euro. The creditworthiness of the Danish households has also weakened as a consequence of the downturn on the housing market. This in turn meant that the Danish banks suffered higher loan losses in their lending to households in 2009 (see Chart 2:24). The fall in house prices has also entailed a substantial fall in the value of the real wealth of the Danish households, which has led to a steady decline in household consumption.<sup>32</sup> In the slightly longer term, unemployment is expected to decrease and the disposable incomes of the households to increase, which indicates that the ability to service debts will improve in the period ahead.<sup>33</sup>

**Chart 2:19. Real rents of office premises in city centres**  
Index, 1981 =100



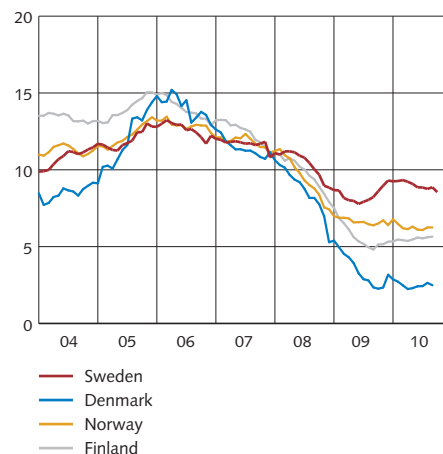
Note. These values have been deflated by the CPI.  
Sources: Newsec and the Riksbank

**Chart 2:20. Corporate borrowing**  
Annual percentage change



Sources: The ECB and national statistics agencies

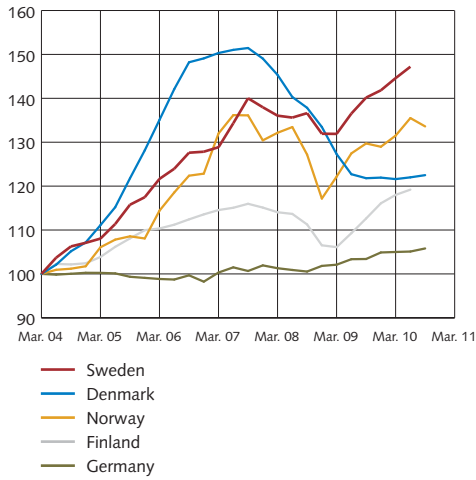
**Chart 2:21. Household borrowing**  
Annual percentage change



Sources: The ECB and national statistics agencies

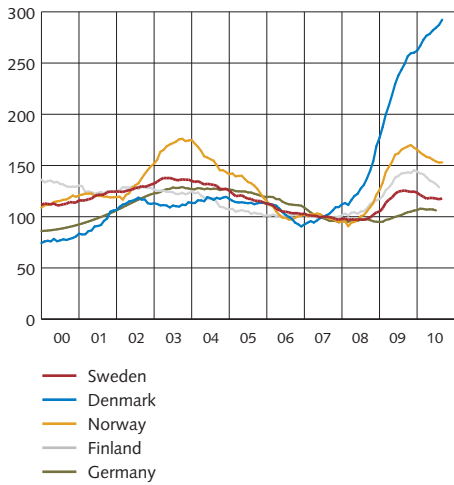
32 See Danmarks Nationalbank (2009), "Monetary Review 4th Quarter", January.  
33 See Danmarks Nationalbank (2010), "Kvartalsoversigt 3. kvartal", September.

**Chart 2:22. Real house prices**  
Index, March 2004 = 100



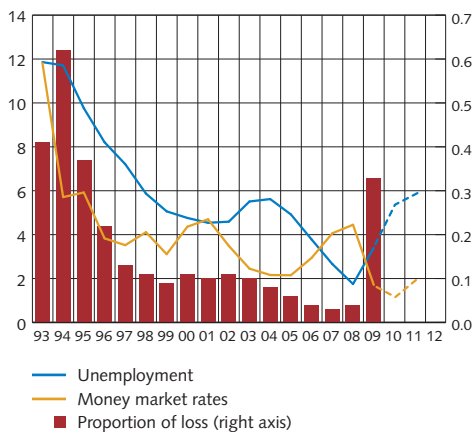
Sources: Bank for International Settlements, Reuters EcoWin and the Riksbank

**Chart 2:23. Corporate defaults**  
Twelve-month moving average, index, average 2007 = 100



Sources: National statistics agencies and the Riksbank

**Chart 2:24. Proportion of banks' loan losses attributable to households, unemployment and money market rates**  
Per cent



Source: Danmarks Nationalbank

THE BALTIC COUNTRIES

**The situation in the Baltic countries has improved and confidence in the economies has begun to return.** In Estonia, the introduction of the euro at the turn of the year means that a major exchange-rate risk was eliminated in the banks' lending there. In Latvia, the governing coalition won a majority in the general election in the autumn, which means that reforms and budget consolidation will probably continue in line with the loan agreement with international lenders. In addition, banks that have operations in the three countries have already taken large loan losses, which reduces uncertainty about the state of the financial sector. As economic activity in Europe increased, exports and GDP increased again in all three Baltic countries (see Chart 2:25). It also appears that the downturn in domestic demand has bottomed out, although it is still under pressure from high unemployment and falling wages (see Charts 2:26). The current account surplus has declined recently despite export growth (see Chart 2:27). This is because imports have also increased in recent months.

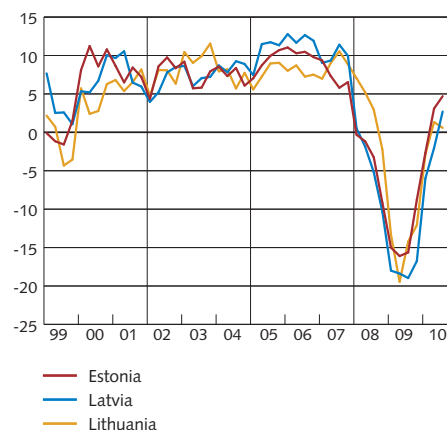
**The internal devaluations have continued and competitiveness has therefore improved.** Although wages and prices have increased again recently, the real exchange rate has nevertheless continued to depreciate (see Chart 2:28). This may partly be because the euro, which the Baltic currencies are tied to, depreciated during the summer. However, the real exchange rates are still at approximately the same level as before the crisis.



**The recovery is expected to continue.** However, it will probably take some time for the countries to make up the major production losses of recent years. Exports from the Baltic countries are expected to continue to increase in pace with the improvement in economic activity around the world. These expectations are also reflected in the optimism about the future that can now be discerned in the manufacturing industry. However, confidence about the future is not as high in sectors that are dependent on domestic demand, which is expected to remain weak for some time to come. But, if export growth in the Baltic countries is to be sustainable, sectors exposed to competition must continue to grow and reforms must be implemented that strengthen potential growth. The production capacity of the Baltic countries for goods that are exposed to international competition is relatively low as a substantial part of the investments made prior to the crisis went mainly to the service sector and to property.<sup>34</sup>

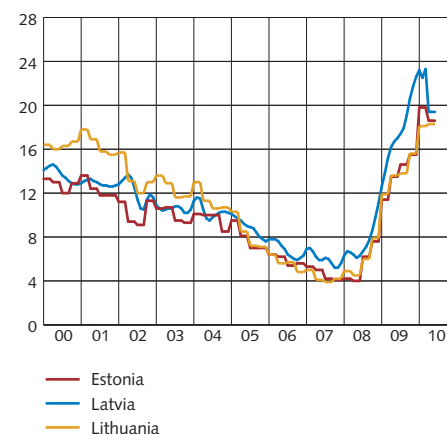
**However, the recovery may come to a halt as a result of the recent unease on the European financial markets.** If the economic recovery in Europe slows down, this could affect already vulnerable countries, such as the Baltic countries, that are particularly dependent on exports for their recovery and whose exports largely go to other European countries (see Table 2:1). A recovery based on exports also presupposes that the internal devaluation processes are completed. Internal devaluation is, however, a long, drawn-out process and it takes to restore competitiveness. The fact that the real exchange rates remain at high levels suggest that there is scope for additional improvements.

**Chart 2:25. GDP**  
Annual percentage change



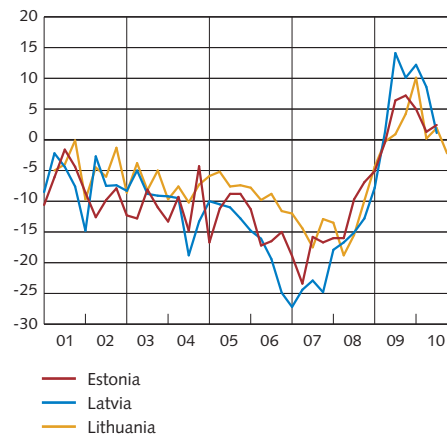
Source: Reuters EcoWin

**Chart 2:26. Unemployment**  
Per cent



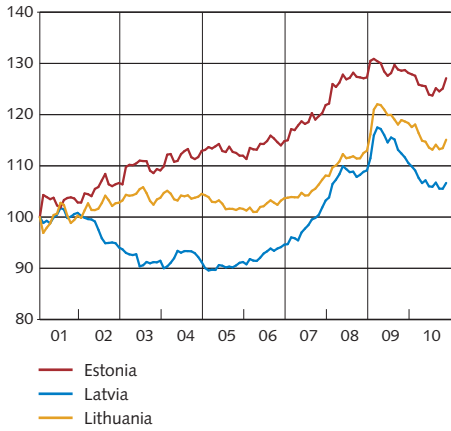
Source: Eurostat

**Chart 2:27. Current account**  
Percentage of GDP



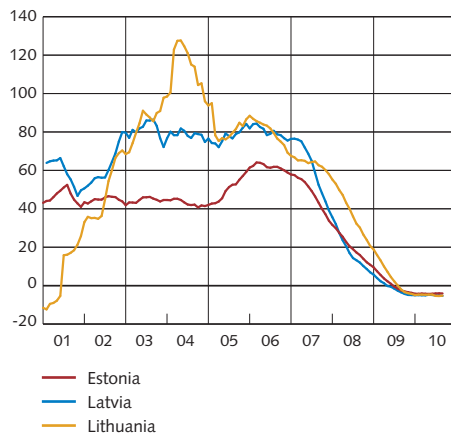
Source: Reuters EcoWin

<sup>34</sup> See for example Sveriges Riksbank (2010), Economic Review, "The role of the banking system in financial crises - a comparison between the Asian crisis and the crisis in the Baltic countries", that will be published in December.

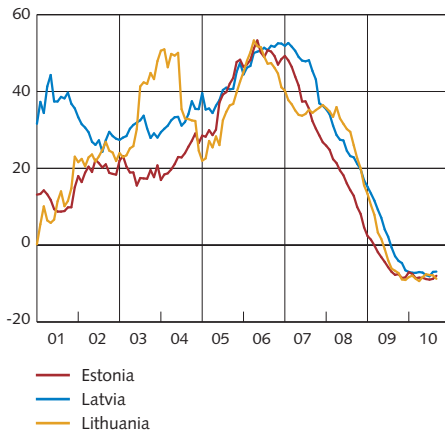
**Chart 2:28. Real exchange rates**  
Index, 2000 = 100

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

Source: Bank for International Settlements

**Chart 2:29. Household borrowing**  
Annual percentage change

Source: Reuters EcoWin

**Chart 2:30. Corporate borrowing**  
Annual percentage change

Source: Reuters EcoWin

**Table 2:1. Exports in the Baltic countries**  
Percentage of total exports, 2009

Estonia	Latvia	Lithuania
Finland (18)	Lithuania (16)	Russia (17)
Sweden (14)	Estonia (14)	Latvia (11)
Russia (9)	Russia (9)	Germany (10)
Latvia (9)	Germany (9)	Poland (8)
Germany (5)	Sweden (6)	Estonia (5)

Note. The table shows the Baltic countries' largest export markets and how large a proportion of total exports goes to these countries.

Sources: National statistics agencies

**Further cuts in public spending will affect domestic demand.** It is above all in Latvia and Lithuania that there is a need to continue consolidating central government budgets if the countries are to be able to achieve the Maastricht requirement of a budget deficit of three per cent of GDP by 2012 and to be able to introduce the euro in 2014 as planned. In Latvia, the budget deficit is expected to reach 8.1 per cent in 2010.<sup>35</sup> Further substantial cuts are therefore to be expected. The deficit in Latvia has been financed with the help of the emergency loan from the IMF and the EU, which will mature in December 2011. Lithuania, on the other hand, has been able to finance the deficit in the central government budget by borrowing on the international capital markets.

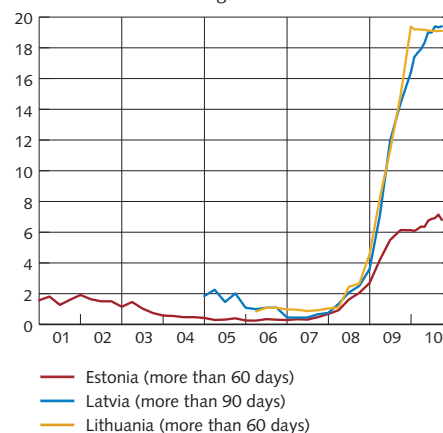
**Corporate and household borrowing have continued to fall and this trend is expected to continue, although at a slower rate than previously** (see Charts 2:29 and 2:30). A high debt burden, few profitable investment projects and high unemployment mean that the demand for loans is weak. The borrowers' high credit risk also means that the banks are restrictive in their lending. The demand for loans is not expected to increase again until the economic recovery has gained a stronger foothold and domestic demand has strengthened. The borrowers are also exposed to a foreign exchange risk as a large part of the loans are in foreign currencies, mainly euro, while the borrowers' incomes are mainly in domestic currencies. This risk was eliminated in Estonia, however, when the country joins the EMU at the turn of the year.

**The banks may become more restrictive in their lending to households as a result of proposed legislation on debt restructuring.** In order to make it easier for the households to manage the high level of indebtedness, the Estonian and Latvian parliaments have approved a law that will make it possible for mortgage borrowers to demand a write down of the value of certain parts of the debt or an extension of the amortisation period. Similar legislation is also being discussed in Lithuania. Although the possibility to write off debts in this way may make things easier for borrowers at the time, it may affect the willingness of lenders to grant loans to households in the future.

35 See IMF (2010), "Public information notice", no 10/104.

**The creditworthiness of the Baltic borrowers is still weak and is expected to remain so for some time to come.** The percentage of late payments has continued to increase in all three countries (see Chart 2:31). One explanation of this is that an increasing number of people no longer qualify for payments from the unemployment funds. In Estonia and Latvia, the household sector accounts for approximately 40 per cent of the late payments. Among the companies it is still primarily property and construction companies that find it most difficult to service their loans, which is a reflection of the weak property market. However, the property market has stabilised in recent months and prices have even risen somewhat in Estonia (see Chart 2:32). Despite the difficulties, the borrowers' debt-servicing ability is being supported by the continued low interest rates. Debt-servicing ability is expected to remain weak until the economic recovery gains a stronger foothold.

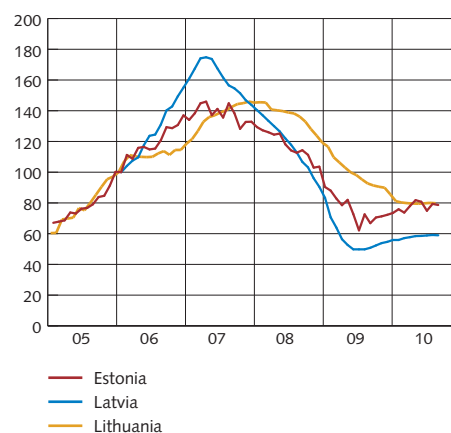
**Chart 2:31. Late payments**  
Per cent of outstanding loans



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

**Chart 2:32. Apartment prices**  
Index, January 2006 = 100



Note. Refers to average prices per square metre. Definitions may differ from country to country and comparisons between countries should therefore only be made with caution.

Sources: Latio, Ober Haus, Arco Real Estate Land Board and Lietuvos Bankas



### 3. Developments at the banking groups

The loan losses of the Swedish banks have continued to fall as a result of the economic recovery and all four of the major banks are relatively well-capitalised. During the autumn, as the situation on the financial markets has improved, the Riksbank has phased out the final extraordinary loans that it made available during the crisis. Despite some initial turbulence on the money markets, this phase-out has gone well. However, the fact remains that the Swedish banks' dependence on market funding makes them vulnerable to disruptions on the financial markets. This applies above all to that part of the banks' short-term wholesale funding that is in foreign currencies.

