



Financial Stability Report 2008:1

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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 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 7 and 20 May. The Report uses data available as at 20 May.

Stockholm, June 2008

Stefan Ingves

GOVERNOR OF SVERIGES RIKSBANK

The Riksbank and financial stability

The 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 State 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 have a dominant position, with a combined market share of around 80 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 Finance Ministry. The Finance Ministry 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

Financial stability is satisfactory in Sweden. After several years of high profits, the Swedish banks are well equipped to cope with unexpected and negative events. However, the surrounding risks have increased over the past six months.

Risks have most tangibly increased in the international financial markets. The turmoil has continued and has spread to new assets, markets and participants. Although there are some indications that the situation in the credit market is easing slightly, the uncertainty in the financial markets will probably persist for a long time to come. It cannot be ruled out that problems will get worse.

Sweden has been affected by this turbulence although to a considerably lesser extent than other countries. For Swedish banks, certain interest-bearing assets have decreased in value and the cost of funding has risen. The Swedish banks have had good access to funding in the markets and the financial systems have worked well throughout the period.

However, the global financial crisis increases the banks' sensitivity to other shocks. The Riksbank has earlier warned that growth in the Baltic states could slow down more suddenly than expected. This now appears to have happened and there is a risk that the ongoing cooling process in the Baltic economies could change into a pronounced economic downturn. This would affect Swedish banks with considerable activities there. The Riksbank's stress tests show, however, that the banks at present have sufficient buffers to cope with a development of this kind.

Although Sweden has remained on the fringes of the financial crisis, these events have raised a number of issues for Swedish authorities. One important tool in a financial crisis is an efficient regulatory system for managing institutions in distress. The Swedish regulations at present have a number of deficiencies.

The Riksbank's assessment of financial stability

PROBLEMS IN THE GLOBAL FINANCIAL MARKETS HAVE CONTINUED

During the six months that have elapsed since the previous stability report was published, the problems in the global financial markets have continued. Banks and other institutions have problems in obtaining funding and falling asset values have obliged them to recognise considerable write-downs. At the same time, banks have had to take over substantial loan volumes due to various types of commitments and guarantees to other institutions. To meet these commitments, the

banks have had to increase their capital. At the same time, the strained situation of the banks hinders their ability to grant new loans.

An increasing number of institutions, assets, participants and markets have been affected. To start with, problems were concentrated to the US mortgage loan market for borrowers with weaker payment capacity, the subprime market. Now more creditworthy borrowers have also been affected and the problems have spread to consumer credits and commercial properties. This in turn affects financial instruments which are dependent on these assets. For example, the market for mortgage bonds in Europe has sharply deteriorated during certain periods, which has increased the cost of funding for mortgage institutions.

Financial institutions outside the banking system can also constitute a threat to financial stability. During the winter, there was great concern about companies that specialised in insuring bond loans, monolines. Additional capital from owners and venture capitalists, among others, have alleviated the most acute problems, at least for the time being. Other players who have been affected more than before are highly leveraged hedge funds. Banks have gradually increased their demand for collateral for loans to hedge funds. In many cases, these have been compelled to sell assets to meet the banks' demands. This has in turn created a sales pressure for certain assets, which has further accelerated the fall in prices.

There are certain indications that the situation has improved slightly in the credit market. Major banks have had easier access both to borrowed and equity capital. The credit risk premiums that reflect the market's assessment of credit risk at institutions and companies have also decreased considerably. This is a sign of a return of confidence to the credit market. However, there is still considerable uncertainty and the risks remain considerable.

CONTINUED UNCERTAINTY

Central banks have taken various types of measures to counter the strained conditions in the financial markets. Key policy rates have been cut in a number of countries. Loans have also been provided with longer durations and for more types of collateral than before. In certain cases, these measures have been co-ordinated by several large central banks.

However, despite the situation being eased to some extent by the measures taken by central banks, considerable problems remain not least in the interbank market. The macro economic prospects cause more concern than before. Growth in the world economy has slackened more than expected. This applies in particular to the United States, the country which has been hardest hit by the financial crisis. The US housing market has not yet bottomed out. Should the economic slowdown be even sharper, the financial system will continue to be put to the test, mainly through increased pressure on the banks' balance sheets. In this situation, banks and other financial institutions may need even more additional capital. A prerequisite then is that there are willing financiers. If the banks cannot obtain the capital they need, they will restrict their

own provision of credit which may lead to a further deterioration in economic activity.

In the present situation, the market is vulnerable to rumours. Many banks and other financial institutions depend on being able to borrow money in the market. When negative rumours arise, the ability to obtain loans from other institutions can be rapidly curtailed, which, for example, has affected the Icelandic banks in recent months. This, together with a deterioration in their credit rating, has made it difficult to obtain funding.

Even though many banks and other institutions have become more open about what is on (and off) their balance sheets, considerable uncertainty still remains. The market is still concerned about the possibility of new losses appearing, without knowing where. The situation will improve only when the banks feel secure about the location of the losses. This may take time, in particular because not everyone is equally willing to openly report their losses. Increased transparency would speed up recovery.

REGULATIONS NEED TO BE REVIEWED

For the authorities, it is a matter in the short term of alleviating the consequences in a way that at the same time keeps public expenditure at a minimum. Analysis and monitoring of liquidity risks are a prioritised issue. Regulation and supervision of liquidity risk is currently subject to review in many countries and international organisations, including the Financial Stability Forum (FSF) and the Basel Committee. FSF has recently published a report in which the G7 countries would like to see a faster and more transparent reporting from financial companies and more stringent demands on credit rating institutions. It also advocates more comprehensive public arrangements to deal with financial crises.

Even if Sweden has not been affected by the financial turmoil to the same extent as many other countries, the events have brought questions to the fore also for Swedish authorities. An important tool to manage financial crises is a functioning regulatory framework to deal with insolvent institutions. The events in the British Northern Rock showed deficiencies in the British legislation, deficiencies which also exist to a great extent in the Swedish legislation.

We invite you to read more about liquidity risks and how these are managed in the article "Liquidity risks in the banking system", at the end of the Financial Stability Report .

FINANCIAL STABILITY IN SWEDEN IS SATISFACTORY

Financial stability is satisfactory in Sweden. The banks have a good resilience to cope with unexpected negative events. A high level of earnings and low loan losses over a number of years, together with a strong capital position, have contributed to this. Moreover, the banks' borrowers are generally financially strong, which means that the prospects for them to repay their loans are good.

Sweden has been affected by the global financial crisis but to a lesser extent than many other countries. Bank profits have been negatively affected by write-downs that have arisen when the value of interest-bearing assets has decreased. The cost of funding has also risen slightly due to higher market rates. However, Swedish banks have been able to obtain needed funding both in Sweden and internationally and the Swedish money and bond market has functioned well. This picture is also confirmed by the Riksbank's risk survey which has been answered by almost 70 participants active in the Swedish fixed income and foreign currency market (see box, Chapter 1 – Swedish participants' view of risks and the functioning of the Swedish market).

FINANCIAL TURBULENCE INCREASES THE VULNERABILITY OF SWEDISH BANKS TO A NEGATIVE DEVELOPMENT IN THE BALTIC COUNTRIES

The uncertainty in the financial markets will probably persist for a long time to come. Although the Swedish banks have so far shown relatively good resilience to the global financial crisis, it has meant that their vulnerability to other risks has increased.

For the banks, one of the most important risks is that borrowers will be unable to repay their debts, the credit risk. On the whole, Swedish banks have a low credit risk, although greater risk is attached to parts of the banks' lending.

The banks' lending to corporates and households in the Baltic countries continues to be a cause of concern. The Baltic activities account for a considerable part of the total earnings and lending for Swedbank and SEB. This makes these banks vulnerable to the economic development of these countries. After several years of strong economic expansion, and tendencies towards overheating, growth in the Baltic countries is now rapidly slowing down. Growth in these countries is partially dependent on exports to their neighbouring countries, and therefore on economic prospects in the world around them. Given the continued uncertainty in the financial markets and the deteriorated international economic outlook, the risk of a more explicit economic slowdown has increased. Such a scenario could reduce the creditworthiness of both companies and households in the Baltic countries, which would have effects on the Swedish banks.

Another important group of borrowers for the banks is the Swedish property companies, which in turn depend on the development of the property market. Property prices have risen sharply in recent years. This is normally a result of increased rental income but this has not been the case during the recent years' price increases. It is only now, during the past year, that rents have started to rise at a faster pace than before. However, the rise is still far from sufficient to justify the high prices.

The price increase indicates that property owners have high expectations of being able to charge higher rents than before. However, a development of this kind depends on a favourable state of the

economy. There is great uncertainty about the economic prospects and this uncertainty has increased since the previous stability report. There is a considerable risk that these expectations will not be met. In other countries, in particular, the U.K., prices of commercial properties have fallen.

Lending to Swedish households has continued to increase at a high rate, considerably faster than household incomes. At present, this does not entail a problem for the banks, since households are generally financially strong. However, in the long term lending cannot continue to increase at a considerably faster rate than household income.

Potential risks

There are a number of potential risks which can affect financial stability if development continues in a negative direction. The risks identified by the Riksbank are shown below (not in order of importance).

✦ Risks in the financial markets

The global financial crisis may intensify and spread to more markets. The risk for Swedish banks, if such a development would materialise, is that their assets would fall in value. This may also lead to deterioration in access to funding.

✦ Developments in the Baltic countries

There is a risk that the current cooling will change into a substantial economic slowdown. This could ultimately mean that borrowers in the region will have difficulties paying their loans. This will in turn have negative effects on earnings and credit quality among the Swedish banks with activities in these countries.

✦ The risk of larger price falls in the commercial property market

Substantial price falls in the property market affect property companies first and property owners in the first place. They are an important group of borrowers for Swedish banks. Furthermore, the properties often serve as collateral for loans. This collateral is of less value if prices fall.

➔ The risk that household debts will continue to rise at a greater rate than household income

Imbalances will be created if the development continues in the same direction for a longer period. The effects on the real economy can be great if an adjustment of these imbalances takes place abruptly. Individual households which have assumed large loans may find it difficult to repay their debts.

The arrows indicate the extent to which the risks have increased or decreased in the past six months.
Increased risks ↑ Slight increase ✦ Unchanged ➔ Decreased ↓

Stress tests

The Riksbank regularly carries out stress tests to assess how unlikely but plausible events could affect the banks' resilience. The result of some of these tests is presented in this report. All tests have been carried out in defined differentiated scenarios, so that the results will be comparable with the results of tests in previous reports.

One scenario is based on a sharp deterioration in creditworthiness among Baltic borrowers. The results show that SEB and Swedbank, the banks with the greatest activity in these countries, cope well with a development of this kind. However, Swedbank's resilience reduced slightly in the second half of 2007. This is due to increased lending to the region when at the same time the capital buffer did not increase to the same extent. This makes the bank more sensitive to the development there.

In another scenario, the Riksbank tests how the banks are affected by a sharp turn in the credit cycle, i.e. a general deterioration in the quality of loans. The result indicates that all major banks would manage with a development of this kind.

Finally, the effects of rising funding costs have been analysed. The assumption is that it has become more expensive for the banks to obtain funding through the market. At the same time, market funding replaces other relatively cheaper funding. The results show that a development of this kind would affect the banks although not in a critical way.

Financial markets – in brief

The global financial crisis has continued since the previous stability report was published. The crisis has spread to other markets, assets and participants than those originally affected. Problems remain in the interbank market, the market where the banks borrow from each other. Although there are some indications that the situation has eased in parts of the credit market, it cannot be ruled out that problems will get worse before eventually being alleviated.

Since the markets have been characterized by continued turbulence, investors have generally turned to safer assets such as treasury bills and government bonds. This has led to a decrease in interest rates on this type of instruments. Interest rates on assets that investors associates with greater risk such as mortgage bonds and corporate bonds, have instead increased compared to safer investments. The financial markets are also negatively affected by growth in the world economy declining more than anticipated, in particular in the United States.

The Swedish financial markets have performed well throughout the whole period. However, the strained situation entails increased risk for the Swedish banks as well, since they depend on international markets to obtain wholesale funding.

The development of the financial markets affects both the banks and their borrowers. This chapter starts with a brief description of the overall development followed by a brief summary of the Riksbank's assessment of the real economy.¹ The development of selected market segments is then described. The concluding section sheds light on the risks in the financial markets.

Uncertainty among the participants in the financial markets has continued to be at a high level since the previous report. This uncertainty has concerned future risks, the extent of required write-downs, and funding problems for financial institutions. This has been expressed by participants shifting from high yield instruments to more secure investments. Market participants have also become more sensitive, which has led the asset prices to fluctuate more than normal.

The financial crisis has affected more assets and a larger number of participants than previously. Problems which were initially restricted to subprime-related products in the United States have spread to products associated with commercial properties and various types of consumer credit. When these underlying assets lose value, demand for structured

¹ The real economic development is based on the Riksbank's monetary policy update in April 2008.

credit products² has ceased. Highly leveraged investors, for example hedge funds, which have invested in structured products have been hit especially hard. When assets have fallen in value, the banks have demanded more collateral for the loans that they have granted. To meet these increasing demands, institutions have been forced to sell parts of their holdings. This has led in turn to falling market prices for the securities sold, which has led to further collateral requirements and so on in a negative spiral. Another group of market participants which has contributed to the turmoil during the winter are companies that guarantee bonds, known as monolines (see box on monolines). Capital infusion from, among others, existing owners and risk capitalists has, at least temporarily, banished the most acute problems.

Banks and other participants have been forced to borrow increasingly large volumes at shorter durations. There are several explanations for the need of liquid assets being greater than before. Falling market prices have compelled large write-downs.³ Banks have also been forced to take over large credit volumes from the market when investors have not been willing to provide funding for credit portfolios where the risks have been difficult to assess. This means that the proportion of loans on banks' balance sheets has increased. Accordingly, a need has arisen for increased buffers and new capital. At times, it has also been difficult to issue long-term securities, which has forced banks to fund themselves to a greater extent than usual via the interbank market with shorter maturities. Several central banks have carried out a number of measures to alleviate the strained situation as well as to ensure well functioning international financial markets. (See box on the international financial crisis winter 2007 and spring 2008).

THE ECONOMIC OUTLOOK

The development of the financial markets reinforces the downturn of the real economy, which is particularly clear in the United States where economic activity is weakening. US household consumption has been weak at the beginning of the year and the decline in the labour market has been more pronounced than expected. At the same time, the high world market prices for oil and food have led to high inflation, which contributes to a deterioration in households' purchasing power. Housing prices are continuing to fall and the problems in the housing and mortgage markets affect both consumption and investment, which are also held back by the banks being more restrictive in their lending. At the same time, the US households' and companies' balance sheets are stronger than they have been in earlier corrections at the housing market. The fiscal policy stimulation is expected to contribute to some recovery in the economy. The Federal Reserve's interest rate

² Structured products consist of pools of securitised loans. The most common products are CDOs (collateral debt obligation) and MBS (mortgage-backed securities). Read more about structured products in the article "Trading with credit derivatives and implications for financial stability", Financial Stability Report 2006:2.

³ According to the accounting standards, banks must value their assets at current market prices (see box on the banks' write-downs of financial assets, chapter 3).

cuts and the weaker dollar rate should also contribute, although rising risk premiums and thereby higher real interest rates are expected to subdue this effect slightly. All in all, GDP growth in the United States is expected to be around one per cent this year, and then to be almost two per cent in 2009 and around three per cent in 2010.

The weakening of the US economy and the turbulence in the financial markets are expected to have negative effects on growth in the euro area. In the euro area, too, several indicators imply weaker economic activity. Confidence among households and in the business sector has declined over a long period of time. Inflation has been much higher than expected, which has undermined households' purchasing power. The weak developments in the United States and the appreciation of the euro are also expected to have a dampening effect on the euro area. At the same time, financing of investment and consumption has become more expensive. GDP growth in the euro area is expected to be around 1.5 per cent this year and next year and to rise to two per cent in 2010.

All in all, global growth has slowed down, but is still relatively good. Emerging market economies such as China and India are expected to continue to grow at a brisk rate, which contributes to sustained global growth. However, there is a risk that the turbulence in the financial markets and the slowdown of the US economy will lead to weakened growth prospects in these countries as well.

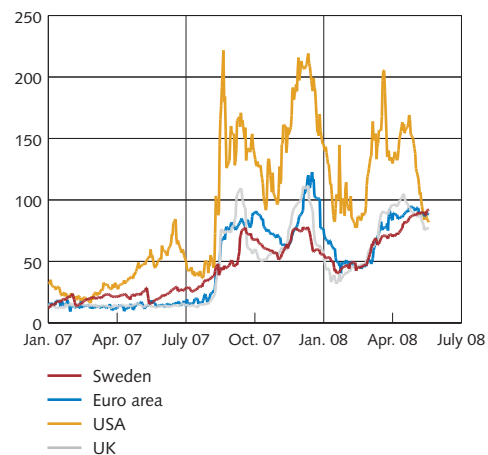
Resource utilisation is high in Sweden but will be lower. GDP growth in Sweden was favourable last year, and various growth indicators point to a continued strong outcome at the beginning of the year. Employment is still rising. Inflation has risen considerably over the past six months, as in the rest of the world. However, growth is expected to be lower in the future than it has been in recent years. This is partly because companies are expected to reduce their rate of investment in relation to that of recent years. In addition, the poorer prospects for economic activity abroad are expected to lead to growth slowing down towards the end of 2008 and at the beginning of 2009. Another contributing factor is that loans are more expensive in the wake of the financial market turmoil. This year, the rate of growth is expected to be around 2.5 per cent and to be slightly lower in 2009; around 2.0 per cent, and around 2.5 per cent in 2010.

THE DEVELOPMENT IN THE INTERNATIONAL FINANCIAL MARKETS

The fixed income market

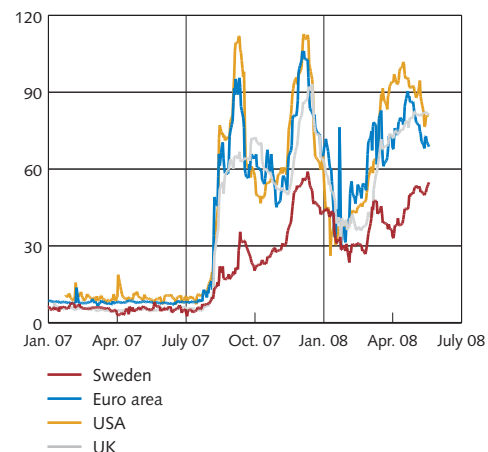
Interest rates continue to be high when banks borrow from each other. The continued uncertainty about potential losses and the higher need for liquid assets is contributing to higher interbank rates. At the same time, the demand for treasury bills has been high both in the

Chart 1:1. Difference between corresponding interbank rate and the three-month treasury bill rate
Basis points



Source: Reuters EcoWin

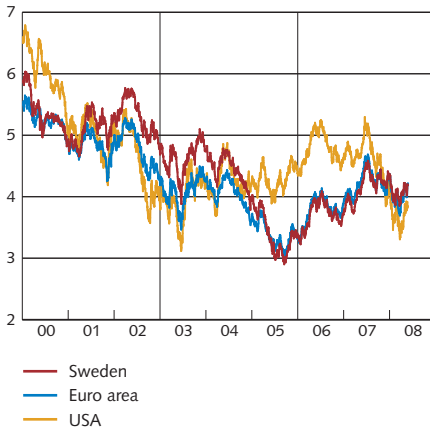
Chart 1:2. Three-month interbank rate relative expected repo rate
Basis points



Note. Spread between 3-month STIBOR and overnight index swap (OIS) rate.

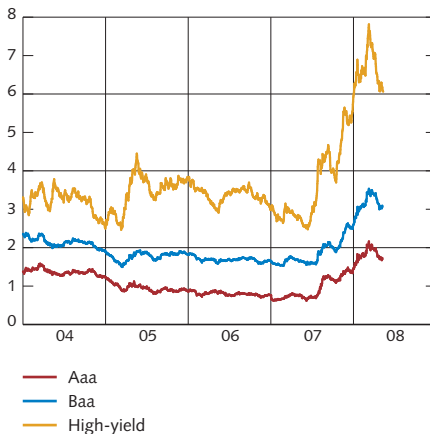
Source: Bloomberg

Chart 1:3. 10-year government bond yield
Per cent



Source: Reuters EcoWin

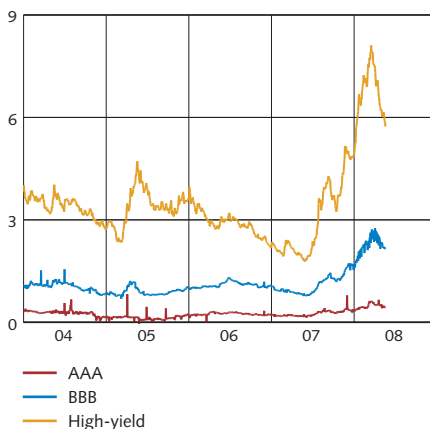
Chart 1:4. Corporate bond spreads in the United States
Percentage points



Note. Definition according to Moody's and Merrill Lynch. High-yield is classified by Moody's/Standard & Poor's as Ba/BB or lower.

Source: Reuters EcoWin

Chart 1:5. Corporate bond spreads in Europe
Percentage points



Note. Definition by Merrill Lynch. High-yield is classified by Moody's/Standard & Poor's as Ba/BB or lower.

Source: Reuters EcoWin

United States and in Europe. In the United States, interest rates on treasury bills have even fallen due to the large cuts in the policy rate by the Federal Reserve.⁴ As a result of rising interbank rates and low interest rates on treasury bills, the interest differential between these are considerably higher than before the onset of the turmoil. The interest differential between the three-month interbank rate and the corresponding treasury bill, known as the TED spread, is still three times higher than normal both in the United States and Europe (see Chart 1:1). But in the United States the TED spreads have recently shown a substantial fall. In Europe they have also declined somewhat, particularly in the United Kingdom. Interbank rates are still high, even when viewed in relation to market expectations of future policy rates, although the differences have recently declined somewhat, primarily in the United States and the United Kingdom (see Chart 1:2).

Government bond yields are slightly lower in the United States and Europe than they were when the Riksbank's published its previous stability report. High demand for risk-free assets contributed to keep interest-rate levels low in both the United States and in Europe (see Chart 1:3). Disappointment about the economic data and the interest rate cuts led interest rates to fall more sharply in the United States than in Europe. Furthermore, the fall in European interest rates has been limited by the market analysts changing their expectations from interest rate cuts to unchanged policy rate.

The credit market

The difference between the yield on corporate bonds and the government bonds, the credit spread, has increased over the past six months (see Charts 1:4 and 1:5). This is due to a rise in corporate bond yields while the trend has been in the opposite direction for government bonds. The corporate bond yields has increased in the United States and Europe due to greater consideration of the relatively larger risk attached to these assets. This is particularly the case for bonds issued by corporates with a lower credit quality. However, since mid-March, conditions in the credit market have eased and credit spreads have declined slightly. The primary market for corporate bonds in Europe has at times functioned poorly during the first quarter. However, the problems have eased and issuance have increased apace with a reduction in credit spreads.

The increased credit spreads for corporate bonds indicate a higher degree of insecurity. While the number of global defaults continues to be at a low level, the credit rating institutes expect an increase in the future due to lower growth forecasts (see Chart 1:6).⁵ Expectations of a rise in default rates lead to an increase in corporate bond yields, since investors require more compensation for the higher risk. This indicates

⁴ Since the previous stability report, the Federal Reserve has cut the policy rate from 4.50 per cent to 2.00 per cent.

⁵ According to Moody's Investor Service, "May Default Report", 8 May 2008, the global default rate is expected to amount to five per cent in December 2008.

that credit spreads will remain at higher levels than before the crisis, when they were historically low.

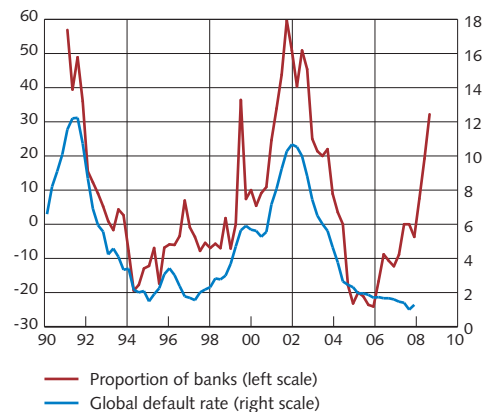
The price of covered bonds⁶ in Europe reflects the underlying risk in the property markets in different countries to a greater extent than before. Previously, the prices for covered bonds from different European countries followed one another relatively well. However, during the spring, greater differences have arisen in the prices. This is due to investors taking greater consideration to the development of the property markets in the respective country. The risk is then assessed differently. In countries where the property market is associated with relatively higher risk, such as Spain and the United Kingdom, it has become more expensive for institutions to fund themselves via the covered bond market. (See box on international property markets, Chapter 2.)

Periodically, the European market for covered bonds has been malfunctioning. One explanation of the problems arising in mortgage bond trading is increased risks in the underlying markets. Another reason, which is of a more technical nature, relates to market practices. Brokers in the European market for covered bonds always quote buy and sell prices on the basis of a fixed spread between them. When uncertainty increased in the financial markets in March, price movements were substantial and this made it difficult for brokers to quote prices. The increased risk was not possible to reflect by widening the spread between the buy and sell price. This led to the market ceasing to function at times. However, the market seems to have been functioning satisfactorily recently.

The banks' lending standards have been tightened, which means a reduction in the supply of available credit. Financial institutions have reported stricter credit standards both in the United States and Europe for a number of different types of credits.⁷ Lenders now have higher standards when judging the borrowers creditworthiness and at the same time the banks have increased their margins when lending to households and corporates. Furthermore, banks have increased collateral requirements and shortened the duration of corporate loans. The stricter credit standards are above all a result of the weaker economic outlook and deteriorating housing markets. Furthermore, the banks' lending standards, in particular in the United States, were before the crisis generous.

Demand for credit instruments linked to leveraged buy-outs (LBOs) is still low internationally. Banks that provide loans for company acquisitions normally convert these loans to securities that can be sold

Chart 1.6. Global default rate and tightening standards for commercial and industrial loans in the United States
Per cent



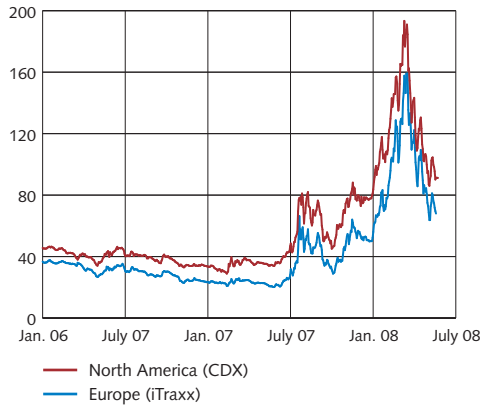
Note. Concerns companies classified by Moody's/Standard & Poors as Ba/BB or lower. The majority of the number of defaults occurs among companies classified as Ba/BB or lower and the chart accordingly shows these companies.

Sources: Federal Reserve Board and Reuters EcoWin

⁶ Covered bonds are bonds where the holder has a special priority right in the event of bankruptcy. Normally, covered bonds are intended to offer better creditworthiness than bonds that are not covered.

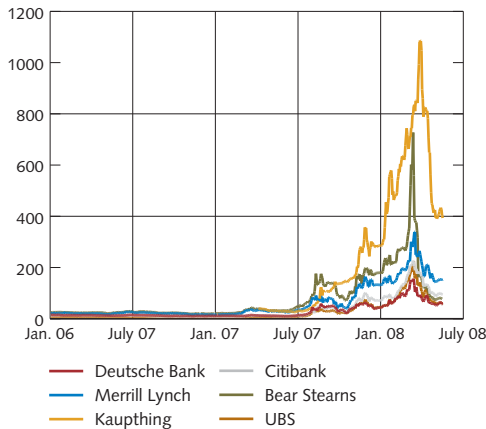
⁷ Board of Governors of the Federal Reserve System, "The April 2008 Senior Loan Officer Opinion Survey on Bank Lending Practices", 5 May 2008, Bank of England, "Credit conditions Survey 2008 Q1", 3 April 2008 and the European Central Bank, "The euro area bank lending survey", 18 January 2008.

Chart 1:7. Premia in the CDS indices
Basis points



Note. The indices for North America and Europe are represented by CDX and iTraxx respectively in underlying 5-year bonds with an AAA credit rating.
Sources: Reuters EcoWin and Bloomberg

Chart 1:8. Premia in CDS for a selection of banks
Basis points



Source: Bloomberg

on to other agents. However, in connection with the crisis break-out, the loans were difficult or impossible to resell. This has resulted in the banks, primarily in the United States and Europe, being forced to retain large loan volumes on their own balance sheets, which has forced the banks to increase their capital holdings as well. (The higher the share of loans which banks have on their balance sheets, the more capital the banks need to have in buffers to meet the increased credit risk in the portfolio.) Recently this has eased somewhat.

Premia on so called credit default swaps (CDS) rose sharply during the first quarter, although the trend has reversed recently (see Chart 1:7).

A CDS can be used as an insurance against credit risk, for example, as an insurance against credit risk in a corporate bond. The CDS premia normally measures the credit risk in the company's underlying assets. However, during the spring, increased premia reflected other factors besides purely credit risk in the companies. It has become increasingly common to purchase CDS contracts without having an underlying bond to protect. Since the market for CDSs for individual companies is relatively illiquid, a few transactions can lead to large changes in the CDS premia. The CDS premia peaked in mid-March. Since then the levels have almost halved, although they are still higher than they were in December.

The CDS premia for Icelandic banks rose sharply during the spring.

The global credit turmoil has created concern among market participants with respect to the rapid expansion of the Icelandic banks.⁸ This has been reflected in rising CDS premia (see, for example, the Icelandic bank Kaupthing in Chart 1:8). Iceland's three largest banks have undergone strong growth in recent years and their total assets are nine times greater than the country's GDP.

The credit spreads⁹ for bonds issued by emerging market economies (EME) have increased although they are still at relatively low levels (see Chart 1:9). The creditworthiness of EME has continued to be good during the past six months. A large number of countries are associated with relatively low risk. However, the reliance on external financing within EME countries in Europe has risen in recent years. Above all, the extent of foreign funding of domestic credit has increased.