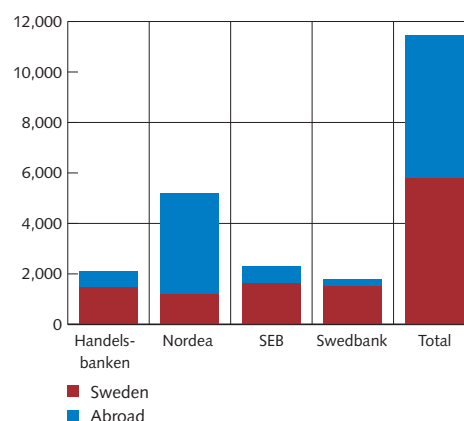
The Swedish banking sector is dominated by the four major banks Handelsbanken, Nordea, SEB and Swedbank. Together, they account for three-quarters of the deposits from and loans to the Swedish public. This means that these banks play a decisive role with regard to the supply of credit and other important functions in the Swedish financial system. But a significant part of the major banks' operations are abroad (see Chart 3:1). The Riksbank's analysis therefore covers the banking groups, which include both Swedish and foreign branches and subsidiaries.<sup>36</sup>

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

#### EARNINGS AND PROFITABILITY

**The bank's operating profit, that is profits before loan losses, continued to decline during the reporting period<sup>37</sup>** (see Chart 3:2). The main reason for this is that both net interest income and net commission income have fallen. Profitability, measured as return on equity, amounted to just over 8 per cent, which can be compared with an average of approximately 14 per cent over the last 10 years. This substantial deviation from the historical average is due to relatively high loan losses.

**Chart 3:1. The total assets of the major Swedish banks in Sweden and abroad, September 2010**  
SEK billion



Sources: Bank reports and the Riksbank

**Chart 3:2. Profit before loan losses and loan losses in the major Swedish banks**  
Totalled over four quarters, SEK billion, fixed prices September 2010

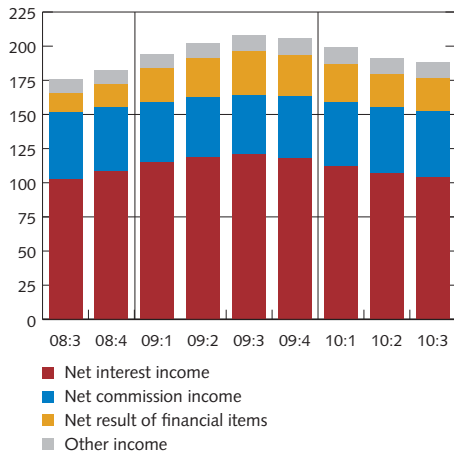


Sources: Bank reports and the Riksbank

<sup>36</sup> Hereinafter, the term Swedish banks refers to the Handelsbanken, Nordea, SEB and Swedbank banking groups unless stated otherwise.

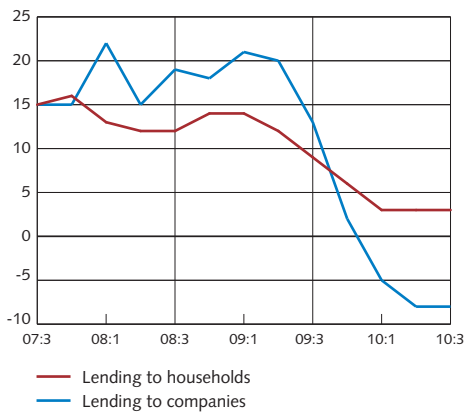
<sup>37</sup> The reporting period comprises the latest four-quarters running to the end of the third quarter 2010. Unless stated otherwise, comparisons are made with the preceding four-quarters. The figures are adjusted for one-off effects.

**Chart 3:3. The banks' revenues**  
Rolling four quarters, SEK billion



Sources: Bank reports and the Riksbank

**Chart 3:4. Annual lending growth at the major Swedish banks**  
Per cent



Sources: Bank reports and the Riksbank

**The revenues of the major banks have declined over the last four quarters** (see Chart 3:3). It is above all net interest income, that is the difference between interest income and interest costs, that has fallen. The major income items are the net interest income and the net commission income, which is the difference between income and costs for various services and products. Together they account for approximately 80 per cent of the bank's total income.

**The low interest rates in combination with reduced lending have continued to put pressure on net interest income.** The banks' lending has declined since the third quarter of 2009. It is mainly lending to companies that has declined, while lending to Swedish households has increased (see Chart 3:4). At the same time as lending has fallen, the low interest rate has meant that the banks have earned less on deposits due to shrinking deposit margins.<sup>38</sup>

**The lending margin for Swedish mortgages has been relatively stable since the summer of 2009** (see Chart 3:5). At present, the banks' margins are at the same level as the historical average measured from 2002. The lending margins decreased during the crisis in the autumn of 2008. Unease on the financial markets in connection with the collapse of the investment bank Lehman Brothers led to a substantial increase in the funding costs of the banks, but lending rates did not increase to the same extent. However, funding costs have fallen in pace with the decline in the credit and liquidity risks for the banks. The banks' funding has therefore become less expensive and the margins have recovered from the levels that prevailed during the crisis.

<sup>38</sup> 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. As the banks do not set the deposit rate below zero, a low short-term investment rate for the banks entails lower deposit margins. The lending margin refers to the difference between the banks' average funding costs and average lending rate.

**Net commission income increased at the end of the reporting period as the income from securities trading and securities management increased.** Approximately half of net commission income relates to securities (see Chart 3:6). A higher turnover in securities has increased brokerage income and higher share prices have helped to increase income from management operations. Other forms of commission income, such as payment charges, are also increasing in pace with the improvement in economic activity.

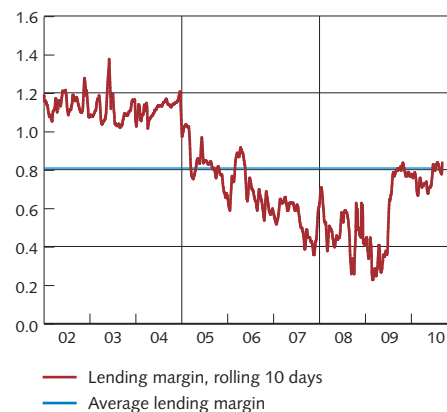
#### LENDING AND CREDIT RISK

**The credit risk is the greatest risk on the asset side for the major Swedish banks.** This is because lending to the public accounts for 60 per cent of the assets (see Chart 3:7). The banks also have assets that are exposed to market risk, such as interest-bearing securities, but these constitute a much smaller component of the 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. A relatively small proportion of Nordea's lending is in Sweden, while a much larger proportion takes place in the other Nordic countries compared to the other three banks (see Table 3:1). Swedbank and SEB are the two banks that, relatively speaking, have the largest proportion of their lending in the Baltic countries, but Nordea also has part of its lending in these countries. Swedbank's lending in the Baltic countries constitutes 12 per cent of the bank's total lending. The corresponding figure for SEB is 10 per cent and the figure for Nordea is 2 per cent. Table 3:2 presents the banks' exposures to different risk areas. Each exposure is listed in relation to core Tier 1 capital, which is the part of the capital that with certainty can be used to cover losses. Swedbank and SEB have relatively high exposures to the Baltic countries. A large proportion of Handelsbanken's lending is to the commercial property sector, while Nordea stands out in terms of its lending to the shipping sector. The Swedish banks' exposure to the so-called GIIPS<sup>39</sup> countries is limited.

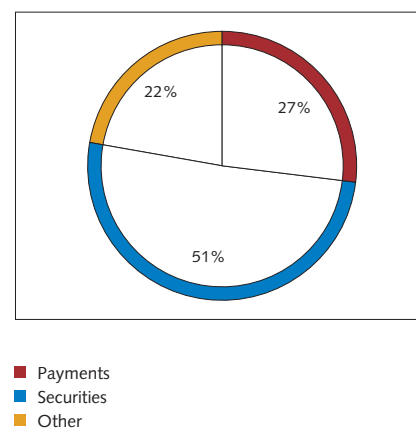
**Chart 3:5. The Swedish banks' margins on new mortgages in Sweden**  
Per cent



Note. The funding cost for a mortgage has been calculated by estimating the costs for each debt instrument and weighting these on the basis of the debt distribution in the Swedish banks' balance sheets. The costs do not include, for example, the costs of equity, expected loan losses or administrative charges. The lending rate is given as the list price; that is the rate before negotiations.

Sources: Bank reports and the Riksbank

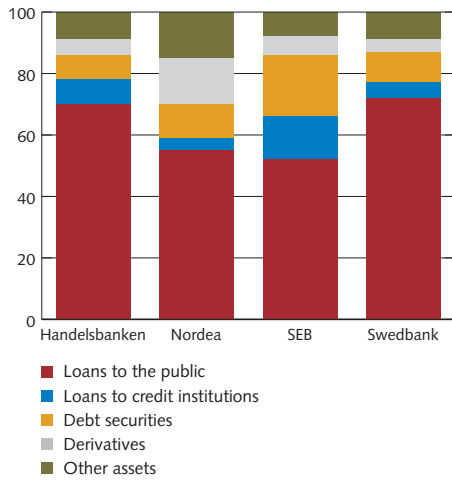
**Chart 3:6. The major Swedish banks' commission income per product area, September 2010**  
Per cent



Sources: Bank reports and the Riksbank

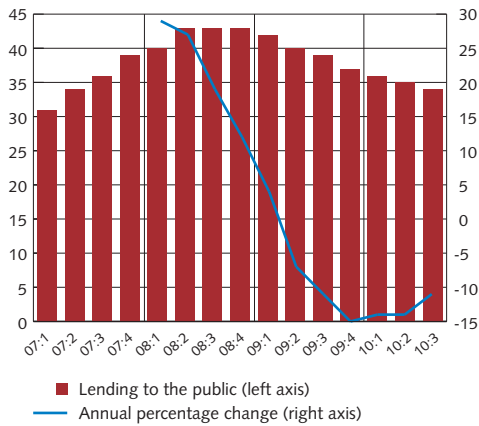
39 Greece, Ireland, Italy, Portugal and Spain.

**Chart 3:7. Distribution of total assets**  
Per cent, December 2009



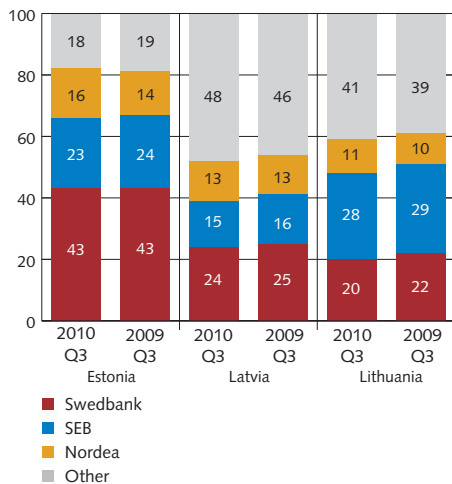
Sources: Bank reports and the Riksbank

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



Sources: Bank reports and the Riksbank

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



Sources: Bank reports and the Riksbank

**Table 3:1. The geographical distribution of the major banks' lending,**

**September 2010**

Percentage of lending to the public and SEK billion

	Handelsbanken	Nordea	SEB	Swedbank	Total
Sweden	68	24	61	84	50
Norway	12	15	2	<1	10
Denmark	3	23	1	<1	11
Finland	6	17	1	<1	9
Estonia	0	1	3	5	2
Latvia	0	1	2	3	1
Lithuania	0	1	4	3	2
Germany	1	<1	22	0	4
United Kingdom	5	<1	0	0	1
Eastern Europe, other	<1	3	0	1	2
Other countries	5	15	2	3	9
Loans to the public SEK billion	1,469	2,870	1,089	1,214	6,643

Note. "Eastern Europe, other" comprises Poland, Russia and Ukraine.

Sources: Bank reports and the Riksbank

**Table 3:2. The banks' lending exposed to risk areas in relation to core Tier 1 capital, September 2010**

Per cent and SEK billion within parentheses

	Handelsbanken	Nordea	SEB	Swedbank
Shipping	21 (15)	59 (102)	29 (25)	21 (16)
Commercial properties excl. lending in Baltic countries	467 (339)	213 (370)	120 (104)	180 (135)
Baltic countries	0 (0)	41 (71)	123 (106)	182 (136)
– of which commercial properties	0 (0)	6 (10)	24 (21)	27 (20)

Note. Lending to tenant-owner associations is not included in the risk area commercial properties.

Sources: Bank reports and the Riksbank

**The Swedish banks' lending to the public in the Baltic countries is continuing to decline** (see Chart 3:8). Compared to one year ago, lending, adjusted for exchange rate effects, has fallen by 11 per cent. In Estonia, lending has fallen by 7 per cent, in Latvia by 14 per cent and in Lithuania by 13 per cent. Part of this decline is due to some of the loans becoming loan losses, but the main reason is that the demand for loans has decreased as a result of the weaker economic situation in these countries. However, although the Swedish banks' lending has declined, there have not been any significant changes in their market shares (see Chart 3:9). The total lending of the Swedish banks in the Baltic countries amounts to SEK 312 billion. In Estonia, lending is SEK 119 billion, in Latvia SEK 90 billion and in Lithuania SEK 104 billion. As a result of the decline in lending, the loans that Swedish parent banks make to their subsidiary banks in the Baltic countries have also declined.



### Credit risk

#### Loan losses have continued to fall for the fifth consecutive quarter

(see Chart 3:10). Providing that economic development is not weaker than outlined in the Riksbank's main scenario, it can be said that loan losses peaked in June 2009. The fact that an increasing proportion of the loans losses is made up of write-offs and that recoveries and reversals are increasing is a natural development following a severe economic downturn. Total loan losses during the reporting period reached SEK 26 billion, of which SEK 13 billion are write-offs. This corresponds to a loan-loss level of 0.39 per cent. In the preceding reporting period, loan losses reached SEK 22 billion and the loan-loss level was 0.73 per cent.

#### Loan losses have fallen substantially in the Baltic countries

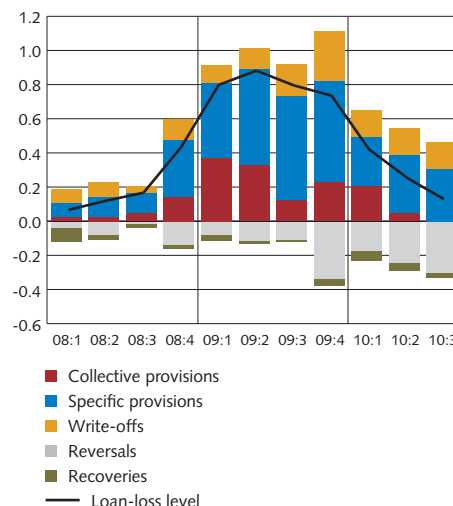
(see Chart 3:11). Loan losses stemming from the Baltic countries amounted to SEK 12 billion during the reporting period, which is almost half of the banks' total loan losses. For SEB, loan losses in the Baltic countries accounted for 76 per cent of the bank's total loan losses, while the corresponding figure for Swedbank was 82 per cent.

**The Swedish banks' provisions for loan losses in the Baltic countries are sufficient to cover expected losses relating to non-performing loans.** The proportion of non-performing loans in relation to lending as a whole is high in the Baltic countries (see Chapter 2). In the Riksbank's assessment, however, the Swedish banks have provisioned sufficient amounts to cover the loan losses that are expected to arise from the current stock of non-performing loans (see Chart 3:12).

#### Loan losses from corporate lending in Sweden and the other Nordic countries, with the exception of Denmark, have been lower than expected.

This is primarily because the low interest rates in combination with a high proportion of loans with a short fixed-rate period have had a greater impact on the companies' ability to pay than expected. In Sweden's case, the weak Swedish krona has also helped the export companies during the crisis. Many companies also had strong balance sheets when the crisis hit, and many companies also managed to quickly reduce their costs. The lessons learned during the Swedish bank crisis of the 1990s also helped to keep the loan losses low. 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. This easing of credit terms has often been conditional; in other words the owners have also been forced to inject capital and pledge additional collateral.

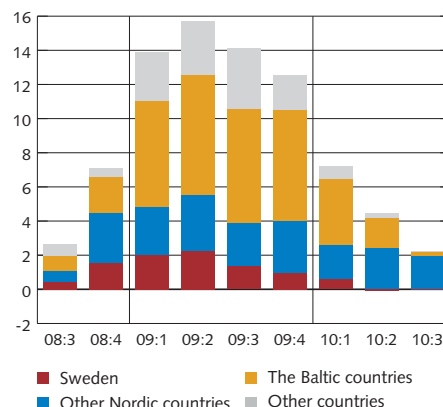
**Chart 3:10. The Swedish banks' loan losses per quarter**  
Percentage of lending at the start of the respective quarters



Note. Annualised data.