The stock market

Stock markets are at lower levels than six months ago, but since mid-March they have gradually risen (see Chart 1:10). The trend in the international stock exchanges has been characterised by decreased willingness to take risk among investors and falling share prices. Apace with a gradual slowdown of the economy in the coming years, profit

8 Following a request from the Icelandic central bank, the central banks of Sweden, Norway and Denmark entered into a swap agreement (see www.riksbank.se).
9 Credit spreads for EMEs show the difference between the credit rating for a basket of countries and a theoretical US zero coupon government bond.
10 P/E-ratio (price/earnings) describes the price of a share in relation to the expected development of earnings.

growth is expected to be slightly lower. Despite this, the valuation of companies in terms of P/E ratios is still below the historical average since 1990 (see Chart 1:11).¹⁰ At the same time, the implied volatility indicates that the uncertainty about share prices is expected to persist (see Chart 1:12). The implied volatility describes the market participants' expectations of future variations in share prices.¹¹

The foreign exchange market

The dollar has depreciated sharply against a large number of currencies, for instance the euro and the yen. The weakening of the dollar has taken place simultaneously with the interest rate cuts of the Federal Reserve as well as the deterioration in economic outlook in the United States. It has also been expected for a long time that the US current account deficit and the corresponding surpluses in other countries would lead to a weaker dollar.

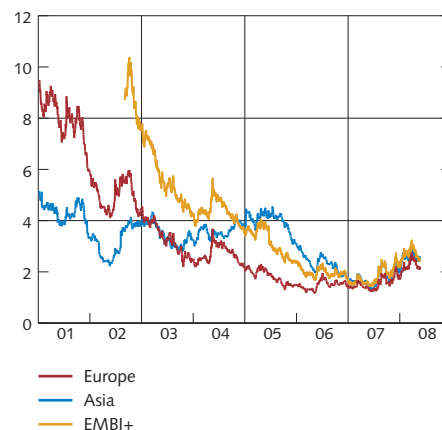
Interest in borrowing in one currency and investing in another as a result of interest rate differentials has declined. A common transaction in the foreign exchange market in recent years has been to borrow in a country where the interest rate is low, such as Japan or the euro area, and to invest in another country where the interest is high, such as New Zealand or Iceland. This is usually referred to as "carry trades". One condition for these trades to be profitable is that the exchange rates are fairly stable. If the currency one has chosen to invest in should suddenly fall in value, the loss could be much greater than the profit that can be made on the interest rate differential. Increased risks for exchange rate fluctuations usually therefore lead to "carry trades" being unwinded, which has also been the case over the past six months. When many agents unwind their investments and sell the investment currency at the same time, this can affect the exchange rate, especially if a small currency is involved. This is probably one of the explanations for the severe depreciation in the Icelandic krona during the winter.

The turbulence in the interbank market has spilled over into the market for currency swaps. A currency swap is an agreement to purchase a currency at the current exchange rate and to sell back the same currency on a specific date in the future at a given exchange rate. The price of a currency swap is determined on the basis of the levels of interbank rates. When interest rates in the interbank market rose and there were substantial price fluctuations, the market for currency swaps deteriorated sharply. The market makers became uncertain about pricing. This in turn meant that it was more difficult to use the swap market. Uncertainty has decreased and the market for currency swaps worked well during the spring.

The commodity market

As a result of the financial turbulence, investors have increasingly moved to gold, oil and other commodities. The capital inflow to the

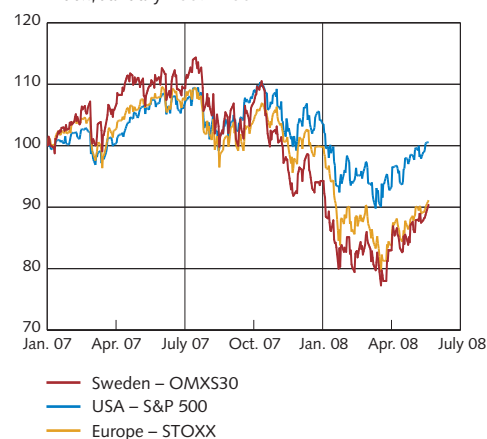
Chart 1:9. Credit spreads for bonds issued by emerging market economies
Percentage points



Note. The countries in EMBI+ are classified as Baa1/BBB+ or lower according to Moody's/Standard & Poor's.

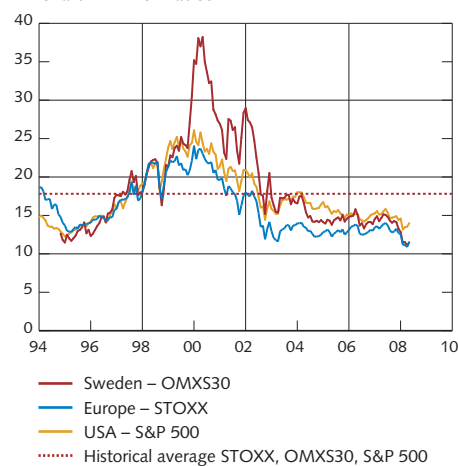
Source: Bloomberg

Chart 1:10. Stock market developments
Index, January 2007=100



Source: Reuters EcoWin

Chart 1:11. P/E ratios

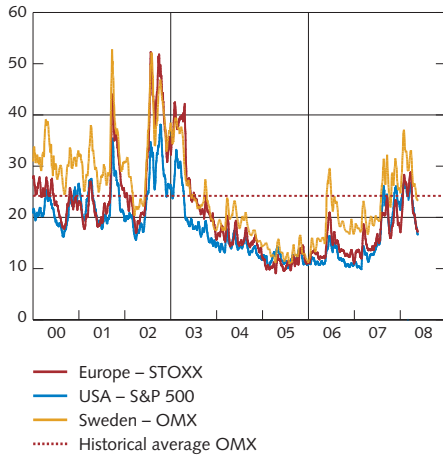


Note. Historical average refers to the period January 1996 - April 2008.

Source: Reuters EcoWin

¹¹ The implied volatility is calculated from pricing of equity options.

Chart 1:12. Implied stock market volatility
Per cent



Note. Historical average refers to the period January 1996-May 2008.

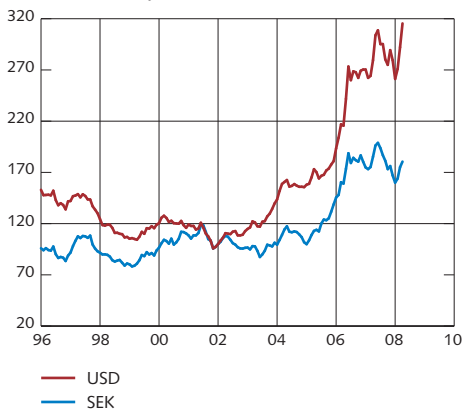
Source: Bloomberg

Chart 1:13. The development of the Icelandic króna against the euro



Source: Reuters EcoWin

Chart 1:14. Commodity price index expressed in dollar and in kronor
Index, January 2002=100



Source: Reuters EcoWin

commodity markets has moreover increased sharply in recent years and interest from hedge funds and institutional investors has grown. The increased demand for commodities has led to prices rising to record levels (see Chart 1:14). The strong global growth in recent years has also increased demand for commodities, in particular from China and India. Together with political uncertainty, this has contributed to the high prices for energy and commodities. At the same time, growth of supply of certain commodities has decreased, which also contributes to higher prices. Since commodities constitute an increasing share of the total holdings of investors, price fluctuations of these assets are increasingly important for financial stability.

DEVELOPMENTS IN SWEDEN

In Sweden both the fixed income and the foreign exchange market have functioned well. The Swedish fixed income market has, however, been affected by international developments and interest rates have risen at, for example, the interbank market. This is a natural consequence of the free capital movements across borders. The picture of the Swedish financial markets functioning well throughout the period of financial turbulence is also confirmed by other participants which are active in the fixed income and foreign currency market (see the box Swedish participants' view of risks and the functioning of the Swedish market).

As in other countries, Swedish interbank rates have risen. Higher interbank rates do not, however, mean that banks will by definition have liquidity problems. In the first place, this means that net borrowers at this market meet higher wholesale funding costs. At the same time as interbank rates have generally risen, interest rates on treasury bills are more or less unchanged. This means that the difference between interbank rates and the interest on treasury bills has increased during the spring in Sweden as well as in Europe. The increased interbank rates are reflected in the TED spread, that is the difference between the three-month interbank rate and the corresponding treasury bill. It is now around 90 basis points compared with an average of 20 basis points since 2000. Interbank rates are still high, even when viewed in relation to market expectations of future policy rates. But the differences between them are lower than, for instance, in the United States and Euroland (see Chart 1:2)- The "T/N rate" (from Tomorrow to the Next day) has shown a more volatile pattern than before the turmoil started (see Chart 1:15). The difference between the T/N rate and the repo rate has historically been around ten basis points, but during the financial crisis, the differential has at times been higher, and amounted in March to at most 70 basis points. Now, it is back to normal again.

Swedish market participants' views on risks and the functioning of the Swedish market

Swedish financial markets have functioned well throughout the period of financial turmoil, even if the volumes have been slightly lower and the depth of the market has declined. This view has been confirmed by the Riksbank's risk survey which is sent to Swedish financial market participants twice a year starting in the spring of 2008. The purpose of the survey is to provide an overall picture of the view on risk among market participants active in the Swedish market. It is also intended to assess the functioning of the market.

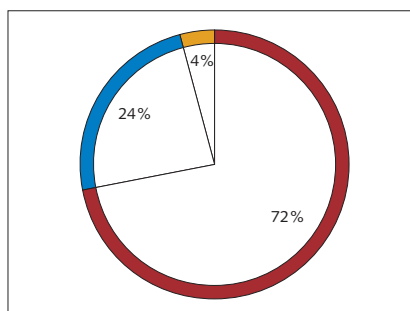
The results from the spring's risk survey are shown below.¹² It was sent to 89 market participants with a response rate of 76 per cent. The groups participating in the questionnaire are the Riksbank's monetary policy counterparties and other participants active in the Swedish fixed income and foreign exchange market.

The price of risk is expected to be higher in the future

The price of risk has risen sharply since the summer of 2007. A majority of the participants in the Swedish market, three out of four, consider that this is a permanent change (see Chart B1). The financial turmoil has also affected the participants' way of relating to risk. Over half of the participants state that their willingness to take risk has decreased since the summer of 2007, i.e. before the financial turbulence (see Chart B2). It is mainly participants in the fixed income market which have changed their willingness to take risks while participants in the foreign exchange market say that they are unaffected.

Even looking six months ahead, a majority of the participants in the fixed income market expect risk willingness to be slightly lower than normal. Looking at all participants, half of them believe that risk willingness will return to normal during the next six months (see Chart B3).

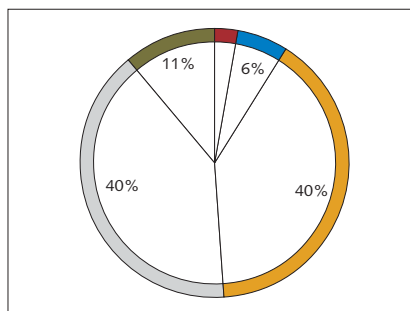
Chart B1. Proportion of participants who consider that the increased price of risk will be permanent



■ Yes
■ Now
■ Don't know

Note. Responses to the question: "The price of risk has increased since the summer 2007. Do you consider this to be a permanent shift?"

Chart B2. Changed risk propensity of participants in the past six months



■ Greatly increased (3%)
■ Slightly increased
■ Neither increased nor decreased
■ Decreased slightly
■ Greatly decreased

Note. Responses to the question: "How has your propensity to take risk changed since the summer 2007, i.e. prior to the financial turmoil?"

Many participants have increased their buffers of liquid assets during the past six months. One out of three participants states that the institution's buffer of liquid assets has increased, while around half state that it is unchanged (see Chart B4). Over 70 per cent expect that their own institution's buffer of liquid assets will be at normal levels in the coming six months. Among the remainder, approximately equal numbers believe that buffers will increase or decrease.

The Swedish fixed income and foreign exchange market have functioned well

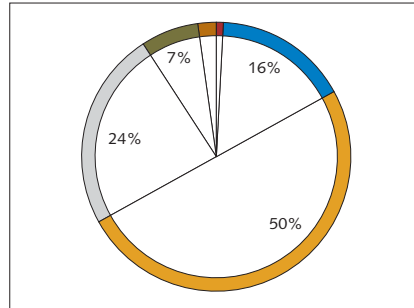
It is generally considered that the Swedish fixed income market has functioned well, according to the respondents. Access to liquidity funds is consistently considered to have been good.

¹² The survey took place between 10 and 25 April. The survey and analysis company Markör carried out the survey on behalf of the Riksbank.

Chart B3. Risk willingness in the next six months compared to normal

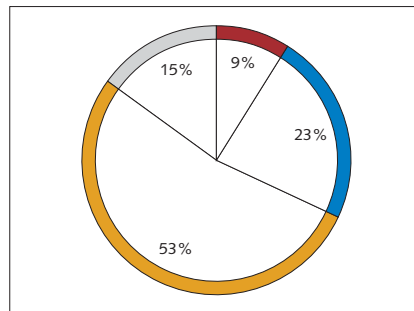
- Much higher than normal (1%)
- Slightly higher than normal
- Normal
- Slightly lower than normal
- Much lower than normal
- Don't know (2%)

Note. Responses to the question: "Compared to normal – How do you foresee your propensity to take risk six months ahead?"

**Chart B4. Change of own institutions' liquid assets in the past six months.**

- Greatly increased
- Slightly increased
- Neither increased nor decreased
- Slightly decreased
- Greatly decreased (0%)

Note. Responses to the question: "How has your institution's buffer of liquid assets changed in relation to six months ago?"



When the international financial turbulence has been especially severe, the Swedish market has also been affected by lower liquidity, but not to such an extent that it has been perceived as a general problem. A number of participants state that the Swedish market for mortgage bonds has worked well even when the corresponding markets in Europe have ceased to function. The foreign exchange market is also considered to have functioned well.

A number of respondents state that they have experienced difficulties in interpreting the Riksbank's communications, which is considered to have led to unnecessarily large price movements.¹³

The participants follow developments in the banking system more carefully than before

When participants are asked what they believe will be in focus in the Swedish financial markets in the next six months, many answer the banking system and possible effects from the global financial crisis. Confidence in the Swedish banking system is considered to be important and the banks' credit and liquidity risks will be monitored more careful than before. Risks are also seen in the development in the Baltic countries especially since some of the Swedish banks have considerable activity there.

¹³ The survey was carried out before the Executive Board of the Riksbank adopted an updated communication policy and a special appendix on monetary policy communication.

Long-term government bond yields in Sweden have fallen slightly in the past six months. The ten-year government bond rate is just over four per cent. Interest rates have been pushed downwards by investors' demand for secure investments. However, rising inflation has had the opposite effect on interest rates, as well as in the euro area. Short-term government bonds have to a great extent been influenced by monetary policy expectations in Sweden and are more or less unchanged since the previous stability report. The Riksbank has increased the interest rate once during the period by 25 basis points to 4.25 per cent.

The primary market for corporate bonds has functioned well.¹⁴

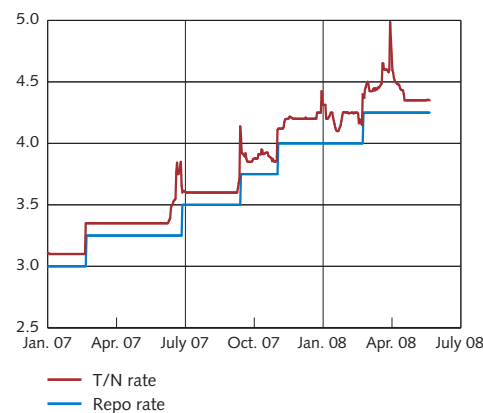
Issuance volumes during the first quarter were in line with the issuance volumes in the past two years. During the first quarter, a new pattern could possibly be perceived where maturities on bonds are shorter than before and are mainly between 18 months and three years. Moreover, the proportion of foreign companies issuing in kronor has increased compared with previous years. Financial institutions accounted for over 50 per cent of the issuances.