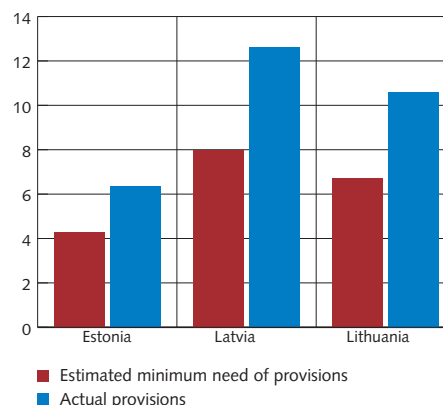
Sources: Bank reports and the Riksbank

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



Sources: Bank reports and the Riksbank

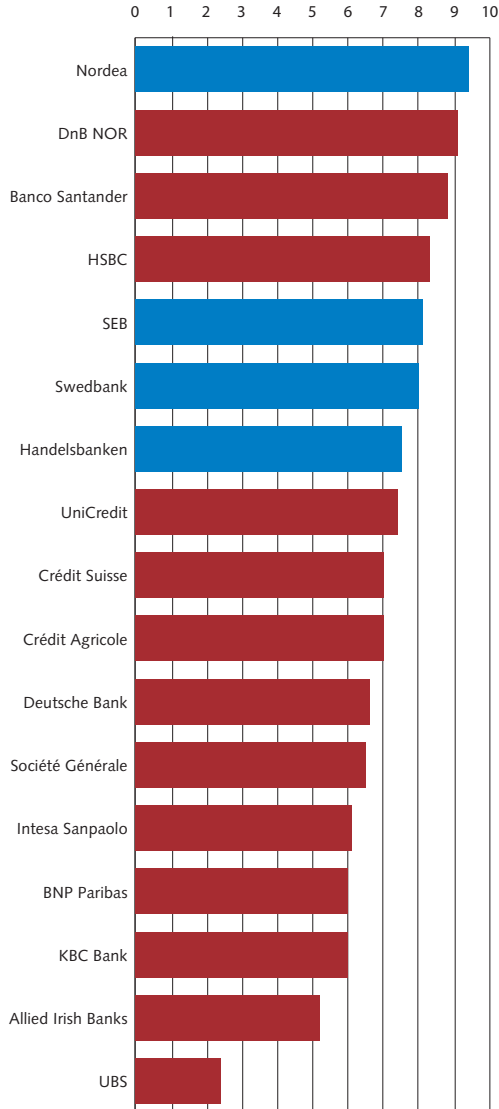
**Chart 3:12. The Swedish banks' estimated minimum need of provisions and actual provisions made for future loan losses in the Baltic countries**  
SEK billion



Note. Estimated minimum need of provisions on the basis of non-performing loans in the Baltic countries (see Chapter 2).

Sources: Eesti Pank, Financial and Capital Market Commission, Lietuvos Bankas, bank reports and the Riksbank

**Figure 3:13. Swedish and international banks' risk-adjusted capital ratios**  
Per cent



Note: Risk-adjusted capital ratios (RAC, Risk Adjusted Capital) according to Standard & Poor's where market risk has a higher capital requirement than under the Basel II regulations and lending to companies and households is on average allocated a higher risk weighting than in the banks' internal risk-classification models. See "Methodology And Assumptions: Risk-Adjusted Capital Framework for Financial Institutions", Standard & Poor's 21 April 2009.

Source: Standard & Poor's

### Capital

#### Swedish banks are well capitalised in an international comparison.

Chart 3:13 shows that the Swedish banks are among the best-capitalised banks according to the credit rating agency Standard & Poor's risk-adjusted capital adequacy measure. As the Swedish banks are highly dependent on market funding, a high level of capitalisation is particularly important to them. Apart from improving access to market funding, it also represents an adjustment to the approaching regulations from the Basel Committee on more and better capital.

#### All of the Swedish banks strengthened their Tier 1 capital ratios during the crisis.

Three of the four major banks have conducted rights issues since the autumn of 2008. Swedbank has conducted two issues totalling SEK 27.5 billion, SEB's issue amounted to SEK 15 billion and Nordea's to EUR 2.5 billion. In all of these issues, existing shareholders or private investors have injected capital. The banks have also cancelled or reduced dividends to their shareholders and reduced their risk-weighted assets. As a result, all the banks have Tier 1 capital ratios that exceed the statutory minimum of four per cent by a broad margin (see Table 3:3).

**Table 3:3. Changes in Tier 1 capital ratios**  
Per cent

	Handelsbanken	Nordea	SEB	Swedbank
Tier 1 capital ratio September 2008, Basel II	10.0	7.9	9.9	8.7
Rights issue	0.0	1.3	1.9	4.1
Hybrid capital	0.7	0.2	0.4	-0.2
Retained earnings	1.6	1.4	0.8	-0.3
Change in risk weighted assets	3.4	0.7	1.1	2.4
<b>Total change in Tier 1 capital ratio</b>	<b>5.7</b>	<b>3.6</b>	<b>4.3</b>	<b>6.0</b>
Tier 1 capital ratio September 2010, Basel II	15.7	11.5	14.2	14.7
Tier 1 capital ratio September 2010, transitional rule	9.2	10.1	12.7	10.8

Note: Full application of Basel II will begin in January 2012 at the earliest. Until then, transitional rules will apply under which the risk-weighted assets must correspond to at least 80 per cent of the risk-weighted assets under Basel I.

Sources: Bank reports and the Riksbank

#### Low risk weightings for Swedish mortgages are one reason why the Swedish banks' Tier 1 capital ratios are high.

Under the Basel II regulations, which will be fully implemented in 2012 at the earliest, the banks will be required to hold much less capital than under previous regulations to grant mortgages. In order to be allowed to lend SEK 1 million, a bank will need at least SEK 2,800 in capital under the Basel II regulations, while under the present transitional rules a bank needs capital of at least SEK 16,000 (see table 3:4). The major difference is that under Basel II the banks will be able to use their

own internal risk models that are based on historical data on credit risk. These models provide very low risk weights compared to the prevailing transitional rules. This also means that the profitability of the banks (measured as return on equity) with regard to mortgages will be much higher under Basel II than under the current transitional rules. The lower risk weights under Basel II will also mean that the Swedish banks will have a relatively large amount of capital in relation to risk-weighted assets but little capital in relation to total assets, that is also the case under the proposed Basel III rules (see the box on Basel III – effects on the Swedish banks and Sweden).

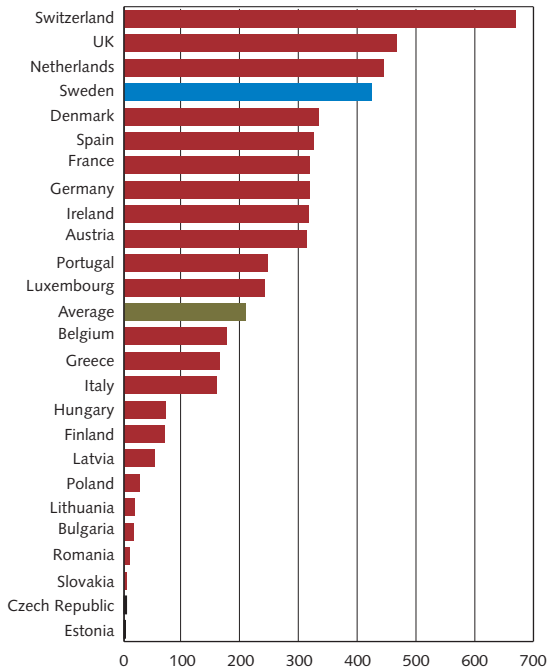
**Table 3:4. Example of how much capital the banks need to issue a mortgage**

		Transitional rules	Basel II
A	Loan	1,000,000	1,000,000
B	Risk weight	40%	7%
C	Regulatory minimum level Tier 1 ratio	4%	4%
D	Risk weighted amount (A * B)	400,000	70,000
E	Capital requirement (C * D)	16,000	2,800
		0	0
F	Tier 1 ratio (E/D)	4%	4%
G	Leverage ratio (E/A)	1.6%	0.3%

Note. The risk weighting in the transitional regulations is 80 per cent of the risk weighting that applied under the Basel I regulations, where the risk weighting for mortgages was a standard of 50 per cent. The risk weighting under Basel II is in accordance with the banks' internal calculations and amounts to approximately 7 per cent.

Sources: Bank reports and the Riksbank

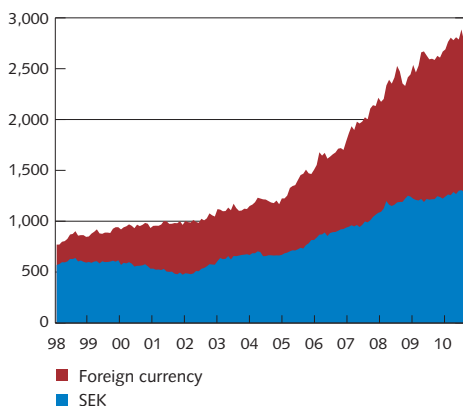
**Chart 3:14. Bank assets in relation to GDP in the respective countries, 2009**  
Per cent



Note. A country's 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 Cr dit Suisse contribute to Switzerland's relatively large banking sector in the same way.

Sources: The ECB, Swiss National Bank and the Riksbank

**Chart 3:15. The market funding of the major Swedish banks via Swedish parent and subsidiary companies in SEK and foreign currencies**  
SEK billion



Sources: Statistics Sweden and the Riksbank

### Funding

#### 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, which is well over the average for other European countries (see Chart 3:14). This is because half of the operations of the Swedish banks are abroad. A large part of the funding of the assets of the Swedish banking groups in foreign subsidiaries and branches is managed centrally by parent or subsidiary banks in Sweden. This funding has increased over time, both as a percentage of total funding and in absolute terms (see Chart 3:15). The main reason for this increase is that the foreign operations of the banks have grown. The large banking sector and centralised market funding place great demands on the Swedish authorities with regard to supervision and crisis management. The collapse of the Icelandic banking sector in 2008 is an example of how the combination of a large banking sector and central funding via parent banks can lead to serious problems for a country.

#### Half of the banks' funding consists of deposits and half of market funding (see Chart 3:16).

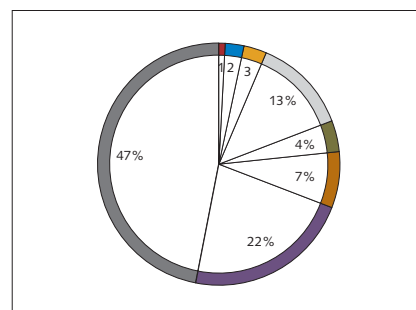
In total, the banks' funding amounts to SEK 7,100 billion. Market funding consists mainly of issued securities. Bonds (mainly covered bonds) account for the banks' long-term borrowing. Short-term market funding mainly consists of certificates in foreign currencies. Borrowing on the interbank market, which is primarily to be regarded as a means of balancing liquidity, is also a part of the short-term market borrowing. During the crisis, a small part of the normal market funding was replaced by loans from the Riksbank and government-guaranteed borrowing (see Chart 3:17). The extraordinary loans from the Riksbank have now been repaid and, although a number of securities with government guarantees are still outstanding, no bank is any longer a part of the government guarantee programme.

#### The Swedish banks' dependence on market funding is among the highest in Europe (see Chart 3:18).

The relation between lending and deposits shows how large part of lending must be funded by means other than deposits. The difference between lending and deposits, the so-called deposit deficit, is mainly funded using securities. At the end of the third quarter, the deposit deficit for the major Swedish banks amounted to SEK 3,400 billion (see Chart 3:19). Foreign banks in countries such as the UK and the United States also fund large parts of their operations by issuing securities. The difference is, however, that when these banks issue securities, the lending and the securities issued are usually removed from the banks' balance sheets via securitization. These banks are therefore also highly-dependent on market funding even though this is not fully apparent in Chart 3:18.

In order to fund their assets in Sweden, the Swedish banks convert part of their foreign market funding into Swedish kronor. A large proportion of the liabilities of the Swedish banks, equivalent to one and a half times Sweden's GDP, are in euros or US dollars (see Chart 3:20). The banks have more liabilities than assets in foreign currencies. The difference is equivalent to over SEK 600 billion (see Table 3:5). To avoid the undesirable effects of exchange rate fluctuations, the banks swap foreign currency for Swedish kronor to an amount equivalent to the difference of SEK 600 billion. The swaps are reversed when the time comes to pay the debt in foreign currency. The swaps are conducted on the swap market.<sup>40</sup> This market must work effectively if the Swedish banks are to be able to manage the risk that arises due to the currency differences between assets and liabilities.

Chart 3:16. The major Swedish banks' funding, September 2010  
Per cent

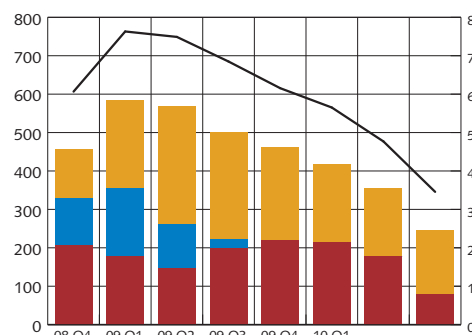


- Credit from the Riksbank
- Government-guaranteed borrowing via the SNDO
- Interbank, net
- Swedish covered bonds in SEK
- Swedish covered bonds in foreign currencies
- Foreign covered bonds
- Certificates and unsecured bonds
- Deposits

Note. The funding of the major banks amounts to approximately SEK 7,100 billion.

Sources: Bank reports and the Riksbank

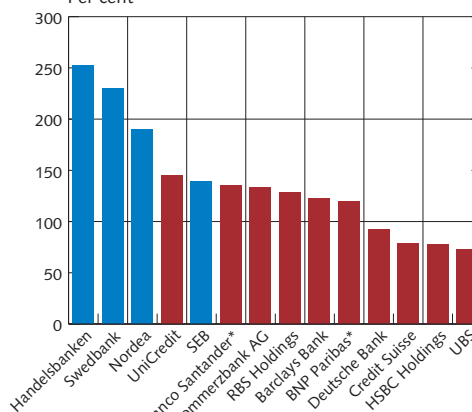
Chart 3:17. The major Swedish banks loans from the Riksbank and government-guaranteed borrowing  
Left axis: SEK billion Right axis: Percentage of the banks' total funding



- SEK loans from the Riksbank
- USD loans from the Riksbank
- Government-guaranteed borrowing via the Swedish National Debt Office
- Percentage of total funding

Sources: Bank reports and the Riksbank

Chart 3:18. Lending in relation to deposits, 2010  
Per cent

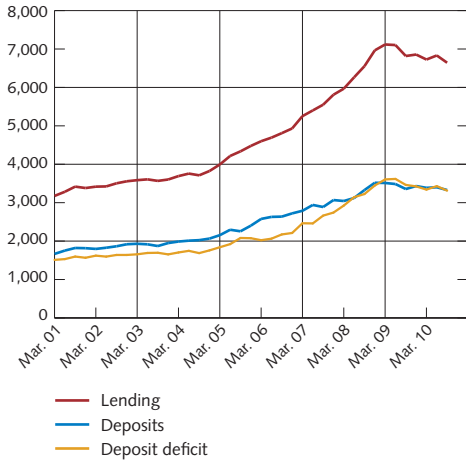


Note. Deposits and lending excluding repos.  
\* Data from 31 December 2009.

Sources: Liquidatum and the Riksbank

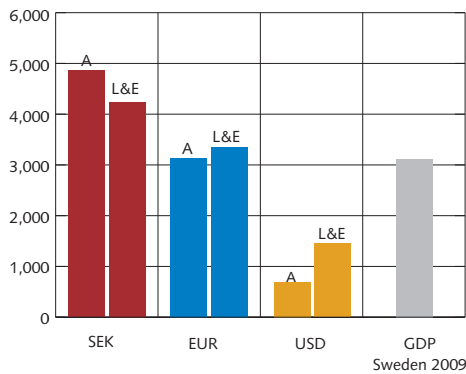
40 The banks use swaps with maturities less than one year (FX swaps) and swaps with maturities more than one year (cross-currency swaps).

**Chart 3:19. The major Swedish banks' deposits and lending**  
SEK billion



Note. Deposit deficit = lending – deposits.  
Sources: Bank reports and the Riksbank

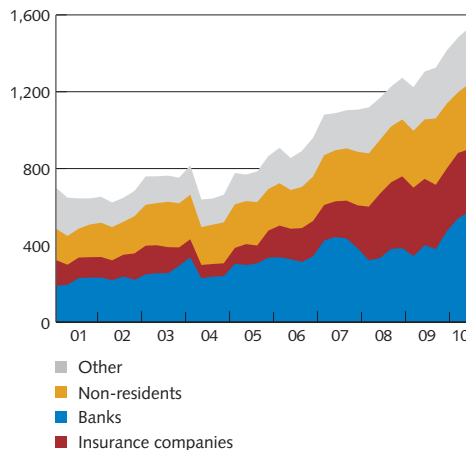
**Chart 3:20. The major Swedish banks assets and liabilities per currency, December 2009**  
SEK billion



A = Assets  
L&E = Liabilities and equity

Sources: Bank reports and the Riksbank

**Chart 3:21. Holders of Swedish covered bonds**  
SEK billions



Sources: Statistics Sweden and the Riksbank

**Table 3:5 The major banks' total assets, liabilities and equity, divided by currency**  
SEK billion

	SEK	Foreign currency	Sum
<b>Total assets</b>	<b>4 862</b>	<b>6 575</b>	<b>11 438</b>
<b>Liabilities and equity</b>	<b>4 237</b>	<b>7 201</b>	<b>11 438</b>
Difference between total assets and liabilities and equity	626	-626	

Sources: Bank reports and the Riksbank

**Foreign investors own a large proportion of the covered bonds issued by the banks.** Covered bonds from Swedish issuers amount to approximately SEK 1,500 billion. Of the outstanding stock of covered bonds, bonds for approximately SEK 500 billion are in foreign currency and bonds for approximately the same amount are held by foreign investors. (see Chart 3:21). Although the Swedish market for covered bonds functioned relatively well throughout the financial crisis, foreign investors reduced their holdings by approximately SEK 120 billion at the peak of the turbulence on the financial markets.<sup>41</sup> As foreign investors sold Swedish covered bonds, the prices of these bonds fell compared to those of government bonds. At the same time, the banks' holdings of covered bonds increased, partly because investors sold back bonds to the banks and partly because the banks issued bonds that they were forced to hold on to. The banks then used the covered bonds as collateral for the loans the Riksbank began to provide in October 2008. Part of the aim of the Riksbank's extraordinary loans was to replace the lost funding from foreign investors.