Mortgage bond yields have not risen in relation to government bond yields. The majority of the Swedish mortgage bonds consist of covered bonds.¹⁵ Even if these bonds have the highest credit rating, investors have made the assessment that the credit risk in these securities has risen in relation to government bonds and the interest rate differential between them has therefore increased (see Chart 1:16). This indicates that investors in Sweden, as well as in Europe, take greater consideration to the underlying risks in the property sector. The secondary market for mortgage bonds in Sweden functioned considerably better than in many other countries when uncertainty increased in March (see also section on the fixed income market internationally).

Equity prices in Sweden have fallen in line with the rest of Europe.

The growth in profits for Swedish companies has been revised downwards for 2008 but is expected to increase during 2009.¹⁶ Bank shares have continued to develop weakly during the period, due to the general turmoil relating to the banks' balance sheets. In principle, the development of the Swedish banks has complied with the development in the European banking sector (see Chart 1:17). To a certain extent, they have also been characterised by concern about the activities of the Swedish banks in the Baltic countries.

Chart 1:15. T/N rate and repo rate
Per cent



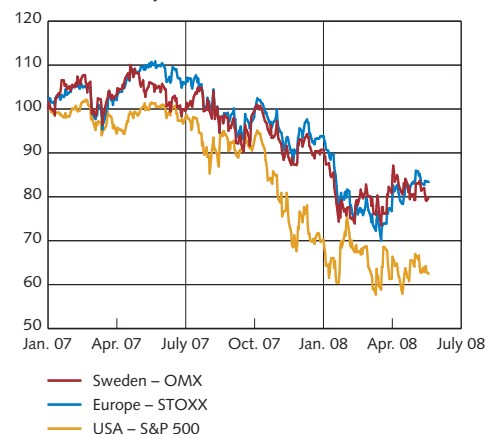
Note. Swedish tomorrow/next (T/N) rate, that is the inter-bank rate from tomorrow until the day after tomorrow.
Source: Reuters EcoWin

Chart 1:16. Spread between 5-year mortgage bond and the corresponding government bond and the average premia in 5-year CDS for Swedish banks
Basis points



Sources: Reuters EcoWin, JP Morgan and Handelsbanken Capital Markets

Chart 1:17. Developments in the bank sector in different stock markets
Index, January 2007=100



Source: Reuters EcoWin

¹⁴ The figures mentioned do not include issuance of mortgage and government bonds.

¹⁵ Covered bonds are bonds where the holder has a special priority right in the event of default. Normally, covered bonds are intended to offer better creditworthiness than bonds that are not covered.

¹⁶ The profits for the 70 largest companies listed at OMX are expected to rise by around two per cent in 2008 and almost thirteen per cent in 2009 according to the SME database, 8 May 2008.

The krona has, measured with the TCW index,¹⁷ appreciated in relation to foreign currencies since the previous report. This deviates from the historical pattern where the krona tends to be sensitive to investors' demand for risk. Historically, when risk willingness has decreased in the international markets, the krona has weakened. A crucial difference in the development this time is the sharp weakening of the dollar.

Summary of risks in financial markets

Overall, uncertainty in the financial markets has increased slightly and will probably persist for some time to come. During the past six months, the financial crisis has spread to new assets, markets and participants. In parallel with this, the US economic outlook have weakened. There are indications in the credit market that the situation has eased slightly, while considerable problems remain in the interbank market.

It cannot be excluded that the problems will get worse before the situation improves. There is a risk that the value of assets will continue to decline. This would lead to new write-downs for banks and other institutions, and an increased need for additional capital. To date, the banks' write-downs amount to around USD 330 billion while capital infusions amounts to USD 247 billion.¹⁸ Other impulses that can lead to a deepening of the crisis are that the prospects for monolines are still uncertain. Nor can it be excluded that markets which have been relatively unaffected so far will be affected. For example, the commodity market has to date benefited from increased demand and sharply rising prices. However, it is an open question how fast these prices may be adjusted, if demand for commodities eventually falls.

The problems in the financial markets risk being reinforced due to high funding costs and credit tightening. To date, the stricter lending standards applied by international banks can be explained by the downturn in the housing markets and the state of the economy rather than increased solvency and liquidity problems. However, if the financial turmoil and the accompanying problems continue, the banks' ability to provide new credit to customers and other counterparties can be further hampered.

¹⁷ TCW index (Total Competitiveness Weights) is a way of measuring the value of the krona against a basket of different currencies. A higher value of the index means that the krona has depreciated – the basket of currencies has become more expensive to purchase with Swedish kronor. TCW consists of 20 currencies, which are trade-weighted.

¹⁸ According to Bloomberg, 13 May 2008.

Until now, the Swedish banks have only been marginally affected. In general, Swedish banks have mainly been affected by more expensive financing and falling values of fixed-income assets. However, Swedish banks have had good access to the bond markets both in Sweden and internationally. The cost for financing has therefore not increased as much in Sweden as in the rest of Europe. It is unlikely that the Swedish banks would have solvency problems due to the financial turbulence. However, the banks' considerable dependence on international wholesale funding makes them vulnerable to events that can affect their ability to obtain short-term funding.

The following section contains a description of some of the major events in the winter and spring in the international financial markets.¹⁹

The Federal Reserve saves Bear Stearns

One of the events that drawn most attention in the spring was the problems that arose in the United States fifth largest investment bank, Bear Stearns. The bank had large holdings of securities linked to the US mortgage market. It was therefore affected early on by the problems in the market.²⁰ At the same time, Bear Stearns' business model entailed a high level of dependence on short-term wholesale funding. In December, the bank was forced to write down assets to a value of around USD 1.9 billion. At the same time, it reported a loss of USD 854 million for the fourth quarter of 2007.

In mid-March, a rumour occurred that Bear Stearns had liquidity problems. This created concern which made investors and other banks unwilling to lend money to Bear Stearns, which led to the bank experiencing an acute shortage of short-term wholesale funding. In an attempt to stabilise the situation, Bear Stearns was granted loans against collateral at the Federal Reserve. This took place in cooperation with JP Morgan Chase.²¹ The actions of the Federal Reserve were quite unprecedented. The US central bank had to use an old legal act that enabled it to grant emergency liquidity assistance to a financial institution that was neither a commercial bank nor a savings bank. The intention was to try to avoid a collapse of one of the United States' largest investment banks when the market was especially sensitive. This news led to the share price almost halving. All credit rating agencies reduced the credit rating of the investment bank. On 16 March, JP Morgan notified that the bank intended to purchase Bear Stearns with assistance from the Federal Reserve. After renegotiation of the bid

over the Easter weekend, Bear Stearns' assets were gathered into a separate company created by the federal reserve where JP Morgan took on the risk for the first billion dollars of any losses. The Federal Reserve guaranteed the remaining USD 29 billion. By means of a directed share issue and other share purchases JP Morgan and the board of Bear Stearns have in principle ensured a majority in favour of a merger this summer.

In all, Bear Stearns carried out write-downs corresponding to USD 2.6 billion (see box on the banks' write-downs of financial assets, Chapter 3). The major problem for Bear Stearns was that the market lost confidence that the investment bank would be able to solve its problems, which created liquidity problems.

Northern Rock taken into state ownership

The British bank Northern Rock encountered major problems last autumn in refinancing, and the Bank of England provided liquidity support.²² At year-end, Northern Rock's debt to the central bank was GBP 26.9 billion. Since then, Northern Rock has reduced the debt partly by sales of assets, and the aim is to be debt free around 2010.

In mid-January, the bank negotiated with three potential buyers, Virgin Group, Olivant Advisors and Northern Rock's management at that time. The British state provided a guarantee in an attempt to make Northern Rock more attractive for purchasers. In brief, this meant that Northern Rock's debt to the Bank of England would be redeemed by issuing new debt instruments in the capital market. These would in turn be guaranteed by the state. This guarantee meant that any purchaser would not have to invest such large amounts from the start. However, these attempts to find a buyer failed. In mid-February, share trading stopped after the Government announced that the bank would be temporarily taken over by the state. Previously,

19 For events during the summer and autumn of 2007, see the box "Credit market turbulence" in Financial Stability 2007:2.

20 In June, two of Bear Stearns hedge funds collapsed. This was due to large losses associated with subprime loans.

21 Under the current rules, Bear Stearns as an investment bank was not able to borrow from the central bank. Instead, this was done through JP Morgan Chase which had this right in its capacity of commercial bank.

22 After a bank run by depositors, the British authorities issued additional guarantees. See Financial Stability 2007:2.

the risk capital group Olivant had withdrawn its offer since it considered the requirements for repayments of Northern Rock's existing debt were too hard. Two offers remained at that point. However, these were rejected on the grounds that the offers were not sufficiently favourable for the UK taxpayers. A new legal act stipulated that the bank will be under state ownership until it has solved its funding problems. The shareholders will be compensated to some extent, but the government will receive the income in the event of reprivatization. In mid-April, Northern Rock announced that the number of employees would be reduced by a third. This is part of the attempts to strengthen its finances to be able to repay the debt to the central bank within four years.

Spillovers to monolines

During the winter, considerable turbulence arose around large companies which have specialised in insuring bonds, known as monolines (see box on monolines).

A number of monolines have had their credit rating reduced by the rating agencies Fitch, Moody's or Standard & Poor's since the turn of the year (see Table B1). The reason was that monolines were affected by substantial write-downs due to the decline in value of their

assets. This led the credit rating agencies to force the monolines to raise additional capital in order to increase their capital buffers. One of the largest monolines, Ambac, had its rating downgraded in January by Fitch from AAA to AA. The reason given was that the company did not comply with the capital adequacy requirements. Likewise MBIA, which is the other major monoline, was downgraded by Fitch in April to AA for the same reason.²³ FGIC is the insurance company which has been hardest hit. It has had its credit rating reduced by all three credit rating institutes by several steps.

Several central banks have undertaken special measures

Central banks in other countries have continued to act to facilitate the situation in the financial markets and to meet the economic downturn.

A number of central banks have adjusted their key policy rate. For example, the Federal Reserve lowered its key policy rate by 75 points at an extra meeting in January. Overall, the US central bank has cut its key policy rate on seven occasions, equivalent to 3.25 percentage points since the autumn of 2007. In December, the Bank of England reduced its key policy rate for the first time for over two years and has subsequently cut the interest rate two more

Table B1. Credit ratings for monolines

	Fitch Ratings	Moody's investor service	Standard & Poor's	Net par insured USD bn
Ambac Assurance	AA 12 Mar 08	Aaa 12 Mar 08	AAA 12 Mar 08	524
Assured Guaranty	AAA 12 Dec07	Aaa 14 Mar 08	AAA 31 Jan 08	94
FGIC	BBB 26 Mar08	Baa3 31 Mar 08	BB 28 Mar 08	314
FSA Inc.	AAA 24 Jan 08	Aaa 11 Mar 08	AAA 31 Jan 08	406
MBIA Insurance	AA 04 Apr 08	Aaa 26 Feb 08	AAA 25 Feb 08	679
XLCA	BB 26 Mar 08	A3 07 Feb 08	A- 25 Feb 08	18
CIFG	A- 31 Mar 08	Ba2 20 May 08	A+ 12 Mar 08	95

Note. All credit ratings, except Assured Guaranty and FSA Inc., and Moody's assessment of CIFG, have negative outlook or are being reviewed for possible downgrading.

Date denotes last time rating was changed or affirmed. All ratings were AAA at June 2007.

Source: Bank of England

²³ MBIA asked Fitch to cease assessment of the company's credit rating and stopped sending documentation to Fitch since February.

times. Central banks in countries which have been affected to a lesser extent have in certain cases postponed interest rate increases.

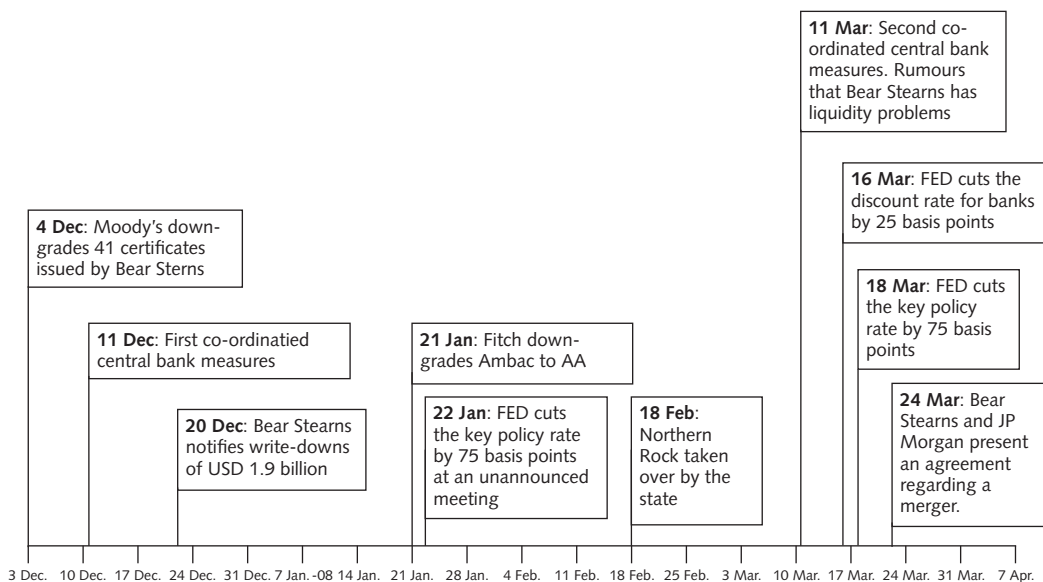
Several central banks abroad have moreover carried out a number of special measures due to the financial crisis. On occasions when the financial turbulence has been particularly intense, many banks have preferred to place their excess liquidity in the central banks instead of in the interbank market. The shortest interbank rates have risen and to stabilise the shortest market rate reflecting the monetary policy key policy rate, the central banks have acted to improve liquidity by increasing their short-term lending.

With the intention to maintain functionality in the markets used by the banks for their funding in longer terms, several central banks have also issued debts with longer maturities. A number of central banks have also expanded the list of collateral which the banks may use when they borrow at central banks. Some central banks have also offered the banks government securities in exchange for less liquid mortgage bonds. The intention has been to make the

securities held by the banks in their portfolios more liquid.

Central banks have also acted together on two occasions. In December 2007 and at the beginning of March this year, the Federal Reserve, the Bank of England, the European Central Bank, the Bank of Canada and the Swiss National Bank co-ordinated their actions to reduce the pressure in the interbank markets. The Riksbank and the Bank of Japan expressed their support of this action although without taking active steps. On both occasions, the actions consisted primarily of providing funds with a longer maturity than normal market operations, against collateral. In addition, the Federal Reserve provided a swap facility in order to meet the demand for dollar from the European banks.

These actions managed to stabilise the short-term interest rate. However, it was not sufficient to overcome the sharply increased risk premiums in the long-term interbank rates. (See also the article Liquidity risk in the banking system).



Facts about monolines

During the winter, considerable concern arose about major US insurance companies, known as monolines, which specialise in insuring bond loans. This box describes how a monoline functions and what has caused the concern in the recent period.

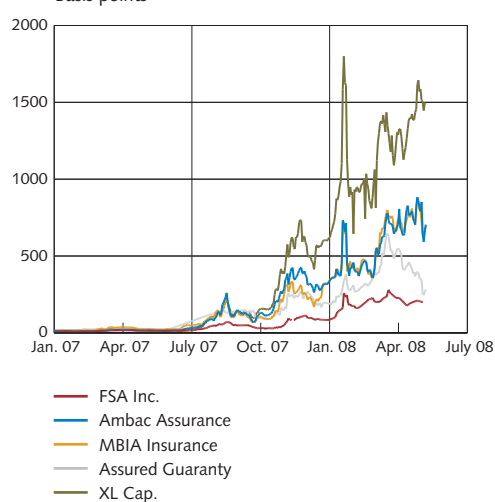
Monolines are actually not a new phenomenon. Since the 1970s, US municipalities have been able to insure their bonds with monolines. For a long time, the activity of these companies was concentrated on insuring bonds issued by municipalities, known as *municipals*.²⁴ At the end of the 1980s, the activity was expanded to also include insurance on bonds issued in other countries and on different types of structured products.²⁵

The business idea was simple: A monoline acts as an insurance company by guaranteeing interest and principal payments on the insured bond. The issuer of a bond (often a municipality) pays a premium for this. If the municipality in this case were not to fulfill its obligations, the guarantees then come into effect. The idea is based on the monoline, which insures the bond, having a higher credit rating than the issuer of the bond. The result of the insurance is that the bond receives a higher credit rating. The higher the credit rating a bond has, the lower will be the interest rate on the bond and thus the cost of obtaining funding.

Approximately half of the outstanding municipal bonds in the United States are insured by monolines. During the autumn of 2007, securities to a value of as much as 2,200 billion were insured by monolines. Of these, 60 per cent were municipal or government assets. 26 per cent consisted of structured products and 14 per cent of foreign loans.²⁶ During 2007, there were eleven monolines in the United States. All except two had the highest possible credit rating. The two predominant companies are Ambac and MBIA which together insure around 90 per cent of the 2,200 billion.

During the financial turbulence, a considerable part of the assets insured by monolines have fallen in value. Accordingly, the risks have increased for most monolines (see Chart R5). Increased risks have led to the credit rating agencies requiring the companies to raise new capital in order to keep their credit ratings. At present, around USD 7 billion has been raised by five different companies, of which USD 2.5 billion has gone to MBIA and USD 1.5 billion to Ambac. These contributions have come from other existing owners and risk capital investors.

Chart B5. CDS premia for monolines
Basis points



Source: Bloomberg

²⁴ The opposite to a monoline is a multiline. These offer coverage for two or more types or risk, for instance, car loans and home insurance, i.e. traditional insurance companies.

²⁵ Examples of structured products insured by monolines are Mortgage Backed Securities (MBS) and Collateral Debt Obligations (CDOs). See the article "Trading activity in credit derivatives and implications for financial stability" in Financial Stability 2006:2 for a more detailed description of structured products.

²⁶ According to the Association of Financial Guaranty Insurers, AFGI, www.afgi.org.

Monolines are wholly dependent on their credit rating. A deterioration in the credit rating of a monoline entails a lower credit rating for a large number of the securities insured by the companies. This can in turn lead investors to decide to sell these securities, which creates additional pressure on prices.

The costs for municipalities to obtain funding may rise if they do not have an underlying insurance for the bonds. In January 2008, only 39 per cent of the newly issued municipal bonds were insured, compared with 69 per cent in January 2007.

New York State Insurance Department is working on a new proposal for regulation of the activities of monolines. These proposals include a limitation of the amount of structured business a monoline could do. Another proposal is to limit the business operation of monolines. Either they insure the bonds of public finance or structured products, but not both. A third alternative is to increase the capital requirement the monoline must hold for its structured exposures.²⁷

²⁷ See "Testimony of the New York insurance department before the New York state assembly", 14 March 2008.

■ The Swedish banks' borrowers

The Swedish banks' borrowers – in brief

The Swedish banks' borrowers have currently favourable conditions for repaying their loans. Swedish households and Swedish companies, which together account for approximately half of bank lending, have, taken as a whole, a sound financial situation. The same applies to the major part of the foreign borrowers.

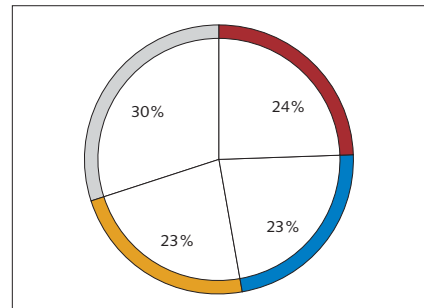
However, there are some groups of borrowers where the risks have increased for the Swedish banks. Lending to Baltic borrowers continues to cause concern. The economic development of these three countries has shown tendencies to overheating for several years. Now there has been an abrupt economic slowdown and one cannot disregard the risk that the cooling off will change into a severe downswing. This kind of scenario would have an appreciable effect on the Swedish banks with considerable activities there, SEB and Swedbank.

Another group of borrowers which is associated with higher risks is the property companies, which in turn depend on the commercial property market. There is a risk that property prices reflect excessively high expectations of future income increases in the form of higher rents. If the downturn is faster than expected, these expectations may prove to be unrealistic. There will then be a risk for substantial price falls in the property market. This would affect property companies in the first place, which are an important category of borrowers for the banks. The properties also often serve as collateral for loans, which drop in value if prices fall.

Monitoring developments for the Swedish banks' borrowers is an important component in the analysis of financial stability. The risk that borrowers will not be able to service their debt, the credit risk, is one of the greatest risks that banks are exposed to.

This chapter begins with a review of the Swedish household sector, which accounts for almost a quarter of the banks' total lending (see Chart 2:1).²⁸ This is followed by an analysis of the Swedish corporate sector, which accounts for just over 20 per cent of the banks' total lending. The properties companies are an important group of borrowers and are therefore dealt with in a separate section together with the development of the commercial property market. An increasing share of the banks' lending is aimed at borrowers outside Sweden. For this reason, borrowers in the markets where the banks are active are taken up in a separate section.

Chart 2:1. The banks' lending broken down into Swedish and foreign households and companies
Per cent

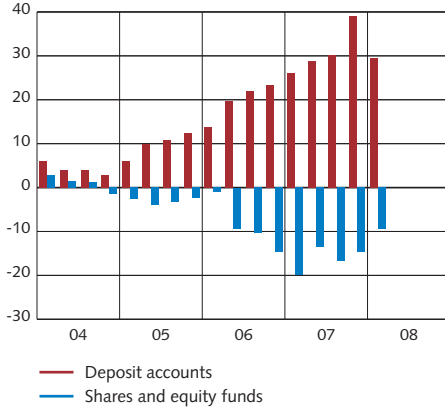


— Swedish households
— Swedish companies
— Foreign households
— Foreign companies

Note. Refers to total loan stock in December 2007.
Source: The Riksbank

²⁸ At group level (including foreign activities) as of 31 December 2007.

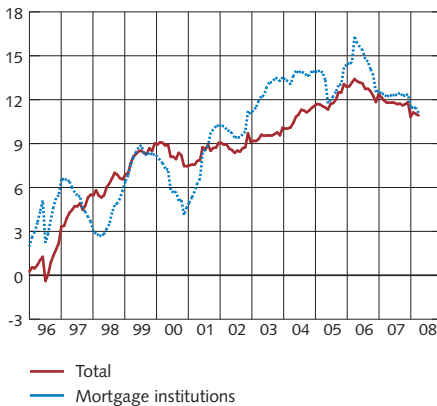
Chart 2:2. Households' new saving in deposit accounts and in shares and equity funds, quarter SEK billion



Note. Households' new saving corresponds to the net amount households put into deposit accounts, shares and equity funds. Rolling four-quarter average.

Source: Statistics Sweden

Chart 2:3. Household borrowing
Annual percentage change



Source: The Riksbank

The Swedish household sector

This section contains an analysis of households' financial situation and indebtedness. Housing prices are also analysed since they affect household debt. Finally, an assessment is made of households' debt-servicing ability.

Households have a sound financial situation. Households' real disposable income rose by 4.3 per cent during 2007. This increase was mainly due to a positive development of wage income and lower taxes. Household net wealth continues to be high compared with a few years ago, although it has decreased slightly in the past year. This is explained partly by the fall in equity markets at the end of last year, and partly by debts continuing to increase at a high pace. At the same time, the turbulence in the financial markets has made households more careful. They invest a greater part of their financial assets in more liquid forms of savings, in, for example, savings accounts (see Chart 2:2). At the same time, they have chosen to sell their shares and equity funds to convert their accumulated capital gains into cash.

In recent months, household borrowing has increased at a slightly slower rate than during the past two years. Total household borrowing rose by almost 11 per cent in March compared with the same month last year (see Chart 2:3). The majority of household loans have been used to finance house purchases and more than 85 per cent of household loans have properties as collateral. Loans from mortgage institutions still account for the largest part of lending to households.²⁹ These loans increased by just over 11 per cent in March compared with a year earlier. Unsecured household borrowing, which amount to eight per cent of the total loan stock, continue to increase at a high rate. In March, the annual rate of increase was almost 15 per cent.

Households' borrowing will increase at a slower rate in the future. Rising interest rates have probably had a dampening effect. The policy rate has been increased by a quarter of a percentage point at the beginning of the year. Furthermore, the banks have had higher funding costs, which have been passed on to households. This is illustrated by the spread between the mortgage rate and the interest rate on a mortgage bond with the same duration being largely unchanged compared with before (see Chart 2:4). At present, more than half of new household loans have a floating rate (see Chart 2:5). They are accordingly more sensitive to interest rate changes than if they had fixed rate loans. However, around 60 per cent of the loans have fixed rates in the total loan stock. Furthermore, some banks have tightened their credit standards slightly. In certain cases, interest

²⁹ Since 1 October 2007, SEB BoLån AB is part of SEB, and is reported under financing from banks instead of financing from mortgage institutions.

rate discounts have been adjusted downwards. It has also become more difficult for certain households to obtain amortisation free loans. Furthermore, the banks have become somewhat tougher with respect to their requirements on the amount a borrower should have left to live on after paying their running expenditures (see also Chapter 3).

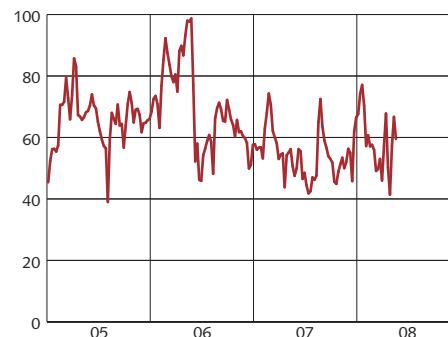
The increase in household borrowing has led to a higher debt ratio and a higher interest ratio. In December households' debt ratio³⁰ amounted to 149 per cent on average (see Chart 2:6). Higher indebtedness in combination with higher interest rates has contributed to increased interest ratios³¹. However, at the same time as households' debt ratio is high, the interest ratio is historically still low and amounted to 4.4 per cent of disposable income in December.

Households' debt ratio and the interest ratio are expected to rise slightly. The Riksbank's assessment is that the Swedish economy will continue to develop relatively well. Household borrowing will therefore continue to increase in the coming period. However, since the economy is expected to enter a slower phase already this year, the increase in borrowing is expected to dampen slightly compared with the assessment in the previous Financial Stability Report. This indicates that the debt ratio and the interest ratio are expected to increase although at a slower rate.

However, indebtedness varies between different groups of house owners. A comparison between 2001 and 2006 shows that the debt ratio for both first-time buyers and other homeowners has risen (see Chart 2:7).³² The debt ratio has risen most for first-time buyers, which is natural bearing in mind the increased house prices during this period. The debt ratio for other homeowners has also risen relatively much, around 40 percentage points. This may indicate that borrowers have raised new loans on their existing homes or bought new and more expensive homes concurrently with the sharp rise in house prices. The increase in the debt ratio is, however, not reflected by a corresponding increase in the interest ratio, neither for first-time buyers or other homeowners (see Chart 2:8). On the contrary, interest expenditure makes up a smaller proportion of income. This is one of the explanations why debt and house prices have been able to rise so much. The loan-to-value ratio continues to be high for first-time buyers, over 90 per cent.

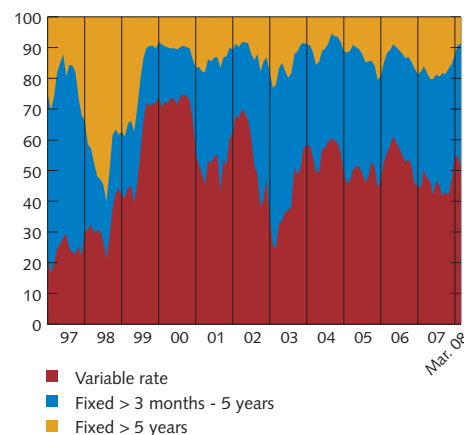
The proportion of households lacking a buffer has decreased. The households who were unable to cover their running expenditures³³

Chart 2:4. Difference between a two-year mortgage rate (SBAB) and the rate on a two-year mortgage bond
Basis points



Source: Reuters EcoWin

Chart 2:5. Duration of fixed interest periods for new mortgage loans
Per cent



Source: The Riksbank

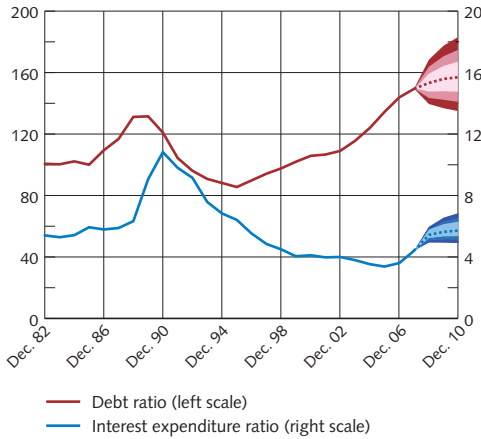
³⁰ Households' debts in proportion to disposable income.

³¹ Households' interest expenditure in relation to disposable income.

³² The debt ratio represents in this case both the households with debts and those without debts. A debt ratio based only on households with debts would be higher than the one reported.

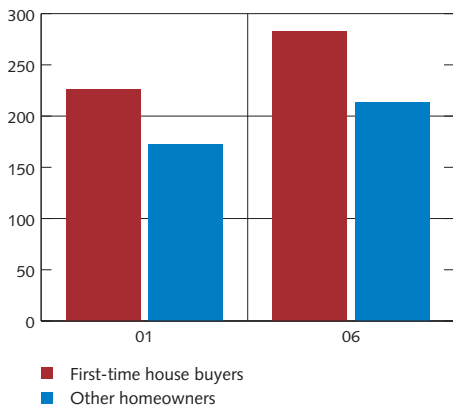
³³ Running costs means housing costs according to HUT (Household budget survey, Statistics Sweden (SCB)) here. Other running expenditures are calculated with the aid of the National Board of Health and Welfare's norms for essential expenses in addition to housing costs.

Chart 2:6. Household debt and post-tax interest expenditures in relation to disposable income
Per cent



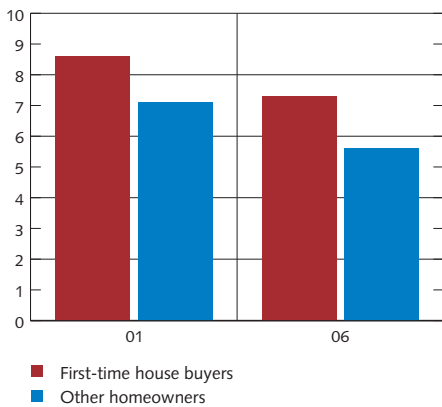
Sources: Statistics Sweden and the Riksbank

Chart 2:7. Household debt in relation to disposable income
Per cent



Sources: Statistics Sweden and the Riksbank

Chart 2:8. Household post-tax interest expenditure in relation to disposable income
Per cent



Sources: Statistics Sweden and the Riksbank

decreased by almost one percentage point during 2006 (see Chart 2:9). This is explained by a general improvement in households' financial situation. At the same time, these households' share of the total debt stock has decreased compared to their share. This is also the case for the proportion of their loans not covered by wealth. This is mainly explained by the increase in value of households' real assets.