<sup>41</sup> Despite the severe strains the international bond markets have been subject to, the market for Swedish covered bonds remained open for trading throughout the crisis. Swedish banks were able to issue bonds on the primary market and market makers were willing to quote prices on the secondary market with a bid-offer spread that never exceeded 10 basis points.

## Basel III – effects on the Swedish banks and Sweden

**T**he new regulations for banks, Basel III, are now for the most part completed. The Riksbank has analysed how well the major Swedish banks comply with the requirements of the new banking regulations. The analysis shows that the Swedish banks already comply with the new capital requirements, but not completely with the new liquidity regulations. Among other consequences, the banks' non-compliance with the requirements of the liquidity regulations means that they will need to extend the maturity of their funding. In order to gain an understanding of the effects of Basel III, the Riksbank has estimated these in the same manner as international studies – on the basis of a hypothetical increase of the capital ratio by 1 percentage point or, alternatively, a hypothetical increase of the holding of liquid assets by 25 per cent. These increases only lead to minor increases of the lending spreads and decreases of lending volumes. The extent of these effects for Sweden is in line with the findings of international studies. The Riksbank has with the same method also estimated the effects on the basis of the Swedish banks' compliance with the requirements of Basel III. According to the Riksbank's calculations, lending rates may increase by up to 10 basis points when the banks increase their holdings of liquid assets in order to comply with the impending liquidity regulations. It should be added that one of the assumptions done in these calculations is that the banks will transfer all cost increases deriving from Basel III to their borrowers. If the banks instead decrease dividend payments to their shareholders, the increase in lending rates will not be so extensive. The overall assessment is that Basel III will only have a marginal effect on Sweden.

### *The new Basel III framework*

The financial crisis has demonstrated that the present regulatory framework for the banks, Basel II, is not satisfactorily capturing the risks

for the banks.<sup>B10</sup> Consequently, the Basel Committee has developed a new comprehensive framework, Basel III. The overall purpose of the new regulatory framework is to strengthen the banks' ability to withstand losses and reduce the probability of new financial crises. Basel III will mean that the banks will have to hold more capital of better quality and that entirely new requirements will be imposed regarding banks' liquidity. The different parts of Basel III will be introduced step by step over the coming years, starting in 2013 (see Table B1). However, for market reasons, the banks may be forced to comply with the new rules earlier.

### *The banks need more and better capital in Basel III*

Basel III imposes stricter requirements on the banks' capital in the following ways:

- Raising the common equity component of Tier 1 capital (CET1) in the minimum capital in comparison with Basel II (see Chart B6)
- The rules for what may be counted as capital are more stringent. For example, innovative hybrids will be phased out over a ten-year period from the start of 2013
- Capital will be adjusted, to a much greater extent, for assets with unreliable valuation or for assets whose value in a stress situation may be questioned. In Basel III, these adjustments shall be done in CET1. In the current regulation these adjustments is done in Tier 1 and Tier 2. In addition, the share of investments in financial institutions that may be included in CET1 will be limited.
- The rules for calculating risk-weighted assets are being tightened

In addition to the minimum capital requirement for conducting banking activities, Basel III includes the requirement for a capital conservation buffer of a further 2.5 percentage points. Altogether the banks will need to hold 7 per cent CET1 in relation to risk-weighted assets (see Chart B6). If a bank's capital falls below

B10 See also Sveriges Riksbank (2010), "Monetary Policy Report, 2010", October, a section on Basel III.

Table B1. Timetable for implementation of Basel III.

	2013	2014	2015	2016	2017	2018	2019
<b>CET1 requirement</b>	Gradual implementation 3.5%	Gradual implementation 4%	Final implementation 4.5%				
<b>Tier 1 capital</b>	Gradual implementation 4.5%	Gradual implementation 5.5%	Final implementation 6.0%				
<b>Total capital requirement</b>	Final implementation 8.0%						
<b>Capital conservation buffer</b>				Gradual implementation 0.625 %	Gradual implementation 1.25%	Gradual implementation 1.875%	Final implementation 2.5%
<b>Phasing in of new deductions from capital base</b>		Gradual implementation 20%	Gradual implementation 40%	Gradual implementation 60%	Gradual implementation 80%	Final implementation 100%	
<b>Leverage ratio</b>	Observation	Observation	Publication			Final implementation	
<b>Liquidity coverage ratio</b>	Observation	Observation	Final implementation				
<b>Net stable funding ratio</b>	Observation	Observation	Observation	Observation	Observation	Final implementation	

Note. The introduction of the counter-cyclical capital buffer and the phasing-out of innovative hybrids are not included in the table. CET1 is the common equity component of Tier 1 capital.

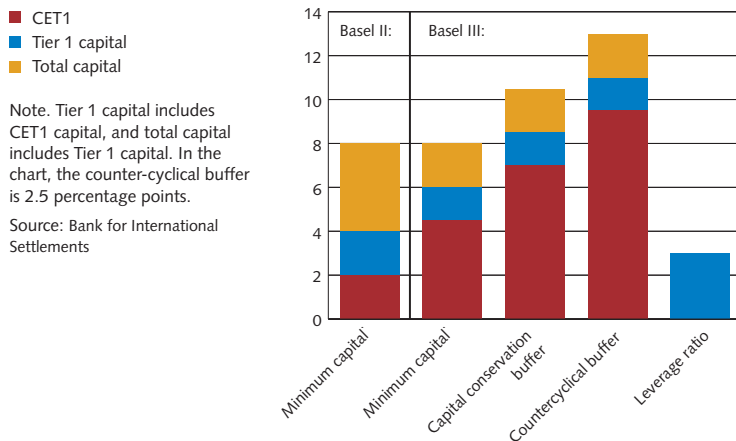
Source: Bank for International Settlements

the 7 per cent mark, among others, the bank's right to distribute dividends is restricted. The idea is to force the banks to accumulate part or all of their profits as capital, thereby building a buffer. In addition to the capital conservation buffer, national authorities can choose to add a counter-cyclical buffer. The size of the buffer can be between 0 and 2.5 percentage points.

A leverage ratio has been introduced in Basel III, in addition to the risk-weighted capital

requirement. This says that the banks must have Tier 1 capital in excess of 3 per cent of the total of the bank's assets and off-balance sheet commitments. Unlike the traditional capital requirements, the leverage ratio does not take the differences in risk-weighting between different assets into account. A limit is thereby set for how great a part of the banks' balance sheets may be debt funded. The leverage ratio will probably be introduced in 2018, and, from 2015, the banks will be obliged to publish their leverage ratio.

Chart B6. Capital requirement as a percentage of risk-weighted assets and leverage ratio in relation to the total assets and off-balance sheet commitments  
Per cent



#### The new liquidity rules in Basel III

Basel III contains two new quantitative liquidity requirements. The first requirement, the Liquidity Coverage Ratio (LCR), says that a bank's liquidity buffer must be at least as great as the net outflow of money over 30 days in a stressed scenario. Among other things, the liquidity buffer in the LCR may consist of government bonds and a maximum of 40 per cent mortgage bonds and corporate bonds. The size of the net outflow is based, for example, on an estimated



percentage of deposits that are withdrawn in a stressed situation and on the percentage of different types of funding that it will not be possible to renew.

The second requirement, the Net Stable Funding Ratio, NSFR, says that the bank's stable funding must be greater than the bank's need for stable funding. The NSFR specifies the percentage of different types of debt that are considered to be stable and the percentage of the various assets that are considered to need stable funding. For example, securities issues with a maturity of more than one year and deposits with a maturity of more than one year are classified as 100 per cent stable funding, while loans from financial firms maturing in less than one year are not considered to provide any stable funding at all. For example, regarding assets, cash is not considered to need any stable funding at all, while certain bonds with long maturity, high rating, and are traded on liquid markets require 20 per cent stable funding and loans to companies with a maturity of more than one year must be covered by 100 per cent stable funding.

#### *The effects of Basel III on the Swedish banks*

The Riksbank has analysed how the four major Swedish banks (Handelsbanken, Nordea, SEB and Swedbank) will manage the new bank regulations. For capital adequacy, this analysis was made on the basis of forecasts of the banks' income statements and balance sheets for the years 2011–2016. These forecasts are based on, among other, market expectations, the average of banks historical growth and the Riksbank's growth forecast and dividend payments by the banks equivalent to 40 per cent of their profits.<sup>B11</sup>

The outcome of the Riksbank's analyses shows that the major Swedish banks already have sufficient CET1 to fulfil the new capital requirements, including the capital conservation

buffer and the counter-cyclical capital buffer of 2.5 percentage points (see Chart B7). The new capital requirements will not be binding on the banks and the banks will be able to further improve the capital through the coming year's profits. The increase of CET1 shown in Chart B7 is a consequence of the assumptions we have made. In reality, this would be affected by the banks' strategic choices. For example, the banks may choose another dividend policy than assumed in the model.

The Swedish banks currently have leverage ratios that exceed the 3 per cent requirement of Basel III (see Chart B8). Swedish banks own assets with relatively low risk weightings, such as mortgage loans. The ratio of the risk-weighted assets to the value of the total assets will thus be low for the Swedish banks. Consequently the Swedish banks have a great deal of capital in relation to risk-weighted assets, but less capital in relation to total assets.

Analysing the effects of the new Basel III liquidity rules is considerably more difficult than analysing the effects of the capital adequacy rules. This is partly because all the details of the banks' liquidity situation are not specified in the annual reports, and partly because liquidity is continually changing on the basis of the daily decisions of the banks in their business operations. However, the Riksbank's analysis shows that some of the banks do not, at present, fulfil the LCR. Up to the introduction in 2015, those banks that currently do not do this must either strengthen their liquidity buffers, for example by buying more government bonds, or reduce their 30-day stressed net outflow.

None of the major Swedish banks currently fulfil the NSFR. However, NSFR has not yet been finalized and may be amended before introduction in 2018. The banks can improve their NSFR in several ways, for example by changing the conditions for deposit accounts, reducing their commitments and assets requiring stable funding, and by extending short-term

B11 The assumption that the banks will pay out 40 per cent of their profits as dividends is in line with the banks' previous dividends policy.

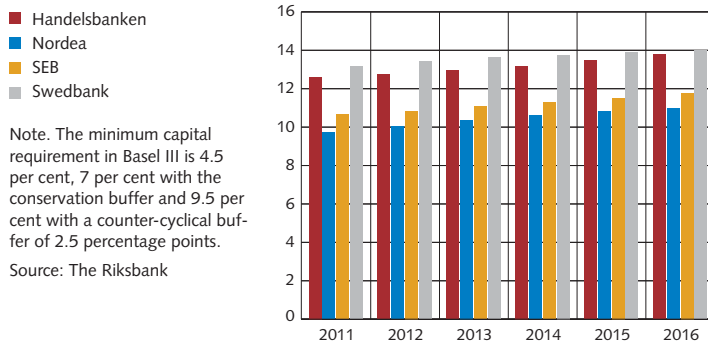
funding to long-term funding. Swedish banks have at present issued securities maturing within three months of nearly SEK 1,000 billion. A large part of this must be converted into long-term funding to comply with the NSFR.

#### Effects of Basel III in Sweden

If the banks do not decide to make changes in their operations, the costs will increase for banks that do not comply with Basel III. The increased costs will arise if the banks need:<sup>B12</sup>

- more CET1, since that it is more expensive for banks compared with other forms of capital.

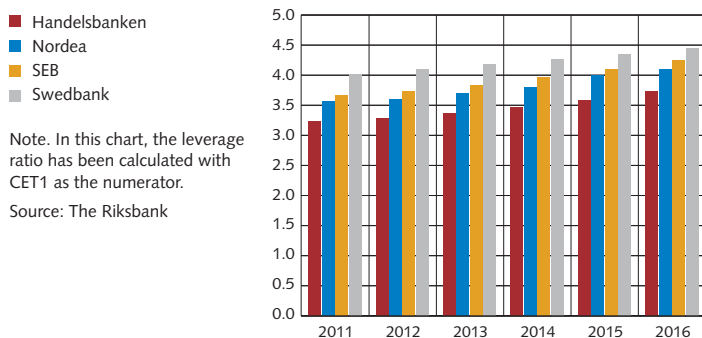
**Chart B7. CET1 ratio per bank for the period 2011–2016**  
Per cent (CET1/risk weighted assets)



Note. The minimum capital requirement in Basel III is 4.5 per cent, 7 per cent with the conservation buffer and 9.5 per cent with a counter-cyclical buffer of 2.5 percentage points.

Source: The Riksbank

**Chart B8. Leverage ratio per bank for the period 2011–2016, where 3 per cent is the requirement**  
Per cent



Note. In this chart, the leverage ratio has been calculated with CET1 as the numerator.

Source: The Riksbank

- a greater liquidity buffer, since this usually generates a lower return than other assets.
- to increase the maturity of their funding, which means that the banks must pay higher interest rates for their borrowing. However, some of the increased cost of extending funding is offset by a lower general funding cost for the banks, as Basel III will make the banks more stable.

The banks can choose between passing on the increased costs to their customers or to their shareholders by lowering the dividend payments.<sup>B13</sup> They can pass on the costs to the customers by, for example, increasing lending spreads and charging higher fees for their services.<sup>B14</sup> The banks can also fulfill the requirements in the new regulation, by among others, reduce the lending.

#### How the effects on Sweden of Basel III have been calculated

The Riksbank has estimated how much the lending spreads will increase and the lending volumes decrease in Sweden as a consequence of the new banking rules. These estimates are based on some calculations the Riksbank has carried out. In the calculations it is, for example, assumed that the banks will not change their operations, will not increase fees for their other services, and will continue to generate the same profits to shareholders, i.e. the banks will retain the same return on equity as they have done in the past. The effects presented here can thereby be seen as the upper limit of what will be the effects in the end.

The Riksbank's calculations are based on the method developed by the Macroeconomic Assessment Group, MAG.<sup>B15</sup> The MAG has estimated the effects on the lending

B12 See Sveriges Riksbank (2010), "Financial Stability Report 2010:1" for further discussion of possible effects of the new liquidity regulation.

B13 See also the article "Lägre vinster i bankerna kan bekosta stramare regler" in the daily paper DN debatt, 6 October 2010.

B14 The lending spread is defined here as the difference between the interest rate applied by the bank to lending to the public and the interest rate paid by the banks to borrow this money.

B15 The MAG (Macroeconomic Assessment Group) is a working group under the Basel Committee and Financial Stability Board (FSB). This working group is made up of central banks and other supervisory authorities in Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Mexico, the Netherlands, Russia, Spain, the UK, the USA and the ECB and IMF. The MAG report is called "Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements". It was published in August 2010 and is available at [www.bis.org](http://www.bis.org).

spreads, lending volume, and GDP during the implementation of the new rules both as regards capital and liquidity. Like the MAG, the Riksbank has investigated the effects of a hypothetical increase of the capital ratio by 1 percentage point or, alternatively, a hypothetical increase of the banks' holdings of liquid assets, here cash and government bonds, by 25 per cent.<sup>B16</sup> These increases are made on the balance sheets of Handelsbanken, Nordea, Swedbank and SEB from the end of 2009. Note that the increase of the capital ratio here will affect lending spreads and lending volumes, as the capital ratio increase by 1 percentage point even though the banks have already fulfilled the new capital requirements in Basel III.

In order to increase the capital ratio by 1 percentage point the banks can reduce their lending, reduce the size of their risk-weighted assets and/or increase the amount of capital, that is change the composition of their balance sheets. In the method by MAG it is assumed that the Swedish banks will adapt their balance sheets to increase the capital ratio in the same way as they have done historically.<sup>B17</sup> Finally, in order to obtain the effect on the lending spread, the historically positive correlation between the lending spread and the amount of capital in the banks is used.

In order to investigate the effects of an increase in liquid assets, an assumption is made, in accordance with the MAG method, that the banks will increase their holdings of liquid assets by reducing lending. In reality, the banks can sell parts of their holdings in other types of bonds to increase their holdings of liquid assets. The banks are also assumed to raise the lending spreads to compensate for the decrease in their revenues, as they must cut down on lending to hold liquid assets instead. How much lending spreads will increase thus depends on the marginal cost of holding liquid assets instead of lending this money. The consequence of the assumed reduction, by the banks, of lending

is that the marginal cost will be considerably higher than it would otherwise have been. These calculations thus overestimate the effects of the increase of holding of liquid assets.

The increase in the capital ratio and holdings of liquid assets were analysed separately, as they were in the report from the MAG. In order to obtain the joint effect, the outcome can be summarised. However, a summary will result in the increase in the lending spread and the decrease in the lending volume being overestimated. This is because, when the banks increase their holdings of liquid assets, they reduce the holdings of more risky assets, in this case lending. In that way, the size of the risk-weighted assets will decrease, which in turn decreases the need for capital.