Generating of data shows that households will continue to have a good ability to service their debt.³⁴ The proportion of households who are unable to cover their running expenditures is expected to be lower both in 2007 and 2008 compared with 2006. This is explained by the positive development of income. However, their share of the total debt of the household sector is increasing. The households that are not able to cover their running costs are represented by different income groups. It is above all households with higher income that have increased their debt. At the same time, their total assets have increased. All in all, this means that the credit risk in the household sector is considered to continue to be low.

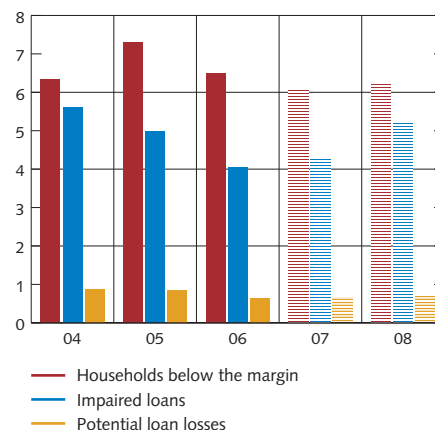
The price rise for housing has continued to dampen. House prices have fallen by almost one per cent during the first quarter this year compared with the fourth quarter last year (see Chart 2:10). Compared with this time last year, prices have, however, risen by almost six per cent. However, the trend varies from region to region. In Stockholm and Göteborg, prices have risen slightly more than the average while prices in Malmö has risen less than average. According to statistics from estate agents, prices of tenant-owned apartments have fallen throughout the autumn, but the price change has stabilised slightly since December (see Chart 2:11). The fall in prices during the autumn has probably been affected by the uncommonly large supply of housing during this period, when many wanted to benefit from the deferment rules then applicable.

³⁴ Statistics Sweden's annual cross-section survey of household finances (HEK) has been used for this. The most recent survey was carried out in 2006. Recent outcomes from the Financial Accounts and the National Accounts until the end of 2007 and the Riksbank's forecasts for 2008 is used to generate new data for 2007 and 2008.

House prices continue to rise but at a slower rate. One of the most important factors for the housing market is, the situation in the labour market, which is expected to continue to be positive and contribute to increased income. Households are expected to continue to have a good ability to service their debt, despite the higher interest rates on loans that have made the cost of loans higher than it has been in recent years. SBAB's (the Swedish Housing Finance Corporation) survey of estate agents indicates that there are more prospective buyers per property, more activity during bidding, and a shorter time to sale in the coming period. All of this indicates continued rising prices. At the same time, the economy is expected to enter into a calmer phase, which instead argues for a dampened price development.

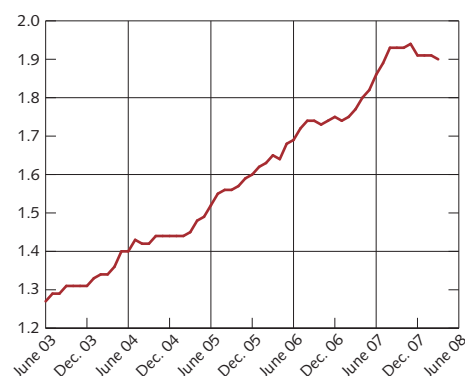
To sum up, households have good buffers for increased expenses and a good debt-servicing ability. Household debt and interest expenditure are expected to increase slightly. However, this increase is expected to take place at a slower rate, which, in combination with increased income, means that the financial situation of households is assessed to be sustainable. The risk for major credit losses in the banking sector is small, even if some households may have taken too much loans and can encounter payment difficulties because of this.

Chart 2:9. Households below the margin, impaired loans and potential loan losses
Per cent



Note: The striped bars represent the Riksbank's forecasts.
Sources: Statistics Sweden and the Riksbank

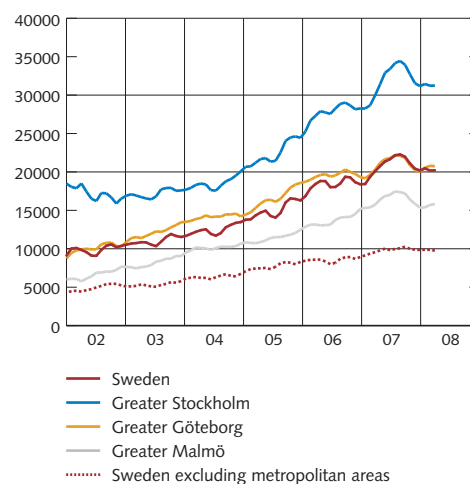
Chart 2:10. Purchase price coefficient in Sweden
K/T ratio



Note. The purchase price coefficient is the purchase price of the property in relation to assessed value, also referred to as K/T ratio.

Sources: Statistics Sweden and the Riksbank

Chart 2:11. Tenant-owned apartment prices
Average price per square metre, SEK



Source: www.maklarstatistik.se

Why are many households leaving their homes in the United States?

The number of suspension of payments and distraints or executions among households with housing loans continued to rise in the United States. This is most clearly noticeable for subprime borrowers. Over 17 per cent of subprime loans were classified as problem loans during the fourth quarter of 2007, which is 4 percentage points higher than the last quarter of 2004.³⁵

An important cause of the rising number of suspension of payments and distraints or executions is the fall in house prices.³⁶ Many of the households that financed housing purchases with subprime loans did so with very little or no cash deposit, and with a debt-sevicing ability that was dependent on a continued rise in house prices. When house prices fall, many homeowners discovered that the size of their loan had become greater than the value of the housing. In other words, their net wealth has

become negative. In this situation, many decide to leave their homes and let the bank take over them.

If you abandon your home in the United States and stop paying your mortgage, you receive a serious record of non-payment, which may make it difficult to have future credit applications granted. However, there are good opportunities in many states to become free of debt, even if the value of the home is less than the loan. Households can thus in practice reset a previous negative net wealth to zero. The US regulatory framework differs in many ways from the Swedish. One important difference is that homeowner in Sweden is still liable for the remaining debt in Sweden even after repossession by the bank. Accordingly, a household has nothing to gain by abandoning its home if the value of the home has fallen below the size of the loan.

³⁵ Mortgage Bankers Association: "Delinquencies and Foreclosures Increase in Latest MBA National Delinquency Survey", press release, 6 March 2008.

³⁶ Doms et al (2007): "Subprime Mortgage Delinquency Rates", working paper 2007-33, Federal Reserve Bank of San Francisco.

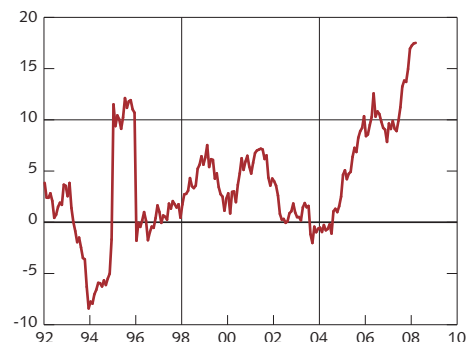
The Swedish corporate sector

Over 20 per cent of the total lending of the four largest banks consists of loans to Swedish companies. This analysis is focused on these companies' profitability, debt structure, and credit quality in the coming years.³⁷

Corporate borrowing has risen at a high pace despite rising interest rates and turbulence in the credit markets. In March, corporate borrowing from credit institutions rose by almost 18 per cent compared with the same month last year (see Chart 2:12).³⁸ However, at the same time as borrowing is increasing rapidly, there are indications that loan terms have become stricter in Sweden as well (see Chapter 1 on the United States and Europe).³⁹ However, the ability of companies to obtain finance in the securities market is still good (see Chart 2:13). The substantial increase in corporate borrowing can partly be explained by the sharp increase in investments in recent years. Another explanation is the increase in company acquisitions taking place through private equity investment companies (see below on private equity investment companies). The strong increase in loans has led to a rapid increase in corporate liabilities in relation to total assets during 2007, after having fallen for several years. However, this increase has taken place from a low level (see Chart 2:14).

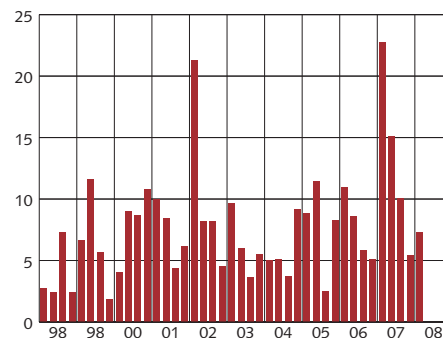
The rising level of debt is not a manifest risk at present. The ability of companies to pay their debt is good. Profitability has continued to improve due to a buoyant economy and increasing profits.⁴⁰ The interest coverage ratio in the corporate sector is high, which means that the earnings of companies cover their interest expense by a

Chart 2:12. Companies' borrowing from credit institutions
Annual percentage change



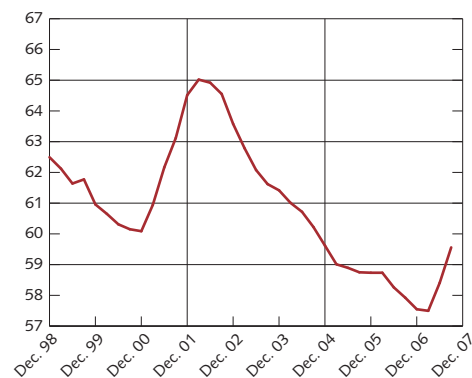
Source: The Riksbank

Chart 2:13. Bonds issued by non-financial undertakings in SEK
SEK billion



Source: The Riksbank

Chart 2:14. Debt/total assets ratio in Swedish listed companies
Per cent



Sources: Bloomberg and the Riksbank

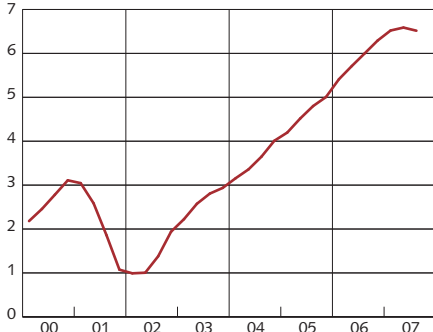
37 This analysis is concentrated on listed companies unless otherwise stated.

38 Refers to total corporate lending by credit institutions.

39 Almi's loan indicator, which is a quarterly questionnaire survey of 151 branch managers at banks throughout Sweden, shows that one of four bank branches has tightened their loan terms during the first quarter of this year, compared with the last quarter of 2007. www.almi.se.

40 Profitability means the return on total capital, i.e. operating profit in relation to total assets.

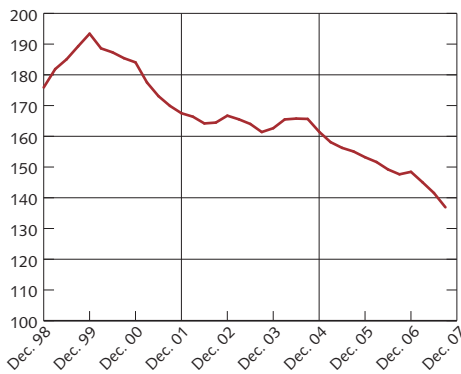
Chart 2:15. Interest coverage ratio in Swedish listed companies
Ratio



Note. The interest coverage ratio is defined as operating profit plus financial income in relation to financial expenses.

Sources: Bloomberg and the Riksbank

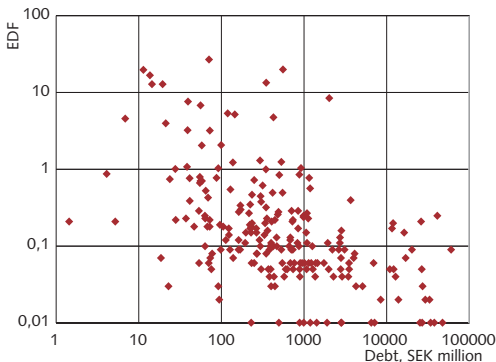
Chart 2:16. Current ratio in Swedish listed companies
Per cent



Note. Current ratio is defined as current assets in relation to current liabilities. If current ratio is 100 per cent, this means that the current liabilities can be paid immediately, provided that the current assets can be immediately converted into cash.

Sources: Bloomberg and the Riksbank

Chart 2:17. Liabilities and expected default frequency of listed companies
Per cent and SEK million



Note. Refers to September 2007. As a measure of bankruptcy risk, expected default frequency (EDF) is used, which is the probability of a listed company becoming bankrupt within a year. The EDF is calculated as the probability that the market value of the company's assets will be less than the size of its debts when these fall due. The scales are logarithmic.

Sources: Bloomberg and Moody's KMV

broad margin (see Chart 2:15). While the current assets of companies which can be used to meet short-term payment commitments has gradually deteriorated in recent years (see Chart 2:16), it is still at a level where companies are able to meet their commitments by a broad margin. The strong economic development has also meant that the number of bankruptcies has fallen to historically low levels, even if some increase has occurred in recent months. The companies with the greatest probability of bankruptcy, which can accordingly lead to credit losses for the banks, have a relatively low level of debt (see Chart 2:17). This indicates that the quality of credit is generally good.

There will probably be a further increase in corporate borrowing in the next few years. However, the rate will be slower since investment increases more slowly when the economy moves into a calmer phase.^{41 42} This is in line with the market participants' expectations that profits will continue to rise, although not by as much as they have in recent years. Uncertainty about the future earnings of companies has, however, increased since the beginning of autumn. This is shown by companies being valued lower on the stock exchange and in a higher implicit volatility in the stock market (see Chapter 1).

Bankruptcies are expected to continue to increase despite expectations that companies will continue to be profitable.

According to the indicator of the estimated default frequency (EDF), corporate bankruptcies are expected to increase in the future, although from a very low level (see Chart 2:18). This is due to an expected gradual deterioration of the credit quality of companies as a result of the dampening of economic activity. However, no dramatic rise in bankruptcies is expected. The indicator is only based on listed companies, but provides an indication of the direction in which bankruptcies will develop.

To sum up, the financial position of companies is positive. Despite a rise in indebtedness, the quality of credit is considered to be good. Corporate borrowing is expected to continue to increase although at a lower pace. The credit risk in the Swedish corporate sector is expected to increase as the economy dampens. However, this deterioration is expected to be moderate.

41 According to Almi's loan indicator, the branch managers surveyed believe that borrowing will continue to rise both in the short and long term. However, in the last two quarters, rather more than before believe that it will fall in the future.

42 See Monetary Policy Report 2008:1 for the investment forecast.

Private equity investment companies

Loan-financed company acquisitions which take place through private equity investment companies have probably contributed to the high rate of increase in corporate borrowing. Lending to private equity investment companies accounts for a small part of the total lending of banks. However, it can represent a relatively large part of new lending.

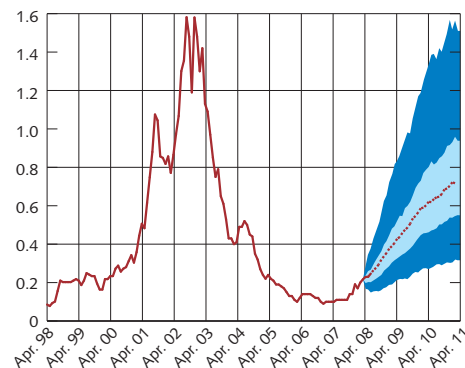
During 2007, Swedish private equity investment companies increased their investments although a clear dampening was noticeably in the last quarter. This dampening is probably due to increased uncertainty of the future state of the economy. The company acquisitions of Swedish private equity investment companies have not yet been affected by falling market liquidity to the same extent as venture capital companies in the rest of Europe. Swedish private equity investment companies finance their acquisitions mainly through loans in the Nordic banks. The Nordic banks have decided to retain the loans in their own balance sheets instead of securitising them and distributing them to other banks and investors. This makes the Nordic private equity investment companies less sensitive to market conditions than, for example, the European.

Private equity investment companies state that they will invest as much during 2008, as in 2007. At the same time, there is pessimism about the future state of the economy.⁴³ In addition to the higher cost of financing, uncertain economic prospects make it difficult for companies to divest the acquired companies at a later stage. This can lead to investments being postponed and a continuation of the dampening that took place during the last quarter of 2007.

The commercial property market and the property companies

The property companies are the single largest industry to which the banks are exposed. Around 40 per cent of the banks' corporate lending is to property companies. A large part of this lending takes place with properties as collateral. Falling prices and rents in the property market may lead to deterioration in the earning and payment capacity of the property companies at the same time as it reduces the value of the collateral. Problems in the property sector can thus cause credit losses at the banks. The development of the commercial property market is presented first followed by a review of the debts and credit quality of the commercial property market.

Chart 2:18. Expected default frequency (EDF), historical outcome and forecasts according to the Riksbank's main scenario
Per cent

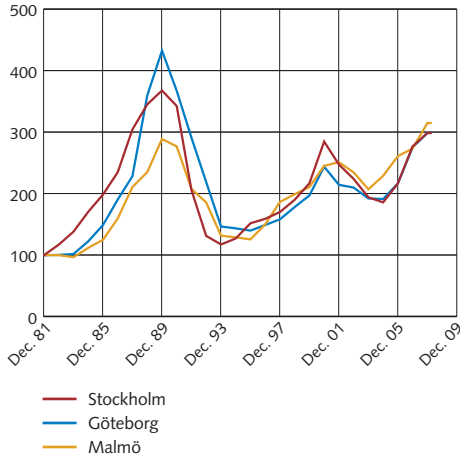


Note. The uncertainty intervals are the intervals within which the average EDF is judged to lie with probabilities of 50 and 95 per cent respectively, given the Riksbank's main scenario in the Monetary Policy Update in April 2008. The intervals thereby reflect the uncertainty as to how the EDF is affected by changes in GDP, inflation and the three-month risk-free rate. The interval does not take into account the uncertainty in the macroeconomic variables.

Sources: Moody's KMV and the Riksbank

⁴³ See the Swedish Private Equity and Venture Capital Association, Innovationsbron and Nutek's quarterly survey of the activities and early stage financing of the venture capital companies for the fourth quarter and the full year 2007. www.svca.se.

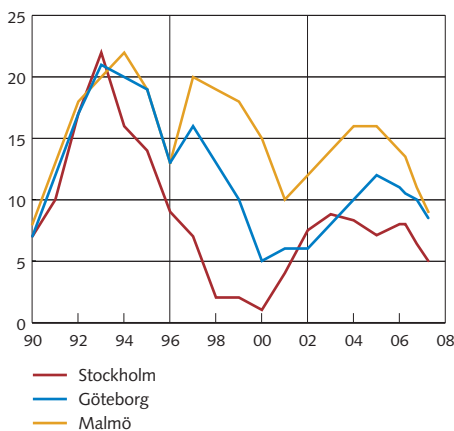
Chart 2:19. Real prices for office premises in city centres
Index: 1981=100



Note. Prices have been deflated by CPI to take inflation into account. This enables prices to be compared over time.

Sources: Newsec and the Riksbank

Chart 2:20. Vacancy rate for office premises in city centres
Per cent



Sources: Newsec and the Riksbank

THE COMMERCIAL PROPERTY MARKET

Activity in the Swedish property market has dampened slightly.

During 2007, invested amounts totalled almost SEK 150 billion, which is slightly lower than the previous year. The dampening took place during the final quarter of 2007 when turbulence in the property market and rising interest rates had an impact. This is partly due to the proportion of foreign investors decreasing at the end of 2007. The proportion of foreign investors has for a long time been great in the Swedish property market. One explanation for their not having been as active recently is that they have probably been more affected by the global financial crisis. Highly leveraged investors also seem to have drawn back due to rising interest rates. At the same time, more investors with greater capital strength, such as pension funds and state investment funds, have accounted for a larger share of investment.⁴⁴ Although activity has dampened, interest in the Swedish property market is expected to continue to be at a high level in the coming year.⁴⁵

The sharp rise in prices for office premises has dampened slightly in Stockholm and Göteborg.

Although the rise in prices has slackened slightly since the beginning of 2007, the rate of increase is still relatively high both in Stockholm and Göteborg. During the first quarter of 2008, nominal prices rose by eight per cent in Stockholm and by six per cent in Göteborg compared with the same period last year. In Malmö, the price increase has, however, accelerated in the past two quarters. During the first quarter of 2008, prices rose by eleven per cent compared with the same period last year. In terms of real prices, they have risen by about five and three per cent in Stockholm and Göteborg respectively during the first quarter of 2008 compared with the same quarter the previous year. In Malmö, prices rose by eight per cent during the corresponding period (see Chart 2:19).

The proportion of unlet premises, the vacancy rate, has decreased.

During 2007 and early 2008, the vacancy rate fell quickly in the central parts of the three metropolitan areas (see Chart 2:20). The increased occupancy of premises is a result of the buoyancy of the economy and increased employment. However, it is still relatively difficult to let premises in the more peripheral areas of cities. New construction has accelerated in all metropolitan areas. The number of premises is therefore expected to increase in the next few years. Most space is already let with the exception of a few projects in central Stockholm.⁴⁶

⁴⁴ According to contacts with market participants and Newsec Nordic Spring Report 2008. In the first six months of 2007, foreign investors accounted for over 60 per cent of the invested amount, which may be compared with 40 per cent in the second half of 2007.

⁴⁵ See Newsec Nordic Spring Report 2008.

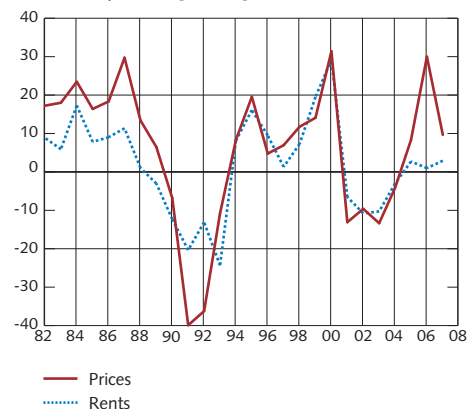
⁴⁶ See, for example, Newsec Nordic Spring Report 2008.

Lower vacancy levels have led rents to rise more quickly than before in all metropolitan regions. Nominal rents have risen by ten per cent in Stockholm during the first quarter compared with the same period the previous year. The rate of increase in Göteborg and Malmö was five and seven per cent respectively. Rent increases have mainly occurred for centrally located modern premises. However, despite a faster increase in rents, they have not corresponded to price increases to the same extent as at the end of the 1990s. This is clearly noticeable in the market for office premises in Stockholm (see Chart 2:21).

Although rents increased during 2007, prices were also probably driven by low risk premiums. The price of commercial property is determined by expected future rental income, discounted by the required return. The required return consists of a risk-free interest rate and a risk premium. If rent expectations increase, this leads to a rise in prices of commercial properties. In the same way, a higher required return leads to a fall in prices. By combining actual outcomes on rents and the risk-free interest rate with assumptions about the expected rent development, the change in price can be apportioned between two periods. In this way, it is possible to explain how much of the price change is due to changes in actual rents and how much to the risk-free interest rate. The part of the price change which remains to be explained may be assumed to be due to changes in the risk premium that investors require. A division of this kind indicates that falling risk premiums have been a contributory cause of the rise in prices for commercial properties during 2006 and 2007. Accordingly, the rise in prices in recent years differs from the rise that started at the end of the 1990s. At that time, it was largely rents alone that contributed to the rise in prices in central Stockholm (see Chart 2:22).⁴⁷

Since the turbulence on the financial markets broke out during the second half of 2007, risk premiums have generally risen in the property market internationally. This has been clearest in the United Kingdom. There, rising risk premiums have led to the price of commercial properties now falling (see box on commercial properties abroad). The contagion risks between countries have also increased in recent years. This is a consequence of the property markets becoming more integrated and part of the international capital markets. Foreign investors in the Swedish property market are consequently able to sell properties here to cover losses in another country or vice versa. Prices can therefore be rapidly changed even without a change in the underlying domestic factors.

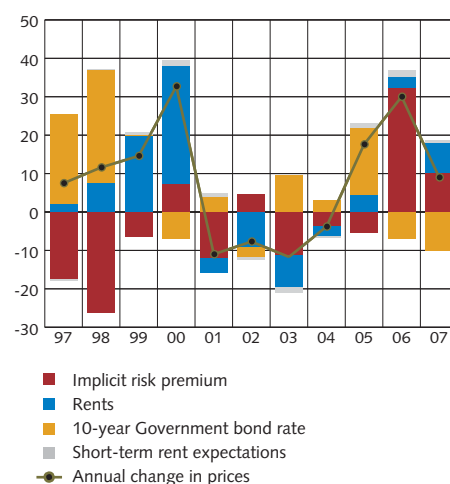
Chart 2:21. Real prices and rents for office premises in central Stockholm
Annual percentage change



Note. Prices have been deflated by CPI to take inflation into account. This enables prices to be compared over time.

Sources: Newsec and the Riksbank

Chart 2:22. Component factors for annual change in prices for offices in central Stockholm
Per cent

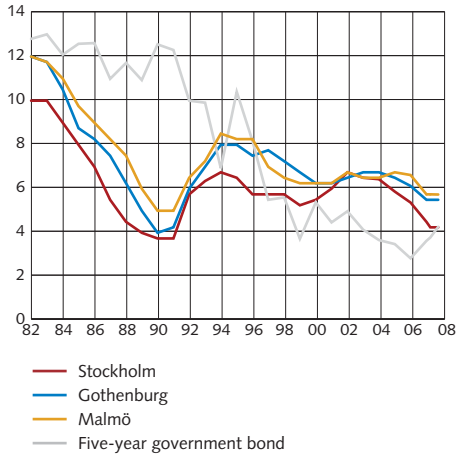


Note. The short-term rent expectations are expected to comply with households' inflation expectations plus two percentage points. Prices refer to square metre prices for offices in central Stockholm and rents refer to square metre rents in the same area.

Sources: Newsec, Reuters EcoWin and the Riksbank

⁴⁷ The division depends on the assumptions made about rent expectations. If, for example, investors' rent expectations are higher than assumed, the method will exaggerate the importance of the risk premium for the price change. The method shall therefore be interpreted as a qualitative indicator of the driving forces of the price trend, rather than an attempt to exactly measure how much each individual factor has contributed to price increases. See the Bank of England Financial Stability Report, December 2005 for a more detailed description of the method.

Chart 2:23. Average direct earnings requirements on office properties in city centres
Per cent



Sources: Newsec and Reuters EcoWin

There are indications in the Swedish property market that investors are starting to increase the price of risk. This applies primarily to less well located properties and those in smaller towns, according to contacts with market participants. This means that the required return for these types of properties has increased. In central Stockholm, investors still do not require a higher rate of return than that produced by a risk-free five-year government bond (see Chart 2:24). However, it is possible that the required return has risen although this is not yet visible in the statistics.

The price trends in the coming period depend partly on the development of rents. Increased rents in the period to come can keep prices up. What happens to rental levels depends largely on future macroeconomic developments. Resource utilisation is still high and employment is still increasing, in particular within the service sector, which is an office-intensive industry. This may contribute to a continued high level of demand for premises. The fact that vacancies have already decreased by a relative large amount makes it possible to charge higher rents. However, at the same time, the supply of office space will increase in the coming period. Despite the larger part of the space in ongoing projects being let, it will mean an increase in vacancies in older premises. However, increased demand need not have an impact on the overall vacancy rate. At the same time, an argument against rising prices is that risk premiums seem to be increasing. Everything else being equal, this should push prices down.

There is a risk that expectations on future rents are pitched too high. According to the Riksbank's main scenario for the next few years, economic activity will gradually dampen and the state of the economy will return to normal. As the economy moves into a calmer phase, there will be less scope for charging higher rents. However, there is great uncertainty about economic prospects, which has increased since the last stability report. There is a risk that the level of economic activity will slow down faster than expected and that investors' expectations will not be met. This may, in combination with rising risk premiums, lead to considerable price corrections on properties. In this situation, the liquidity of the market can also rapidly decline, which can produce an additional downward pressure on prices.

THE PROPERTY COMPANIES

Lending by the Swedish property companies continued to increase in the second half of 2007. This reflects the high level of activity in the commercial property market. For the listed companies, where the best statistics are available, interest-bearing liabilities have increased during 2007. Indebtedness, i.e. interest-bearing liabilities in relation to equity is, however, almost unchanged. At the same time, there has been a substantial improvement in property companies' results. Net operating income, that is the difference between rents and operating and maintenance costs, improved during 2007 for 15 of 18 listed property companies. However, bankruptcies increased among unlisted property companies during 2007. This may indicate that earnings were poorer in these companies. This increase is taking place from a low level and it is exclusively property companies with few employees that have become bankrupt.

Uncertainty about future earnings in the office market is reflected in falling prices on property shares. Property shares started to fall during spring 2007. After the turn of the year, they rose again, which probably reflected the strong income statements of the companies. The valuation of the listed property companies in terms of P/E ratios is, however, at the lowest level for the past five years.⁴⁸ At the same time, a slight deterioration in credit quality is expected in the coming year.⁴⁹

A poorer economic development and falling property prices would weaken the result and balance sheets of property companies. This leads to an increased risk of bankruptcies in the property sector. Falling property prices also undermine the value of the collateral received by the banks when they provided loans for property management. All in all, however, the major commercial property companies seem to cope with falling property prices and a weaker economic development corresponding to that in the early 2000s. Interest coverage is high and there are broad margins for a decrease.

⁴⁸ P/E-ratio (price/earnings) describes the price of a share in relation to the expected development of earnings.

⁴⁹ According to the forward-looking indicator EDF. This reflects the probability of the market value of the company's assets being less than the value of its liabilities when these fall due for payment.

Commercial properties abroad

After having risen sharply for several years, prices for office properties have now slackened off in a number of countries. This dampening was initiated at the end of 2006 and continued in 2007 when the price of risk, the risk premium, rose quickly due to the turbulence in the international finance markets.

Although office prices are still rising in countries like Spain, Ireland and France, there is a clear slackening off (see Chart B6). In the United Kingdom, however, the financial turbulence has led to rapidly increasing required returns

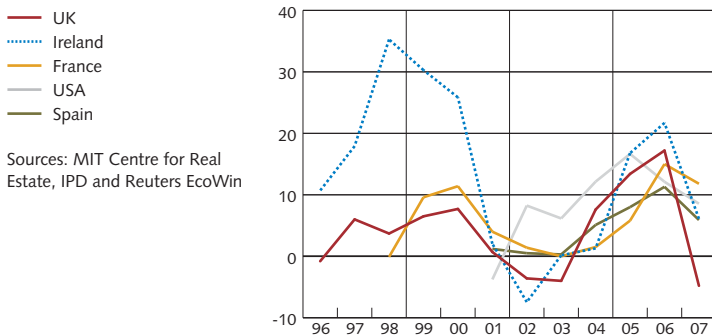
and there has now been a sharp fall in property prices (see Charts B6 and B8).