#### *Outcome of the Riksbank's calculations for Sweden*

The Riksbank's calculations for the Swedish banks show that the effects on the lending spreads and lending volumes of an increase in the capital ratio of 1 percentage point are in line with the average figure for the countries included in the MAG (see Table B2). The effects of increasing holding of liquid assets by 25 per cent are also in line with those reported by the MAG, although the reduction of the lending volume is greater for Sweden. However, it should here be considered that, in reality, the banks may increase their holdings of liquid assets in other ways than the reduction of lending volumes.

Using the same method, the Riksbank has also estimated the effects on the basis of how well the Swedish banks comply with the requirements of Basel III. As mentioned earlier, the Swedish banks currently comply with the new capital requirements, but not, however, with the new liquidity requirements. Of these, the first to be introduced will be the LCR and there is still great uncertainty as to the formulation of the NSFR. Consequently these calculations are

B16 The increase of 1 percentage point in the capital ratios applies to an increase in CET1 and total capital in relation to the risk-weighted assets.

B17 See also Annex 2.2 of the MAG report for a description of the method.

being made on the basis of by how much the four major Swedish banks would have needed to increase their holdings of liquid assets to fulfil the LCR, had this been introduced in 2010. When these calculations are performed, it is assumed that the banks, instead of reducing their lending, will sell other assets to purchase the government bonds required to meet the LCR. This in turn will lead to the marginal costs for holding liquid assets being lower than they would have been if the banks had reduced their lending.

The result of these calculations is that the lending spread will increase by almost 10 basis points compared to a situation in which no new regulations are introduced (see Table B2). This increase will be less if the banks decide to change their operations or allow the shareholders to bear some of the cost increases by reducing dividends. Furthermore, if the banks retain more liquid assets, this will result in the banks becoming more stable, which will lead to a decrease in the banks' borrowing costs if the possible effects of the NSFR are disregarded. The Riksbank's assessment is therefore that the lending rate will increase by no more than 10 basis points as a result of the LCR.

#### *The macroeconomic effects*

The increased lending spreads and reduced lending volumes resulting from Basel III will probably have macroeconomic effects in the form of reduced GDP.<sup>B18</sup> According to the report

from the MAG, during the implementation phase, the level of GDP will be, at most, 0.19 per cent lower when the capital ratio increases by 1 percentage point.<sup>B19</sup> According to the MAG, an increase of the holding of liquid assets of 25 per cent will mean that the level of GDP will be no more than 0.08 per cent lower during the period it is implemented. The Riksbank's estimates of the macroeconomic effects for Sweden of the implementation of Basel III will be presented in the spring of 2011. However, all indications are that the macroeconomic effects during the implementation will also be minor in Sweden. This as the increase of lending spreads and decrease of lending volumes for Sweden is in parity with those reported by MAG.<sup>B20</sup>

Apart from the MAG, the working group Long-term Economic Impact (LEI) has studied the long-term effects of the new regulations. LEI takes into account both the benefit and the cost of the new banking regulations. The benefit of new stricter banking regulations is mainly that the probability of expensive banking crises decreases. The cost is the same as before, i.e. new banking regulations lead to increased lending spreads that in turn affect the economy negatively. LEI finds that the benefit of new regulation exceeds the cost, i.e. that the new banking regulations lead to higher GDP and prosperity over the longer term.<sup>B21</sup> During 2011, the Riksbank will present its estimate of the long-term effects on Sweden, i.e. both the cost and the benefit of the new banking regulations.

B18 See Sveriges riksbank (2010), "Monetary Policy Report", October, for a more detailed discussion of possible macroeconomic effects of Basel III.

B19 Note that the effect of an increase in the level of capital includes an international spillover effect of 0.03 per cent

B20 It should be added that the Institute of International Finance, IIF, reported that the impact of the new banking regulations on GDP will be considerably greater than reported by the MAG. However, these results are not fully comparable, as the IIF also includes other new regulations when estimating the effects. Apart from this, there are differences between the IIF and the MAG, for example in how GDP is affected by the increase in lending spreads, how monetary policy can reduce the effects and how the banks will act when the new regulations are introduced.

B21 The report by the LEI is called "An assessment of the long-term economic impact of stronger capital and liquidity requirements" and is available at [www.bis.org](http://www.bis.org)

**Table B2. Effects of increase in capital ratio by 1 percentage point or increase of liquid assets by 25 per cent for Sweden and average for the countries included in the MAG study. The effects are in comparison with no new regulation**

	For Sweden		Average in the MAG	
	Increase in lending spread	Decrease in lending volume	Increase in lending spread	Decrease in lending volume
Capital ratio increases by 1 percentage point	9 basis points	2%	15 basis points	1.4%
Increase in holdings of liquid assets by 25%	14 basis points	5.8%	14 basis points	3.2%
For the Swedish banks to comply with LCR	10 basis points			

Sources: The Riksbank's calculations and MAG



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

*Economic recovery in Sweden and the rest of the world is expected to continue for the next few years. But the financial markets will probably continue to be sensitive to disruptions. The fact that Swedish banks are dependent on other countries for their funding means that the main risks derive from international developments. Weaker macro-economic performance, particularly in combination with renewed fiscal unease, may mean that banks will again encounter funding difficulties. The Riksbank's stress tests show that the banks have good resilience to higher loan losses, but that liquidity risks are somewhat higher than for an average of a sample of European banks. Given the risks identified in the report, the Riksbank's assessment is that the Swedish banks should maintain or increase their current levels of capital. The banks should also continue to extend the maturities of their funding. Moreover, the banks should take greater account of the refinancing risk in their mortgage lending. Another assessment the Riksbank makes is that the clarity of the banks' public liquidity reporting needs to be improved.*

**This chapter describes the Riksbank's main scenario for future developments, in Sweden and abroad, focusing on financial stability.**

Using anticipated developments as a starting point, the Riksbank forecasts the banks' net interest income and loan losses for the next three years. Following that, there is a discussion of the risks that may threaten these developments. Stress tests are then used to assess Swedish banks' resilience to these disruptions. In addition the Riksbank stress tests liquidity risk. The chapter ends with the Riksbank's recommendations directed at financial sector participants in Sweden.

### Main scenario

#### DEVELOPMENTS IN THE REAL ECONOMY AND ON THE FINANCIAL MARKETS

**Economic recovery in Sweden and the rest of the world is expected to continue for the next few years.** This is largely due to rapid growth in several emerging economies, mainly in Asia. Expansive fiscal policy in the USA and many countries in the euro area has supported the recovery. But as many of these countries are now facing fiscal restraint, growth in these areas is expected to weaken. Despite this, global growth is expected to be over four per cent per year in 2010-2013, which is a lot in a historical perspective.<sup>43</sup>

**The Swedish economy continues to show strong growth.** This year and next GDP is expected to grow much faster than in the USA and the euro area. One reason for this is that world trade has recovered, mainly due to the strong performance of the emerging economies.

<sup>43</sup> See Sveriges riksbank (2010), "Monetary Policy Report", October

This means that Swedish exports are expected to increase. The strong government finances also mean that Sweden needs no fiscal restraint; something that many other countries are now facing. Households' confidence in the future is also at a high level, which means that private consumption is expected to continue to be strong.

**Financial markets will probably continue to be sensitive to disruptions.** Unease is mainly related to the major fiscal problems in several countries, where governments must now strengthen their budgets. Just as before, these effects are expected to mainly affect certain submarkets, above all fiscally weak countries. But if the functioning of financial markets is weakened, as was the case in May, this will of course also impact Swedish banks' potential for funding themselves in foreign currencies, particularly in US dollars.

#### DEVELOPMENT FOR THE SWEDISH BANKS

**Banks the world over will need to issue considerably more bonds with longer maturities in coming years.** This is to do with the new Basel III liquidity rules that aim to reduce the maturity difference between assets and liabilities. A large part of funding therefore needs to be changed from certificates to bonds (see also the box Basel III – effects on Swedish banks and Sweden). Since the new rules cover banks worldwide, a sharp increase in the supply of bonds is expected. Normally the Swedish banks' maturing securities within the coming three months is just under SEK 1,000 billion. A large proportion of these need to be extended to maturities of more than one year before the close of 2018.

**The cost of Swedish banks' funding may increase somewhat going forward.** One reason for this is that the increased bond supply, which all else being equal means somewhat higher interest rates (see box Basel III – effects on the Swedish banks and Sweden). In addition, many investors have predetermined investment policies, which means that it is not always possible for an investor to change the composition of its portfolios at short notice. Besides, it will probably also be more expensive in the future to fund lending in Swedish kronor through the swap market than it has been historically.

**Swedish banks' net interest income is expected to increase in the coming years** (see Table 4:1). This is mainly because the interest rate margin is expected to increase as interest rates rise. The increase in net interest income will be offset, however, when banks' funding costs increase somewhat as a result of adjustment to Basel III. It is uncertain to what extent these costs will be possible to pass on to the banks' customers.



**Table 4:1. Forecast for Swedish banks' net interest income in 2010–2013**  
SEK billion

	2010	2011	2012	2013
Riksbank forecast	101	107	113	121
Consensus according to SME Direkt	102	108	117	N/A

Sources: The banks' performance reports and the Riksbank's calculations

**Loan losses in the Swedish banking groups are expected to be lower than in the previous report** (see Chart 4:1). At the end of the forecast period loan losses are expected to be approaching more normal levels. Chart 4:1 also shows how the Riksbank has adjusted the forecast for banks' loan losses downwards as economic recovery has proved stronger than expected. Loan losses are expected to decrease in all segments of the banks' lending, but above all in the Baltic countries (see Tables 4:2 and 4:3 and Charts 4:2 and 4:3). This is partly because the economic situation has improved in these countries, but above all because the banks have already made provision for major losses.

**Table 4:2. Loan loss levels per year in the main scenario for the major Swedish banks**

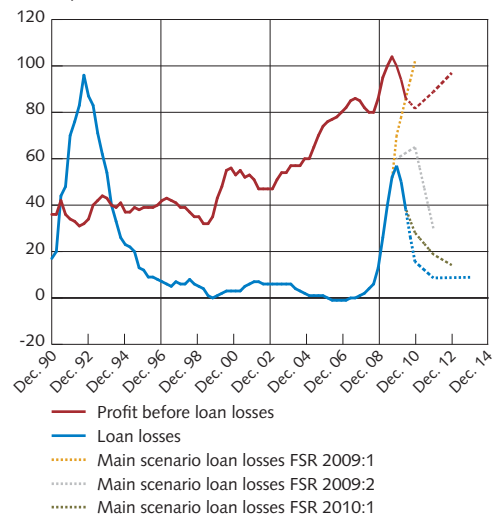
Per cent of total lending to the public and credit institutions in the respective countries or sectors

Type of exposure	Outcome 2009	2010	2011	2012	2013
Sweden	0.20	0.02	0.09	0.09	0.09
Households			0.05	0.05	0.05
Non-financial companies			0.19	0.19	0.19
Financial companies			0.03	0.03	0.03
Property companies			0.12	0.12	0.10
Other Nordic countries	0.53	0.36	0.20	0.14	0.14
Total for Baltic countries	5.43	1.90	0.11	0.46	0.44
Estonia	2.45	1.09	0.10	0.61	0.32
Latvia	7.48	3.25	0.23	0.39	0.58
Lithuania	6.54	1.68	0.01	0.33	0.49
Other countries	0.65	0.12	0.07	0.08	0.10
<b>Total</b>	<b>0.72</b>	<b>0.23</b>	<b>0.13</b>	<b>0.12</b>	<b>0.12</b>

Source: The Riksbank

**Chart 4:1. Earnings before loan losses and loan losses in the major Swedish banks**

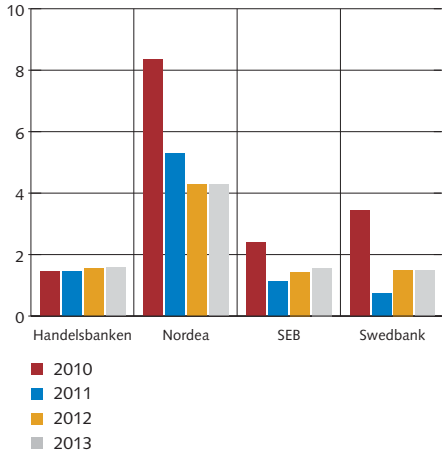
Totalled over four quarters, SEK billion, fixed prices, September 2010



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, August 2010.

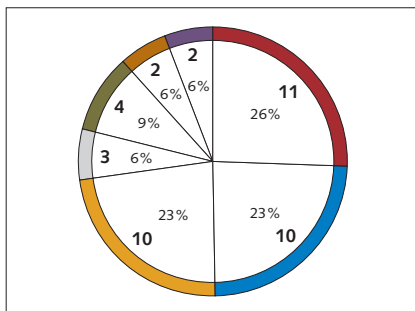
Sources: Bank reports, SME Direkt and the Riksbank

Chart 4:2. Distribution of loan losses in the main scenario per bank and year  
SEK billion



Source: The Riksbank

Chart 4:3. Distribution of loan losses per region in the period 2010–2013 in the Riksbank's main scenario  
Per cent



■ Sweden  
■ Denmark  
■ Other Nordic countries  
■ Estonia  
■ Latvia  
■ Litauen  
■ Other countries

Source: The Riksbank

Table 4:3. The major banks' expected loan losses and lending in the main scenario, in total and in the Baltic countries  
SEK billion

	2010	2011	2012	2013	Total	Lending to the public and credit institutions excl. repos, Q3 2010
Total loan losses	15.6 (28)	8.6 (19)	8.7 (14)	8.9	42	6 703
of which						
Estonia	1.3 (2.4)	0.1 (1.5)	0.7 (1.1)	0.4	2.5	121
Latvia	3.0 (4.8)	0.2 (2.4)	0.3 (1.1)	0.4	3.9	92
Lithuania	1.8 (5.9)	0.0 (2.9)	0.3 (1.3)	0.4	2.4	105
Total loan losses as percentage of lending						0,62%

Note. The figures within brackets represent the estimated loan losses in the main scenario of the previous Financial Stability Report

Sources: Bank reports and the Riksbank

## Risks around the main scenario

Development of the real economy and in the financial markets is still uncertain and there are a number of risks that could affect the Swedish banking groups going forward. The risks can be divided into two groups; partly risks associated with a considerably worse global macroeconomic performance, partly risks from the financial markets. If these risks are realised the Swedish banks could be hit by increasing loan losses and find it more difficult to gain access to market funding, particularly in foreign currency.

### RISKS RELATED TO WORSE GLOBAL MACROECONOMIC PERFORMANCE

A considerably worse macro-economic performance in the rest of the world may contribute to increased loans losses. For example, if developments in the USA are considerably weaker than expected, this could also spread to Europe and the rest of the world through decreased demand for imports in the USA. It is also probable that the major retrenchment now taking place in many European countries will affect real growth in these countries. A worse macro-economic performance would also affect the vulnerable recovery in the Baltic countries. The Baltic countries are dependent on a small number of countries, including Sweden, for their exports. If their exports were to decrease it could affect their economic growth and ultimately increase the risk of loan losses for the Swedish banks operating in these countries.

There has been a general improvement in the solvency of Nordic banks' borrowers, but it is still worse than before the financial crisis. It is not certain that borrowers would cope with a new crisis as well as the 2008–2009 crisis. A contributory reason for many non-financial firms in the Nordic area managing the crisis as well as they did was expansive monetary policy combined with strong balance sheets at the outset. However, it is not possible to assume that these factors will again keep loan losses down if there is another economic downturn. A decrease in

global demand would affect Swedish firms directly, thereby contributing to an increased risk of loan losses in the banks.

#### RISKS RELATED TO THE BANKS' MARKET FUNDING

A lesson from the crisis of relevance to Sweden concerns the extent of the banks' funding on the international capital markets, especially in foreign currency. In several countries it was obvious that a situation in which banks to an increasing extent fund themselves in the international capital markets entails a risk of transferring more and more risk from the financial sector to the public sector. In Sweden's case, Swedish government agencies' commitments in foreign currency on behalf of the banking system amounted at their peak to SEK 455 billion, equivalent to 15 per cent of Swedish GDP in 2009.<sup>44</sup> Given the increasing size of the Swedish banks' market funding in foreign markets (see for example Chart 3:15) the banks' refinancing risk requires attention from the Swedish authorities.

##### *Risks from abroad*

**Despite the fiscal policy programmes now being implemented in fiscally weak countries great risks remain** (see Table 4:4).<sup>45</sup> If fiscally weak countries cannot manage to implement the necessary retrenchment of public finances market confidence may be lost. Unease may then arise that one or more euro area countries will be obliged to restructure central government debt. All in all, such a situation could lead to the same type of unease as in connection with the financial crisis in Greece, and now Ireland, which could restrict the Swedish banks' market funding potential. It is also unclear how such a debt restructuring could be dealt with by the euro area countries. Experiences from Argentina in 2002, for example, show that coordination problems grow when a country suspends payments on its central government debt, since so many different creditors, both public and private, are affected.

<sup>44</sup> As at 15 June 2009. Refers to the Riksbank's lending in USD and the Swedish National Debt Office guarantee programme to support the medium-term funding of the banks and mortgage institutions.

<sup>45</sup> The target of the majority of European countries is to achieve the Maastricht budget deficit criteria of a maximum of three per cent of GDP in 2013.

Table 4:4. Review of financial risks in a sample of countries

	Large budget deficit	Large public debt	Large private debt	Problems in the financial sector	Foreign currency loans	Other risks
Greece	■	■				
Ireland	■	■		■		
Italy		■				
Portugal	■		■			
Spain	■			■		
Bulgaria	■		■			Fixed exch. rate
Hungary		■			■	
Romania	■				■	
USA	■			■		
United Kingdom	■					
Sweden						

Note. Red boxes indicate vulnerabilities for the respective country.  
Sources: The IMF and the Riksbank.

**The conditions for orderly crisis management in the euro area depend on the countries' credit ratings.** The European Financial Stability Facility (EFSF)<sup>46</sup>, which was established in May at the time of the financial crisis in Greece, received the highest credit rating from the rating institutions in September. This credit rating is important, since it means that the EFSF can borrow money on good terms on the international capital markets. The credit rating relies, however, on guarantor countries such as France and Germany retaining the highest credit rating. If the EFSF is used too much it could also undermine the guarantor countries' public finances, with the risk of downgrading the countries' credit ratings. This could damage confidence in the euro area and affect the functioning of the capital markets.

#### *Refinancing risks from mortgage lending in Sweden*

**The risk that the Swedish banks may be impacted by extensive loan losses due to household debts is deemed to be minor.** Banks operating in the USA were obliged to suffer major losses when many of their borrowers became either unwilling or unable to make their mortgage payments. The risk that banks in Sweden would suffer correspondingly extensive loan losses is, however, considered to be small. There are many reasons for this; but among the most important is a relatively generous social safety net that means that households affected by temporary loss of income can still make their mortgage payments. The Swedish regulations governing renegotiation of debt also play an important part – unlike some states in the USA for example – since a household can only renegotiate its debt under

<sup>46</sup> See the box in Sveriges Riksbank (2010), "Financial Stability Report 2010:1".

very particular circumstances. This means that in Sweden there is no breeding ground for behaviour in which households stop paying off their loans and hand over the house key to the bank when the value of the dwelling falls below the size of the mortgage.

**On the other hand the increasing indebtedness in the household sector can mean refinancing risks for Swedish banks.** It has been profitable for the banks to fund Swedish mortgage borrowing in the international capital markets. This has in turn meant that Swedish households have been able to obtain mortgages at a lower cost and probably to a greater extent than would otherwise have been the case. However, this is not an entirely risk-free funding model since it assumes that the rest of the world has confidence in the Swedish housing market and the Swedish financial system. Historically foreign investors have often been the most fickle in times of financial turbulence. If confidence should be upset for one or other reason, for example through a severe fall in housing prices, it may lead to a fall in prices of Swedish covered bonds even if the underlying credit quality of the bonds is high. Swedish banks must then, in the capacity of market makers, involuntarily store Swedish covered bonds that are getting harder and more expensive to refinance.

**The risks identified in the report are well in line with the result of the Riksbank risk survey.** The Riksbank risk survey, which was carried out in autumn 2010, shows that the market participants believe that a worse macro-economic performance would have the greatest effect on the Swedish financial system. Another substantial risk is liquidity problems, which are also regarded as being the most difficult risk to deal with (see Table 4:5).

**Table 4:5. Results of the Riksbank's risk survey: risks with the greatest impact on the Swedish financial system**

	Risk with greatest impact	Most probable risk	Most difficult Risk to deal with
Economic weakening/ global imbalances	54%	38%	18%
Liquidity problems	52%	31%	49%
Sovereign risk/unease about public debt	38%	25%	7%
Credit risk/funding problems	28%	21%	21%
Currency unrest/protectionism	25%	13%	7%
Fall in house prices	25%	7%	11%
New banking crisis abroad	18%	13%	13%
Riksbank's monetary policy	16%	8%	8%
Regulation	16%	7%	13%
Developments in the Baltic countries	13%	-	-
Functioning of the Swedish money market	13%	7%	0%
Increased risk aversion	13%	8%	7%
Collapse of the monetary union/EMU	-	7%	-
Political turbulence abroad	-	-	7%

Note. The table specifies the percentage of respondents who mentioned each risk. The market participants were asked to list the five risks that would have the greatest effect on the Swedish financial system if they materialised, which three risks they believed had the greatest probability of occurring in the next year and which risks would be most difficult for the institution to deal with. The risks specified were grouped into categories that were used to describe recent developments. The table does not include all risks, only those mentioned most frequently.

Source: The Riksbank

## Stress test of the banks' resilience

The Riksbank conducts regular stress tests to assess the banks' resilience to unexpected serious negative events. In this section we describe the outcome of three stress tests carried out by the Riksbank. First we deal with contagion risks associated with the major banks' exposures to each other and other major market participants; counterparty exposures. Then we describe the result of a stress test of banks' capital in a scenario in which loan losses increase substantially. Finally two measurements describing the banks' liquidity risk are presented. The method behind the liquidity analysis is presented in the box Method for stress tests of the banks' liquidity risks.

## Method for stress tests of the banks' liquidity risks

**W**hen the US bank Lehman Brothers went bankrupt in the autumn of 2008, banks in the United States and Europe were hit by severe liquidity problems. The entire global banking sector has since then been affected by the liquidity crisis and several central banks have taken action to mitigate the strains.

Two factors contributed to the severity of the crisis; first that the banks were dependent on short-term funding and, second, that their liquidity reserves were not sufficiently liquid. In recent years, the Riksbank has therefore increasingly focused on analysing the liquidity situation of the banks, and in this report we publish stress tests of the banks' liquidity risks. The stress tests are based on public data and the outcome is reported for each and every major Swedish bank. The aims are to highlight the banks' liquidity risks and to compare the liquidity situation of the Swedish banks with that of other European banks and to increase transparency regarding the liquidity risks in the Swedish banks.

### *How do liquidity risks arise in banks?*

In its simplest form, liquidity means that a bank has sufficient funds to be able to meet its commitments. The risk of not being able to meet these commitments is called liquidity risk. Liquidity risk is, however, a natural part of banks' operations since they are normally funded at shorter maturities than they lend at. This means that the liabilities fall due for payment more frequently than the assets. In order to be able to fund their operations, the banks are therefore dependent on the functioning of the financial markets and on investors and depositors having confidence in them.

Given the lack of a clear regulatory framework for liquidity risk, the banks took greater and greater liquidity risks in the years preceding the financial crisis. This was manifested in several ways. In the years preceding the crisis, the proportion of deposits

in the banks' total funding decreased and was replaced to a great extent by funding on the market. In addition, this market funding was often short term, which entailed a refinancing risk as the banks ran the risk of not being able to renew their debts when they fell due. At the same time, it became apparent that the banks' liquidity reserves, that is the assets of good liquidity that the banks hold as a buffer to cover unexpected outflows, were not as liquid as the banks expected.

### *Lack of transparency regarding the banks' liquidity risks*

The banks present very little information on their liquidity risks. To the extent they provide information it is seldom comparable between banks. Increased transparency is needed for several reasons. First, it creates better conditions for investors to make a correct analysis of the banks' risks, which reduces uncertainty. Second, increased transparency gives those banks with a higher level of risk than their competitors an incentive to reduce their liquidity risks. Finally, increased transparency gives the banks themselves a chance to analyse their liquidity risks in relation to those of their competitors.

One explanation for the lack of transparency is that there has been no common regulatory framework governing the level of liquidity risk in a bank. Nor has there been any harmonized way of calculating liquidity risk. In light of this the Basel Committee on Banking Supervision has proposed, as part of the Basel III rules, two liquidity ratios; the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).<sup>R22</sup> These will be implemented in 2015 and 2018 respectively. The Swedish financial supervisory authority, Finansinspektionen, is currently finalising all the details of the regulatory code and the reporting requirements that will apply to the Swedish banks when the regulations are in place. The Riksbank supports and welcomes the efforts of Finansinspektionen in this area. As a means of

R22 See box "Basel III – effects on the Swedish banks and Sweden"

increasing transparency regarding liquidity risks the Riksbank already now publishes two own measures (see below). These measures should not be confused with Finansinspektionen's measures, nor should they be seen as statutory requirements to meet a particular minimum level.

*The Riksbank's intention in publishing stress tests of the banks' liquidity risks*

The Riksbank has two main reasons for publishing stress tests regarding the liquidity situation of the banks.

- Liquidity risks are one of the major risks in the Swedish banks. It is therefore an important part of the Riksbank's efforts to promote financial stability to measure this risk, highlight the strengths and weaknesses of Swedish banks regarding liquidity and to communicate this information.
- At present, there is a lack of transparency in the banks' reporting of liquidity risks. The Riksbank therefore wishes to act as a driving force to improve transparency and disseminate information.

In short, the stress tests are intended to accelerate the development of greater transparency and the improvement of the banks' management of liquidity risks to promote financial stability.

*The Riksbank's stress tests of liquidity risk are based on public data*

For almost three years the Riksbank has gathered weekly, at times daily, liquidity reports from the major Swedish banks and at the same time maintained regular contact with the banks' risk and treasury departments. This information has given the Riksbank a good picture of the banks' liquidity situation, in total and per currency. The Riksbank also has information on the types of securities the banks have in their liquidity reserves and thus on the quality of the liquidity reserves. The information that the Riksbank gathers from the banks can, however, not be communicated to the market since it is not public.

In order to be able to communicate a picture of the liquidity risks in each of the major Swedish banks, the Riksbank therefore uses public data. As the Riksbank's tests are based on public information, the results will not necessarily be entirely in line with the results that would be arrived at if the banks' own information, or the Riksbank's confidential information, were used. The results should therefore be seen as indicative. The shortcomings in the public data include the fact that there is no information on the types of security that make up the liquidity reserves, that is on the level of quality, or on the level of liquidity risk per currency.



### *Two measures for stress testing the banks' liquidity*

It is important to investigate the banks' liquidity risks as they can cause major problems for the banks. However, it is also difficult to quantify the liquidity risk using a single measure. The Riksbank therefore publishes the results of two stress tests in this report. The first stress test measures the banks' resilience against stress of three months duration. This short-term stress test has certain similarities in principle with the LCR, but nevertheless differs so much that it should not be confused with the LCR. The second stress test measures the banks' resilience against stress that lasts one year and focuses on the structural liquidity risks in the banks. The second stress test is reminiscent of the NSFR but the assumptions are not exactly the same. It is also worth noting that the design of the NSFR is not yet complete; a lot of work remains to be done on this.

The Riksbank's measures are indications of the liquidity risks associated with the banks' different types of balance sheet and maturity structures. Thus the measurements do not take into account the underlying business model and confidence in the bank. This in turn means that the stress tests do not present a full picture of a bank's liquidity risk. A bank that scores low in the Riksbank's stress tests may nevertheless have good access to the capital markets if the markets consider it to be a stable and secure bank with a low level of business risk.

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

Banks normally have a liquidity reserve consisting of securities that can quickly be converted into liquidity to cope with unexpected cash outflows. Unexpected cash outflows can arise in different ways. For example, investors may lose confidence in a bank so that refinancing problems arise when the securities issued by the bank mature. Alternatively, the markets that banks are dependent on for their funding may stop functioning due to general turbulence. Unexpected cash outflows may also arise because private customers for some reason wish to withdraw money they have deposited with a banks, or companies that have been granted a credit facility by a bank may use this facility to a greater extent than the bank expected. In the Riksbank's first stress test, the bank's liquidity reserve is examined in relation to a stressed cash outflow. The aim is to ensure that the bank has an adequate liquidity reserve that can quickly be converted into liquid funds and thus cover stressed outflows over the following three months.

The banks that score high in the Riksbank's short-term liquidity measure typically have larger liquidity reserves than other banks. Banks that are deposit-funded, particularly if the deposits come from households and small firms, also have a smaller outflow, since this source of funding has historically been relatively

stable. The banks that are less dependent on short-term market funding also have a smaller outflow, since they have fewer securities that mature during the three months of the stress test compared to other banks. In the example in Figure B2, Bank 1 will score higher in the Riksbank's first stress test than Bank 2. This is because Bank 1 has a larger liquidity reserve, a larger proportion of deposits and a smaller proportion of securities that will mature over the next three months than Bank 2.

To calculate the short-term liquidity measure, the Riksbank estimates the banks' liquidity reserves and calculates the stressed outflows over the next three months. Figure B3 illustrates how the Riksbank calculates a bank's liquidity reserves. The first step is to total the funds the bank has acquired in the form of deposits, market funding and equity. All of the bank's illiquid assets are then deducted from this sum. In simple terms, the difference between funding and illiquid assets is then the funds invested in liquid assets (mostly securities).

Figure B2. Examples of two different banks in the Riksbank's short-term liquidity measure  
Per cent

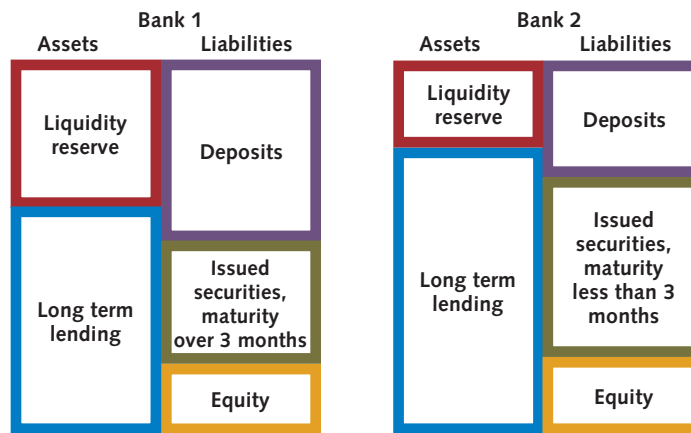
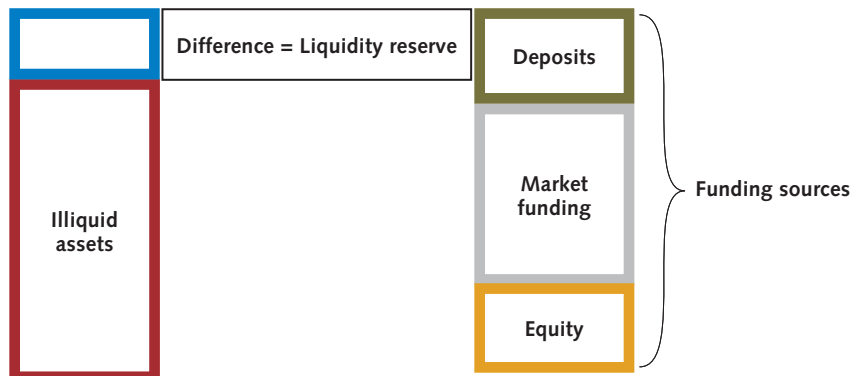


Figure B3. Method for calculating liquidity reserve



Note. Funding sources: deposits + market funding + equity – repos. Illiquid assets: total assets – cash and balances with central banks – securities – reverse repos – insurance – derivatives – pension assets. The difference between funding sources and illiquid assets equals the liquidity reserve

Source: The Riksbank

However, it is not possible for the Riksbank to determine from public data what types of security are included in the banks' liquidity reserves. The level of quality in the liquidity reserves varies from bank to bank. For example, the proportion of government securities in the liquidity reserves differs between the banks. As a conservative assumption, the estimated liquidity reserve will therefore decrease by 50 per cent before it is put against the stressed outflow.<sup>R23</sup> This assumption is made so that the banks' liquidity reserves are not overestimated. However, the assumption is to the detriment of banks that have a higher level of quality, for example a large proportion of government securities, in their liquidity reserves.

After calculating the liquidity reserve, the banks' stressed cash outflow for the next three months is calculated. In the stress test, it is

assumed that it will only be possible to refinance half of the securities issued by the bank that will mature within three months. At the same time, it is assumed that private individuals and corporate customers will withdraw a certain proportion of their deposits. It is also assumed that the credit facilities the banks normally grant their customers are used to a greater extent than the bank expected. All of this gives a stressed cash outflow (see Table B3). To calculate the short-term liquidity measurement the estimated liquidity buffer is then divided by the stressed cash outflow.

The banks that reach at least 100 per cent have a liquidity reserve that they can sell (or repo) to acquire liquid funds that they can use to cover cash flows for a period of three months under the conditions that apply in the scenario.

$$\text{The Riksbank's short-term liquidity measure} = \frac{\text{Adjusted liquidity reserve}}{\text{3 month stressed cash outflow}}$$

**Table B3. Summary of assumptions for the Riksbank's short-term liquidity measure – stressed liquidity reserve, and examples**

	Factor	Example of balance sheet	Adjusted reserve and stressed cash outflow	Ratio
Liquidity reserve	decrease 50%	400	200	200/200=100%
Withdrawal of deposits by private individuals and small and medium-sized companies	10%	800	80	
Withdrawal of deposits by large companies	25%	160	40	
Issued securities that will mature within three months	50% cannot be refinanced	150	75	
Credit facilities used	10%	50	5	
Total stressed outflow:			200	

Source: The Riksbank

R23 One of the reasons to the weak resilience of European banks during the crisis was that their liquidity reserves weren't sufficient liquid. The Riksbank has therefore made an assumption to adjust down the liquidity reserves with 50 percent.

*The Riksbank's structural liquidity measurement – stable funding against illiquid assets*

The structural liquidity measure is a complement to the short-term measure. Structural resilience means that the bank is better equipped to deal with a stressed situation that lasts over a long period of time. The measure aims to reveal structural imbalances from two main aspects.

First, a bank should not have too great a difference between the maturities of assets and liabilities. Second, a bank should not too many illiquid assets in relation to unstable (volatile) liabilities.

In the Riksbank's second stress test, the market is marked by stress over a period of one year. A bank that is funded at long maturities and has assets that are easy to sell will be in a better position, all else being equal, to handle such a situation than a bank that is funded at short maturities and has a lot of illiquid assets that are difficult to sell.

How well a bank performs in the structural liquidity measure is partly affected by the structure of the bank's funding, that is what sources of funding it uses and at what maturities, and partly by the structure of its assets. The banks that score high in the Riksbank's structural measure are, for example, those that have a large proportion of deposits in their funding, and primarily deposits from households and small companies. The reason for this is that this source of funding is more stable than other forms of funding. Banks that have only a limited dependence on short-term market funding also score high in the test as they do not have as large a proportion of securities that will mature within the next 12 months as banks that have a greater degree of short-term market

funding. Banks that fund their operations on the interbank market<sup>R24</sup> have a lower score than other banks in the test because this form of funding is also often short term. If one studies the asset structure in those banks that score high in the test it is typically those banks with a smaller proportion of lending to the public. This is because all lending to the public is assumed to be illiquid in the stress test.

In Figure B4, Bank 1 will score higher in the Riksbank's second stress test than Bank 2. The reason for this is that Bank 1 has a more liquid asset side, is less dependent on short-term market funding and has a higher proportion of deposits than Bank 2.

To calculate the structural liquidity measure, all of the items on a bank's balance sheet are multiplied by a factor of between 0 and 100 per cent depending on how stable the liability items are and how liquid the asset items are. The more stable the funding is the higher the factor it obtains and the more liquid the assets are the lower the factor they obtain. The stable funding consists mainly of equity, deposits and market funding, with a maturity of more than one year. Illiquid assets consist mainly of lending to the public (see Table B4). The total of the weighted stable funding is then divided by the weighted asset items which give the Riksbank's structural liquidity measurement. The banks that reach at least 100 per cent have sufficiently stable funding to cope with the assumptions in the scenario.

To summarise, the liquidity risk is one of the greatest risks that a bank is exposed to. The stress tests presented by the Riksbank provide an overall picture of the banks' liquidity risks, but due to the incompleteness of the information published by the banks they do not cover all aspects of these risks.

$$\text{The Riksbank's structured liquidity measure} = \frac{\sum \text{Funding} \times \text{factor}}{\sum \text{Assets} \times \text{factor}}$$

R24 Interbank means net of interbank lending and borrowing.

Figure B4. Examples of two fictitious banks in the Riksbank's structural liquidity measurement

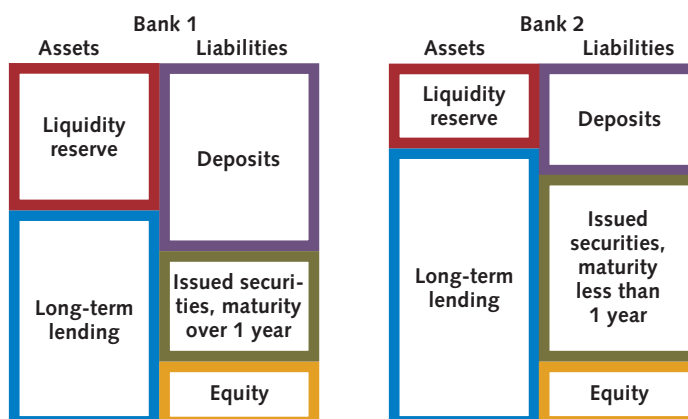
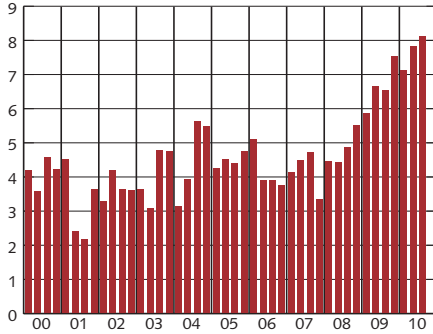


Table B4. Summary of assumptions for the Riksbank's structural liquidity measure – stable funding against illiquid assets

Funding		Assets	
Item	Factor	Item	Factor
Tier 1 and Tier 2 capital	100%	Cash	0%
Liabilities with remaining maturity > 1 year		Loans to financial institutions remaining maturity < 1 year	
Derivatives		Insurance assets Pension assets	
Deposits and borrowing from private customers and non-financial small corporate customers remaining maturity < 1 year	90%	Securities	5–50%
Deposits and borrowing from non-financial large corporate customers remaining maturity < 1 year	50%	Loans to private individuals and companies irrespective of maturity	85%
Repos	5%	Credit and liquidity facilities Reverse repos	5%
All other liabilities or capital not mentioned above	0%	All other assets, including derivatives	100%

Source: The Riksbank

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



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

Source: The Riksbank

## COUNTERPARTY EXPOSURES – CONTAGION RISKS

**The major banks' central role in the financial system means that they have considerable loans and commitments to each other and to individual firms; counterparty exposures.** If a bank or a firm experiences problems and suspends payments, this can lead to significant losses for the other banks. The risk that this will happen is called contagion risk and refers to the risk that problems in one institution will spread to other institutions via their exposures to each other. By limiting their counterparty exposures and requiring collateral for their loans, the banks can limit contagion risks. In order to assess the risk of contagion effects, the Riksbank calculates the effect on the respective major banks' Tier 1 capital if the bank lost one or several of its large exposures. The tests are based on data on the major banks' 15 largest counterparty exposures, which the Riksbank compiles per quarter.<sup>47</sup>

**The Riksbank's tests indicate that the contagion risk in the Swedish banking system remains on a low level.** The banks have continued to increase their Tier 1 capital ratios while the largest counterparty exposures are relatively unchanged. In the last year, no bank had any exposure that, given the assumptions in the Riksbank's tests, would lead to a fall in the Tier 1 capital ratio below the statutory requirement of four per cent in the event of the cancellation of payments by another Swedish bank (see Chart 4:4).<sup>48</sup> Neither, according to the Riksbank's tests, would the loss of the three largest exposures lead to the Tier 1 capital of any bank falling below four per cent.

**A major portion of the exposure of Swedish banks is towards foreign counterparties.** The Riksbank's data indicates that, at the end of the last quarter, just over 40 per cent of the major banks' total exposure was towards foreign banks. Consequently, problems outside Sweden can spread to the Swedish banking system both directly via these exposures and indirectly in that uncertainty can arise as to which potentially bad exposures other banks have.

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

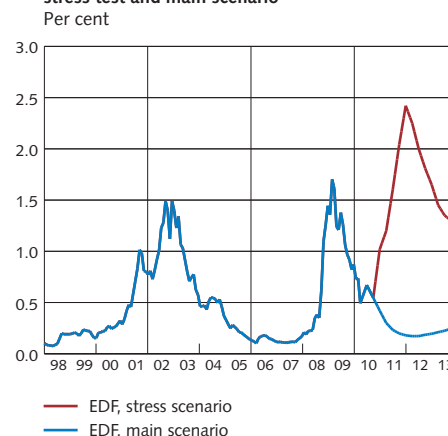
The stress test of the banks' resistance to increased loan losses aims to show how the banks' capital would be affected by a steep increase in loan losses. The scenario on which the stress test is based derives from the risk picture described earlier in the chapter, in other words partly a considerably worse macroeconomic performance and partly a disruption affecting the financial markets.

<sup>47</sup> For a detailed review of the Riksbank's counterparty data, see the box The Riksbank's counterparty data in Financial Stability Report 2008:2.

<sup>48</sup> In the Riksbank's test it is assumed that 75 per cent of the banks' exposures to defaulting institutions or companies are lost and that 25 per cent can be recovered. The test corresponds to a situation in which a participant, completely without warning, suspends all its payments with immediate effect. Possible recovery is also assumed to be relatively limited. The resulting Tier 1 capital ratio should therefore be seen as a stress test outcome.

The stress test shows considerably higher loan losses than in the main scenario, above all in the corporate sector. Compared with the previous report the difference in the average probability of default between the main scenario and the stress test is approximately the same (see Chart 4:5). Since economic developments since the previous report were relatively good in the countries where the Swedish banks are active, the probability of default in the main scenario is lower than it was then. Consequently, an equally severe macroeconomic deterioration would not lead to an equally weak economic situation. Simple model estimates for the stress test indicate that the probability of default during the forecast period is approximately consistent with a macroeconomic performance in which GDP falls by over 2 percentage points per year in Sweden and the other Nordic countries, while rising risk premiums cause lending rates for firms and households to rise by 2 to 3 percentage points in each respective country compared with the level in the main scenario.<sup>49, 50</sup> Table 4:6 shows the average loan loss level for the four major banks in the stress test, by sector and geographical area.

**Chart 4:5. Expected default frequency (EDF) for the Swedish non-financial corporate sector in the stress test and main scenario**



Sources: Moody's KMV and the Riksbank

**Table 4:6. Loan loss levels per year in the stress test for the major Swedish banks**

Per cent of total lending to the public and credit institutions in the respective countries or sectors

Type of exposure	2011	2012	2013
Sweden	0.7%	0.7%	0.6%
Households	0.3%	0.3%	0.3%
Non-financial companies	1.3%	1.2%	1.0%
Financial companies	0.4%	0.3%	0.2%
Property companies	1.4%	1.2%	1.1%
Other Nordic countries	1.3%	1.2%	0.7%
Total for Baltic countries	4.0%	3.6%	3.2%
Estonia	2.0%	1.8%	1.5%
Latvia	5.6%	5.2%	4.7%
Lithuania	5.1%	4.7%	4.3%
Other countries	1.2%	1.1%	0.8%
Total	1.1%	1.0%	0.7%

Source: The Riksbank

The stress scenario plays out from 2011 to 2013 inclusive. To calculate the effect on the banks' Tier 1 capital ratio in the scenario we also make the following assumptions:

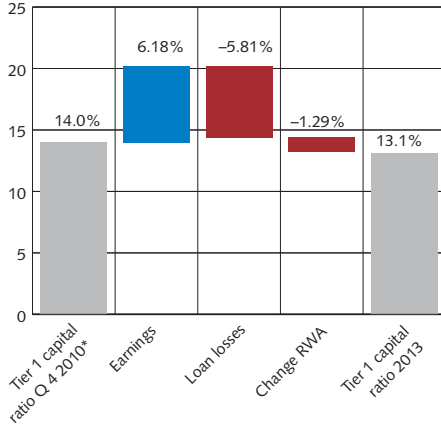
- The banks' earnings decrease as a result of the weaker economy. Earnings before loan losses are therefore only 85 per cent of the market participants' average forecast for the respective banks in 2011 and 2013.<sup>51</sup>
- If a bank has positive net earnings it is assumed to distribute a dividend to shareholders equivalent to 40 per cent of net profits.
- The banks are passive in the sense that they do not act to reduce their risk-weighted assets or take in new capital.

49 According to Sveriges Riksbank (2010), "Monetary Policy Report", October

50 Sharply rising spreads on credit bonds is a conceivable scenario. This was what happened for example in 2008–09.

51 SME Direkt October 2010. The banks' earnings in 2013 are assumed to be unchanged compared with 2012.

**Chart 4:6. Factors that contribute to changes in the banks' Tier 1 capital ratio in the stress test, average for the four major banks**  
Percentage points



Note. The Banks' core tier 1 ratios have been written forward according to the Riksbank's main scenario.

Source: The Riksbank

- Loan losses generated in the stress test are deducted from the banks' risk-weighted assets at the end of each year. The remaining risk-weighted assets increase by five per cent per year as the result of poorer credit quality.

**Despite high loan losses the banks' capital ratios are only affected to a minor extent in the stress test.** All in all, loan losses in the test amount to SEK 201 billion for the four major banks over the period (see Table 4:8). Of these, about SEK 30 billion, corresponding to 15 per cent of the total losses, are from the banks' operations in the Baltic countries. In most of the years of the test, however, the banks can absorb the loan losses that arise with the help of earnings during the year, despite the assumption that earnings will fall considerably. The banks' Tier 1 capital ratios are also negatively affected by an increase in their risk-weighted assets (see Chart 4:6). In the stress test the banks' Tier 1 capital adequacy falls by between 0.5 – 1.5 percentage points and at its lowest is between 10.7 and 15.3 per cent, on full application of the Basel II rules (see Chart 4:7). Even under the new Basel III rules the banks' capital ratios fall relatively little (see Table 4:7).<sup>52</sup> In addition the banks' leverage ratios is not negatively affected during the three years of the scenario.<sup>53</sup>

**The Riksbank's stress test shows that the banks' earnings and capital are sufficient to cope with the loan losses arising in the stress test.** The banks' Tier 1 capital ratios certainly fall in the test, but nevertheless are well over the statutory minimum requirement for the entire period.

<sup>52</sup> See the box "Basel III – effects on the Swedish banks and Sweden".

<sup>53</sup> Leverage ratio is calculated as Tier 1 capital/total assets including off-balance-sheet items defined under the Basel III rules. However, in the Riksbank's calculations the banks have not been able to count hybrid instruments currently included in their Tier 1 capital.



**Table 4:7. Earnings 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	14.7	15.9	15.9	34.2	37.1	37.1	12.7	14.0	14.0	12.1	13.4	13.4
Loan losses	12.8	11.9	9.9	35.9	33.1	23.4	14.3	12.9	10.7	13.4	12.2	10.6
Profit after loan losses	1.9	4.0	6.0	-1.7	4.0	13.7	-1.6	1.1	3.2	-1.3	1.2	2.8
Taxes	-0.5	-1.1	-1.7	0.0	-1.1	-3.8	0.0	-0.3	-0.9	0.0	-0.3	-0.8
Profit after taxes and dividends	0.8	1.7	2.6	-1.7	1.7	5.9	-1.6	0.5	1.4	-1.3	0.5	1.2
Tier 1 capital at start of year	88	89	91	192	190	192	102	101	101	82	81	82
Tier 1 capital at end of year	89	91	93	190	192	198	101	101	103	81	82	83
Risk-weighted assets at end of year	575	592	611	1 727	1 779	1 843	741	765	792	579	595	614
Core Tier 1 capital ratio at year-end (Basel II), %	13.0	12.9	12.9	10.0	9.8	9.8	11.6	11.3	11.1	12.8	12.5	12.3
Tier 1 capital ratio at year-end (Basel II), %	15.5	15.3	15.3	11.0	10.8	10.7	13.6	13.2	13.0	14.0	13.7	13.5
Tier 1 capital ratio at year-end (Basel II with transition rules), %	9.0	8.8	8.7	9.6	9.4	9.4	12.1	11.8	11.5	10.2	9.9	9.7
Core Tier 1 capital ratio (Basel III), %	11.8	11.5	11.3	8.7	8.4	8.3	9.7	9.3	9.0	12.0	11.6	11.1
Core Tier 1 capital/ total assets including off balance sheet items (Basel III), %	3.2	3.2	3.3	3.3	3.3	3.4	3.6	3.6	3.7	3.9	4.0	4.0

Note. 1 The calculations are based on the banks' reported assets and capital from the third quarter of 2010. These have then been projected to 2010 on the basis of assumptions in the Riksbank's main scenario and the market analysts' forecast.

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

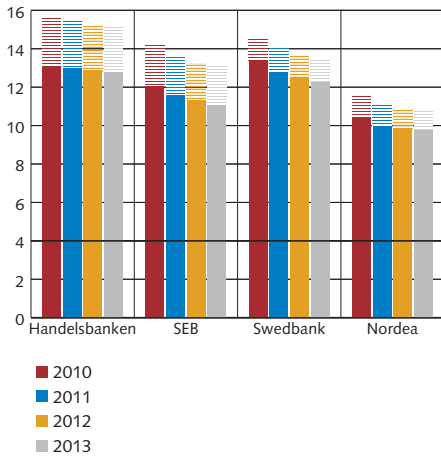
Sources: Bank reports and the Riksbank

**Table 4:8. The major banks' loan losses in the stress test and lending, in total and in the Baltic countries**  
SEK billion

Loan losses	2011	2012	2013	Total	Loans to public and credit institutions excl. repos, Q3 2010
Total	76	70	54	201	6 703
of which Estonia	2.4	2.1	1.7	6.2	121
Latvia	4.8	4.1	3.4	12.3	92
Lithuania	4.8	4.0	3.2	11.9	105

Sources: Bank reports and the Riksbank

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



Note. The ratios are calculated on the basis of the Basel II rules, fully implemented. For 2010 the figures were calculated to the end of Q 4. The core Tier 1 and Tier 1 capital ratios have been adjusted upwards by a standard figure for provisions made for future dividends.

Source: The Riksbank

## STRESS TEST OF LIQUIDITY RISK IN THE SWEDISH BANKS

**The Riksbank examines the banks' liquidity using two measures.** To analyse how the banks' liquidity situation is affected under stress we show two liquidity measures below (more information on the method and data used can be found in the box Method for stress tests of the banks' liquidity risks). The Riksbank's measures entail stressing the banks for a given period of time, for example by customers withdrawing parts of their deposited funds at the same time as the banks are having difficulties in refinancing maturing debt in the market. The measures have some similarities to the proposed Basel III liquidity ratios, but should not be confused with them. Finansinspektionen is currently working to finalise all the details in the Basel III regulations and the reporting requirements that will apply to the Swedish banks once the regulations are actually in place.

**At present there are no generally accepted measures of banks' liquidity risk.** One reason is that it is difficult to identify all aspects of liquidity risk in a few measures. The Riksbank has chosen two measures, but it is important to remember that several different measures are needed to cover the complexity of liquidity risk. It is also important to remember that the Riksbank's measures are indications of the liquidity risks following from the banks' different types of balance sheet and maturity structure. The measures do not take into account the business model and confidence in the bank. This in turn means that the stress tests do not give a full picture of a bank's liquidity risk, which is important to take into consideration when comparing banks. A bank that has a lower result in the Riksbank's stress tests may nevertheless have good access to the capital markets if it is considered to be a stable and secure bank with a low level of business risk.

### THE RIKSBANK'S SHORT-TERM LIQUIDITY MEASURE – STRESSED LIQUIDITY RESERVE

**The first measure tests the banks' resistance and ability to handle liquidity problems arising in the short term.** The aim is to find out if the bank has a sufficiently large liquidity reserve to cover its outflows during a stressed scenario lasting three months. The stressed outflow against which the liquidity reserve is to be related is made up of three parts. In the first place the bank can only refinance half of its market funding that matures in the next three months. In the second place the bank is affected by households and small firms withdrawing ten per cent of their deposits and large firms withdrawing 25 per cent. Finally, ten per cent of the banks' credit facilities are drawn upon, which also gives rise to an outflow. If the measure is at least 100 per cent this means that the bank's stressed outflow can be covered by the liquidity reserve for three months given the assumptions applied in the scenario.

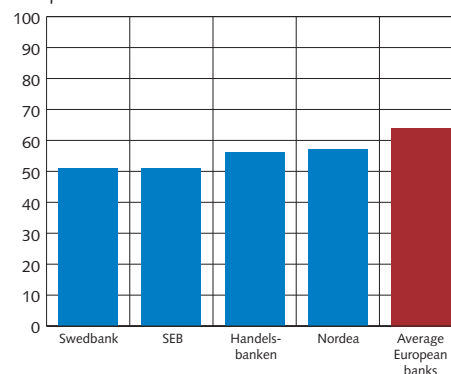
**The short-term liquidity measure shows that the Swedish banks lie just below the average of a sample of European banks** (see Chart 4:8). However, there is a large spread in the outcome of the measure in the sample of European banks. The difference between the banks' positions can to a great extent be explained by different business models. Banks that to a great extent are deposit-funded or have a large proportion of long-term market funding and a large liquidity reserve will have a high score in the Riksbank's short-term liquidity measure. Such banks have a small stressed outflow that is met by a large liquidity reserve.<sup>54</sup> However, not all deposit-funded banks come out well in the test. The reason for this is that many deposit-funded banks do not normally keep such large liquidity reserves. The banks that keep small liquidity reserves have low scores in the measure. One reason that these banks choose to hold small liquidity reserves may be that they are perceived by the market to be banks with a low business risk. If the bank thereby considers that it runs less risk of being unable to refinance its market funding, or of the customers withdrawing their deposits, this could explain why the bank decides to keep a smaller liquidity reserve.

**Swedish banks have approximately the same size of liquidity reserves as the average of the sample of European banks.**<sup>55</sup> But since the Swedish banks are somewhat more dependent on short market funding this creates a somewhat larger stressed outflow in the test. The Swedish banks have short-term liquidity measures of slightly more than 50 per cent, which put simply means that they cope with the stressed outflow for just over 1.5 months (assuming the stress is evenly distributed over the three months). The European sample of banks has an average short-term liquidity measurement of 64 per cent. The spread is large as the outcome varies between three per cent and 190 per cent. It is important to remember that the Riksbank's stress test is only based on public data and does not therefore take into account the type of security 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 in itself constitutes an incentive for banks holding high quality liquidity reserves to publish more information about the contents of the liquidity reserves.

THE RIKSBANK'S STRUCTURAL LIQUIDITY MEASUREMENT –  
STABLE FUNDING AGAINST ILLIQUID ASSETS

**The second measurement tests the banks' structural resilience to liquidity problems.** Structural resilience means that the bank is better equipped to deal with a stressed situation arising over a long period of time; one year in the Riksbank's stress test. For example it

**Chart 4:8. The Riksbank's short term liquidity measure for the Swedish major banks compared with an average of a sample of European banks**  
Liquidity buffer compared to a stressed outflow, per cent



Note 1. The peer group consists of 45 European banks with different business models. The average total assets per bank is 4 800 SEKbn.

Note 2. The data is from December 2009 for the peer group and the third quarter 2010 for the Swedish banks.

Note 3. If the measure equals 100 per cent it means that the bank's adjusted liquidity buffer is sufficient to cover the stressed three month cash outflow.

Note 4.

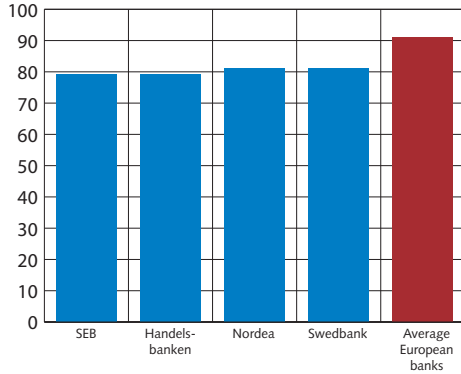
$$\text{The Riksbank's short-term liquidity measure} = \frac{\text{Adjusted liquidity reserve}}{3 \text{ month stressed cash outflow}}$$

Source: Liquidatum and the Riksbank

<sup>54</sup> Hypothetically a savings bank that funds a large securities portfolio with deposits from households would be given a high ratio.

<sup>55</sup> The liquidity reserves are divided by illiquid assets to obtain comparability between banks.

**Chart 4:9. The Riksbank's structural liquidity measure for the major Swedish banks compared with an average of a sample of European banks**  
Stable funding in percent of illiquid assets



Note 1. See note 1 to Chart 4:8. The measure is calculated with data from Dec 2009

Note 2. If the measure is at least 100 per cent it means that the bank's funding is sufficiently stable to manage its assets, with the assumptions made in the stresstest.

Note 3.

$$\text{The Riksbank's structured liquidity measure} = \frac{\sum \text{Funding} \times \text{factor}}{\sum \text{Assets} \times \text{factor}}$$

Sources: Liquidatum and the Riksbank

is assumed that equity and all liabilities with a remaining maturity of more than one year are stable funding. Deposits from households and small businesses is also seen as relatively stable funding while market funding with maturities of less than one year are regarded as unstable. This funding is related to assets with remaining maturities of more than one year and also other assets depending on how illiquid they are. The most illiquid asset in the banks is lending to the public (see also Table B4). The purpose of the measure is to find out if the bank has sufficient stable funding given the liquidity of the bank's assets. A bank with a structural liquidity measure of at least 100 per cent has, with the assumptions applied in the stress test, sufficient stable funding in one year time to be able to finance the assets that then remain on the balance sheet.

**The structural liquidity measurement shows that the Swedish banks lie below the average of the sample of European banks** (see Chart 4:9). However, there is a wide spread in the outcome of the measure within the sample of European banks. The difference between the positioning of the banks can, just as in the case of the short-term liquidity measurement, to a great extent be explained by the banks' different business models. Banks largely funded through deposits from private individuals and small businesses tend to score high in the test. The reason for this is that these deposits are regarded as the most stable form of funding. Market-funded banks that mainly issue securities with long maturities also score high in the test, since they have a smaller proportion of debt maturing within one year.<sup>56</sup> But it is not just the stability of the funding that determines how a bank scores in the test; the type of assets held by the bank also plays a part. 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. Banks with a large proportion of market funding maturing in less than one year will also score low in the test. The Swedish banks have structural liquidity measures of about 80 per cent. The difference between the banks in the European sample in the structural measurement is less than in the short-term measurement. The average is 91 per cent and the 45 banks score between just over 75 per cent and up to almost 120 per cent in the stress test.

**A large proportion of the Swedish banks' assets consist of mortgages.** Mortgages have low credit risk but at the same time are not liquid. In several countries it is common for mortgages to be securitised (packaged and sold). Therefore in these cases the mortgages do not stay on the banks' own balance sheets and thus do

<sup>56</sup> In the stress test the Riksbank assumes that all securities issued with a remaining maturity of at least one year are stable, while those maturing in less than one year are not stable. The banks that issue long bonds, for example 30 years do not benefit fully in the stress test against the banks that issue two-year bonds, for example.

not require any stable funding either. In Sweden mortgages are kept on the banks' balance sheets, thereby requiring a large proportion of stable funding in the Riksbank test. Moreover, Swedish banks use the short-term securities markets for funding to a somewhat greater extent than the European sample of banks. All in all, this contributes to the Swedish banks' lower score than the average for the sample of the European banks.

**The Swedish banks have become alert to the new requirements that Basel III will entail and have started to reduce their dependency on short-term funding.** Since December 2008 the banks have started to replace short-term funding with long-term, which means that the banks have improved their scores in the Riksbank's structural measure. In 2010 too (which is not covered by the Riksbank stress test) the banks have generally continued to increase their long-term funding.<sup>57</sup> As the banks continue this process they will obtain a higher score in the structural measurement.

#### SUMMARY ASSESSMENT OF THE RIKSBANK'S STRESS TEST

**The Swedish banking system has good scores generally in the Riksbank's stress tests.** Stress tests of the banks' counterparty risks indicate that the contagion risk in the Swedish banking system remains on a low level. The Riksbank's stress test also shows that the banks would cope with much worse developments with higher loan losses without their capital adequacy being affected to any great extent. But high loan losses can lead to a deterioration in the banks' access to market funding. The stress tests of the banks' liquidity risk indicate that the Swedish banks take somewhat higher liquidity risks than the average for a selected group of European banks.

<sup>57</sup> In the three first quarters of 2010 the banks have issued the following long-term funding in SEK billion: Nordea 277, Handelsbanken 204, Swedbank 190 and SEB 60. Swedbank is the only bank that reports a maturity structure of assets and liabilities in its quarterly reports. Consequently it is also the only bank on which the Riksbank can run its structural stress test at the close of every quarter. Swedbank's measure at the close of September 2010 compared with year-end 2009 has increased.

## Increased clarity on stability risks

One insight from the crisis is that traditional supervision that only focuses on individual financial institutions is not sufficient to be able to effectively safeguard financial stability. Consequently, international work has been started on how financial systemic risks should be supervised and the tools required for effectively reducing systemic risk.<sup>58</sup> For example, from the start of next year the European Systemic Risk Board (ESRB) will operate at EU level, tasked with making risk assessments of stability in the EU financial system. An example of a tool could be the amortisation requirements for home loans. Another example is a ceiling on loan-to-value ratios. Yet another example of a tool is the time-varying capital requirement for banks proposed in Basel III. The content and allocation of responsibility for monitoring financial systemic risk needs to be investigated in Sweden too, which was pointed out by the Riksbank in a communication to the Riksdag.<sup>59</sup>

As it is now, the Riksbank has no sharp tools, besides crisis management tools, that can be used to safeguard financial stability. The Riksbank's work in this area is therefore to a great extent in the form of speeches and written reports, mainly the Financial Stability Report, drawing attention to the weaknesses the Riksbank considers in the long term could put financial stability at risk.

<sup>58</sup> These tools are called "Macroprudential tools".

<sup>59</sup> See Sveriges Riksdag (2010), "Report on certain areas that require investigation as a result of the financial crisis", 2009/10RB4.

## Considerations and recommendations

### THE SWEDISH BANKS' LEVELS OF CAPITAL

**The Riksbank's assessment is that the Swedish banks should maintain or increase their present levels of capital.**

There are two overall reasons for this recommendation. The first reason concerns uncertainty around the prevailing international economy, fiscal unease and the state of the financial markets. Worse economic development in the rest of the world, combined with mounting unease in financial markets, could mean another increase in banks' loan losses. This may in turn impair the banks' abilities to obtain market funding. In that case high levels of capital can facilitate the banks' access to market funding.

The second reason concerns uncertainty around implementation of the new capital requirements under Basel III. Apart from the minimum requirement, and the capital conservation buffer stipulated in Basel III, the authorities will also be able to introduce a discretionary counter cyclical capital buffer of a maximum of 2.5 percentage points. In addition, systemically important banks may have further capital requirements imposed.<sup>60</sup> The details of these regulations and which banks will be classified as systemically important, are still not clear. All in all, the indication is that the banks should maintain or increase the levels of capital they have at present.

### THE BANKS' FUNDING

**The Riksbank's assessment is that the banks should continue to extend the maturity of their funding.**

The reason for this assessment is that the Swedish banks are dependent on market funding on short maturities. Furthermore, a significant share of the banks' funding is in foreign currency. This means that the Swedish banks would be vulnerable if the functionality of the markets they utilise for funding were to deteriorate. The Swedish banks have started the transition to more long-term funding. When it is introduced, Basel III will entail more stringent demands on the matching of the maturities of the banks' assets and liabilities. Changing a bank's funding structure to become more long-term is, however, a time-consuming process. The Riksbank's assessment is therefore that the banks should continue to extend the maturity of their funding.

<sup>60</sup> For example, it has been proposed that the major Swiss banks UBS and Credit Suisse should be subject to an extra capital requirement that they must have a total capital adequacy of 19 per cent in 2019, compared with the total capital adequacy requirement of 10.5 per cent under the Basel III rules. Moreover the percentage of Tier 1 capital for these banks must be higher than under Basel III.

## THE BANKS' MORTGAGE LENDING

**The Riksbank's assessment is that the banks should take increased account of the refinancing risk in their mortgage lending.**

The reason for this assessment is that the Swedish banks take a considerable refinancing risk through their mortgage lending. The Swedish banks fund a large part of their mortgage lending by issuing bonds in the international capital market. Due to their construction, these bonds are of very high credit quality. The rapid increase of loan volumes through the entire financial crisis and the continued rise of housing prices may nevertheless lead to questions regarding how the liquidity and price of these bonds may be impacted by any future unease on the housing market. The banks are running a refinancing risk which, as the financial crisis of 2008 demonstrated, may become problematic. The banks thus have reason to contribute towards avoiding serious imbalances on the housing market.

## THE BANKS' LIQUIDITY REPORTING

**The Riksbank's assessment is that clarity of the banks' public liquidity reporting needs to be improved.**

The reason for this assessment is that the lack of public liquidity reporting creates uncertainty. The banks currently present very little information on their liquidity risks. To the extent they provide information it is seldom comparable between banks. Increased transparency is needed for several reasons. First, it creates better conditions for investors to make a correct analysis of the banks' risks, which reduces uncertainty. Second, increased transparency gives those banks with a higher level of risk than their competitors an incentive to reduce their liquidity risks. Finally, increased transparency also gives the banks themselves a chance to analyse their liquidity risks in relation to those of their competitors.



## Glossary

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

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

**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.

**Leverage ratio:** Measurement of the bank's capital in relation to its assets, on and off the balance sheet, regardless of risk.

**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.

**Central counterparty:** An institution that acts as a seller to all the buyers and a buyer to all the sellers of financial instruments on an exchange.

**Clearing:** The handling of debts and claims between banks that are the result of payments between the banks' customers.

**Brokerage:** Transaction cost when an asset is bought or sold.

**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:** An investor's total yield requirement minus the expected change in the operating surplus for 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.

**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.

**Issue:** See new issue.

**Gross fixed capital formation:** The change in domestic producers' fixed capital, such as machinery, property, etc.

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

**Implied volatility:** Market participants' expectations of future variations in share prices, derived from option pricing. Volatility is usually measured as the standard deviation of the share's rate of return.

**Deposit guarantee:** An insurance on funds deposited with affiliated credit institutions. If a credit institution defaults, savers recover their deposits, usually up to a fixed amount.

**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.

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

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

**Current ratio:** A measurement of a firm's liquidity indicating that firm's ability to repay its current liabilities.

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

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

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

**Core Tier 1 capital:** nominal share capital and stock surpluses and retained earnings.

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

**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.

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

**Market risk:** The risk of loss resulting from unfavourable fluctuations on the financial markets, mainly for interest rates, shares and currencies.

**MBS (Mortgage-backed securities):** A specific variation of a securitisation in which the return on the security is received via interest payments from a collection of mortgages.

**Counterparty clearing:** Securities trade occurs with the aid of a central counterparty, which functions as an intermediary between the buyer and seller to reduce counterparty risk.

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

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

**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.

**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.

**Tier 1 capital:** Core tier 1 capital and non core tier 1 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.

**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.

**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.

**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.

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

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

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

**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.

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

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

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

**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.

**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.

**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.

**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.

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

**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.

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

**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

**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.

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