The slackening off of office prices started in the United States already during 2005 (see Chart B6). However, during the autumn, concern increased for a sharp fall in prices of commercial properties in the same way as for housing. This uncertainty in the market was reflected, inter alia, in the pricing of credit derivatives, which protect against delinquencies on commercial property loans. The premium for these contracts rose markedly due to the increased demand for contracts. This applied regardless of the credit rating of the loan.

However, office prices are still rising by around ten per cent per year in a number of other countries. This is the case for example, in Norway and Denmark. Office prices thereby differ from other parts of the Danish property market where the price picture has been more dampened. In Sweden and the Netherlands, the rise in office prices has slowed down. In Germany, office prices have fallen since 2000, and development has thus moved against the trend towards rising office prices (see Chart B7).

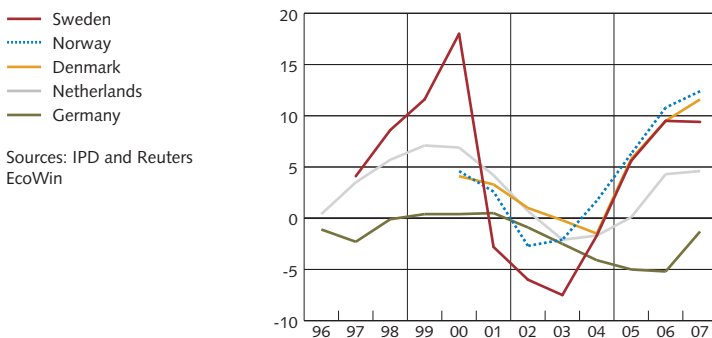
The long period of sharply rising prices for commercial properties can be explained by the buoyant global economy and low interest rates. However, unlike all previous price rises, rents have not risen to the same extent as prices. One example of this is that between 2004 and 2006, prices of office properties rose by 32 per cent in the United Kingdom and by 42 per cent in Ireland. Rents, on the other hand, increased by 7 and 4 per cent respectively. It is therefore probable that prices have largely been driven by the reduction in investors' required return. When the risk-free rates started to rise again a couple of years ago, required returns continued to decrease. This means that investors demanded increasingly less compensation for risk. During this period, the risk premium fell on all kinds of assets.

Chart B6. Prices of office properties
Annual percentage change



Sources: MIT Centre for Real Estate, IPD and Reuters EcoWin

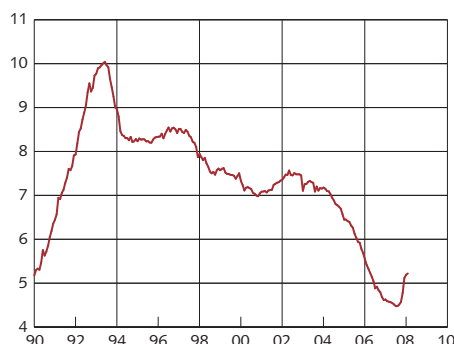
Chart B7. Prices of office properties
Annual percentage change



Sources: IPD and Reuters EcoWin

What may also have driven prices down is that properties have moved from being a real asset in recent years to a financial asset in the international markets. New instruments have been introduced, for example, property derivatives. With the aid of these, players can take positions in the property market without having to buy and sell physical properties. This development has made the property market more sensitive to developments in the international capital markets. The capital markets serve both as a source of finance and as a selling place for the property loans which have been securitised.⁵⁰ In the United Kingdom, this link to the capital markets is probably an important explanation for both the sharp rise in recent years and the rapid fall in prices. Investors' diminishing confidence in securities with commercial property loans as underlying assets has meant that it has become more difficult to finance property investments through the capital markets. The market for securitised commercial property loans has almost ceased to operate. This has contributed to dampening activity in the property market and to the fall in property prices.

Chart B8. Required return for office properties in the UK
Per cent

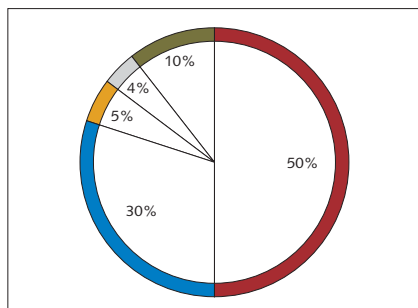


Sources: IPD and Reuters
EcoWin

The dampening of prices in the past year will very probably continue as economic activity slows down. There is also a risk of this development spreading to countries where we have not yet seen a clear slowdown. Ultimately, this depends on the international real economy and the events in the financial markets. However, the largest price corrections will probably take place in the property markets that are highly dependent on the financial markets. Developments in the United Kingdom indicate this.

⁵⁰ Securitisation means that property loans are placed in a special company by issuing bonds in the market.

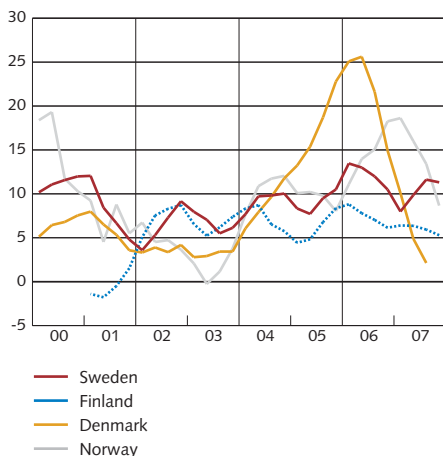
Chart 2:24. Geographical distribution of the major banks' lending 2007
Per cent



- Sweden
- Rest of the Nordic countries
- Baltic countries
- Germany
- Rest of the world

Sources: The banks' reports and the Riksbank

Chart 2:25. House prices in the Nordic countries
Annual percentage change



Sources: Statistics Sweden, BIS, Association of Danish Mortgage Banks and Reuters EcoWin

The Swedish banks' borrowers abroad

The Swedish banks have become more and more active outside Sweden. At present, almost half of the lending is to borrowers abroad (see Chart 2:24). The main part goes to the other Nordic countries, Germany and the Baltic countries. Lending to the Baltic countries constitutes a growing part of total lending and earnings.

THE NORDIC COUNTRIES OUTSIDE SWEDEN

The economy in the other Nordic countries, with the exception of Norway, has slowed down after a period of strong economic upswing. In Denmark, the slowdown took place already during the first half of 2007. In Finland, growth started to decline only towards the end of the year. A dampening is also expected in Norway in the next few years.⁵¹

For some time, house prices in the Nordic countries have risen at a slower pace than before (see Chart 2:25). Just as in Sweden, house prices in the Nordic countries have risen sharply in the past ten years. A large part of this upswing is due to high, stable economic growth and not least low interest rates. However, in the past year, house prices have slackened considerably, particularly in Denmark and Norway. During the first quarter of this year house prices fell in Denmark. Prices for apartments have fallen by around 10 per cent in the past year, in particular in the Copenhagen region. The reason for the housing market cooling off is, in particular, increasingly high mortgage rates and a dampened level of economic activity.

The cooling off of the housing market has dampened the rate of increase of household borrowing. At the beginning of 2008, households in Denmark, Norway and Finland increased their borrowing by more than 10 per cent, which is a dampening compared with the increase in 2006 and 2007.⁵² Households' financial situation continues to be good and disposable income has greatly strengthened. However, unemployment is expected to gradually rise, although from a low level. In Norway, unemployment was historically low at, 2,1 per cent in December 2007.

As in Sweden, corporate borrowing continues to rise. The strong economic activity in the Nordic countries in recent years has led to increasing profits for companies. The sound development of profits entailed that the number of bankruptcies decreased during 2007, with the exception of Denmark where some increase was noted.⁵³ The expected default frequency indicator (EDF) indicates that the risk of bankruptcy will increase slightly in the coming year (see Chart 2:26).

⁵¹ See Norges bank; Monetary Policy Report 1/2008.

⁵² See Danmarks Nationalbank; Kvartalsøversikt 2008, 1. kvartal [Quarterly Review, in Danish], Norges bank; Monetary Policy Report 1/2008, Finlands bank; Money and Banking Statistics, Annual Review 2007.

⁵³ Source: Soliditet.

GERMANY

Growth surprisingly picked up again in Germany during the beginning of 2008. Growth was mainly driven by increased fixed capital investments and private consumption. At the same time, unemployment has continued to fall and household disposable income increased slightly during 2007.

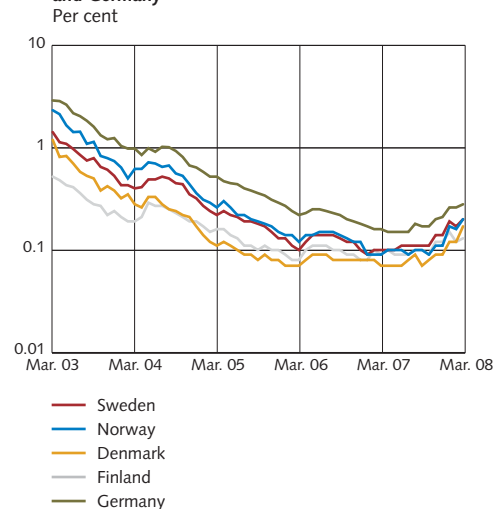
Despite the favourable development of income, German households were restrictive about taking new loans during 2007. Borrowing by German households decreased by one per cent during 2007. The indebtedness of German households is thereby increasing at a slower rate than in the Nordic countries. The slow increase in debt coincides with the fact that house prices in Germany have been largely unchanged in the past three years.

However, corporate borrowing increased by 8 per cent during 2007. This is a higher rate of increase than in recent years. Despite relatively strong growth in Germany in recent years, corporate borrowing has decreased for a number of years and only increased weakly during 2006. The risk of bankruptcy will increase slightly in the coming year according to the EDF indicator (see Chart 2:26).

THE BALTIC COUNTRIES

Several years of rapid economic growth in the Baltic economies now appear to be approaching an end. During the last quarter of 2007 and the first quarter of 2008 economic growth increased rapidly (see Chart 2:27).⁵⁴ In all of the countries data indicate that growth between the final quarter of 2007 and the first quarter of 2008 was negative.⁵⁵ The cooling off in the Baltic countries is expected to continue during 2008. This is reflected in the indicators of consumer confidence, which have fallen sharply since last year (see Chart 2:28). This slowing down is due in the first place to domestic demand increasing less than before. At the same time, import growth is decreasing which means that the large current account deficits are no longer continuing to increase (see Chart 2:29). Apace with the deterioration of the economy, it is also probable that there will be an increase in the number of bankruptcies and delinquencies.

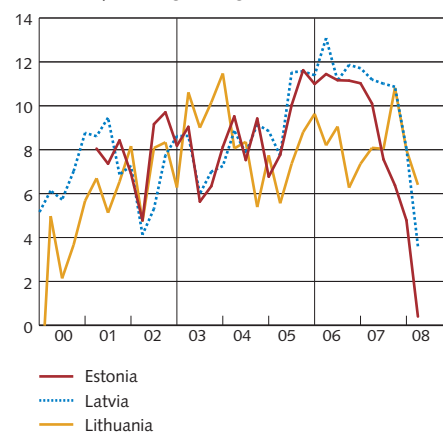
Chart 2:26. Expected default frequency for listed non-financial companies in the Nordic countries and Germany



Note. The scale in the chart is logarithmic.

Source: Moody's KMW

Chart 2:27. GDP Annual percentage change

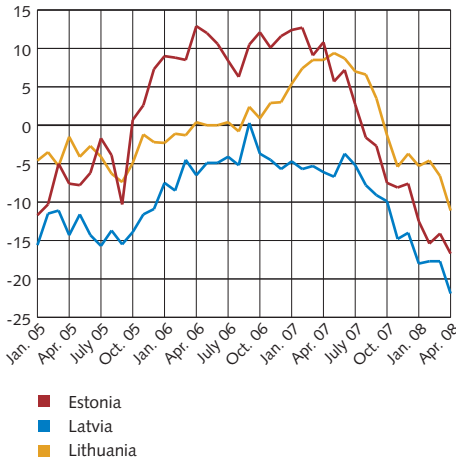


Sources: Reuters EcoWin and the Riksbank's calculations

⁵⁴ GDP figures for the first quarter of 2008 are preliminary, what are known as flash estimates, and therefore usually less certain.

⁵⁵ In the case of Latvia there are no official seasonally-adjusted or calendar-adjusted estimates of GDP for the first quarter of 2008.

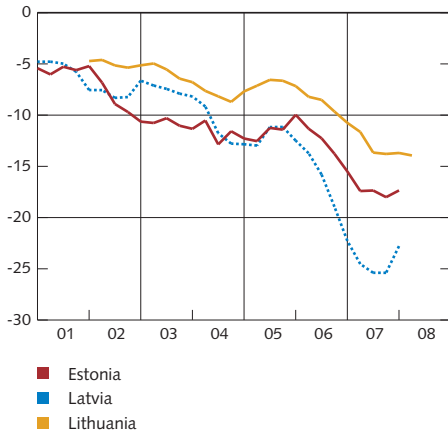
Chart 2:28. Consumer confidence indicator
Net figures, per cent



Note. The confidence indicator is a weighing together of various questions about the respondent's own financial situation and the general state of the economy in the next twelve months. The net figures are defined as the proportion of respondents who reply positively less the proportion of respondents who have answered negatively.

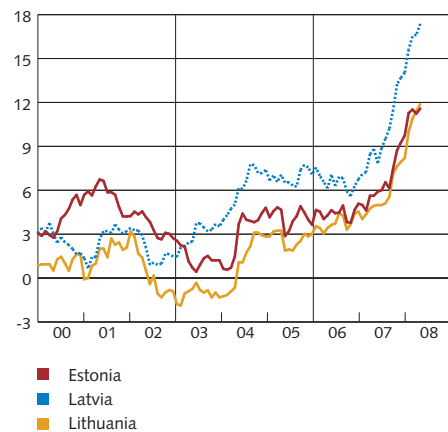
Source: EU Commission

Chart 2:29. Current account
Per cent av GDP, totalled over four quarters



Source: Reuters EcoWin

Chart 2:30. Harmonised index for consumer prices
Annual percentage change



Source: Reuters EcoWin

Exports comprise a large part of the GDP for the Baltic countries.

In Estonia, exports account for around 75 per cent of GDP and in Latvia and Lithuania they account for around half of GDP. One risk factor is that a significant part of the Baltic countries' international trade consists of trade between them (see Table 2:1). This makes the countries vulnerable to a severe recession in one of them, as it would have a direct effect on the other countries' exports. Wages have increased rapidly in all three Baltic countries during 2007. The fact that many young people have chosen to move abroad has led to a fall in the labour supply. The shortage of qualified labour has pushed up wages. So far, exports in the Baltic countries have coped well, but if wages continue to rise at the same rate as before, they will sooner or later undermine competitiveness.

Table 2:1. The five most important trading partners (exports) in the Baltic countries. Share of exports in per cent

Estonia	Latvia	Lithuania
Finland (18)	Lithuania (15)	Russia (15)
Sweden (13)	Germany (10)	Latvia (13)
Latvia (11)	Estonia (13)	Germany (11)
Russia (9)	Russia (9)	Poland (6)
Lithuania (6)	U.K. (8)	Estonia (6)

Sources: National statistical authorities.

Inflation in the Baltic countries has recently shown a pronounced rise.

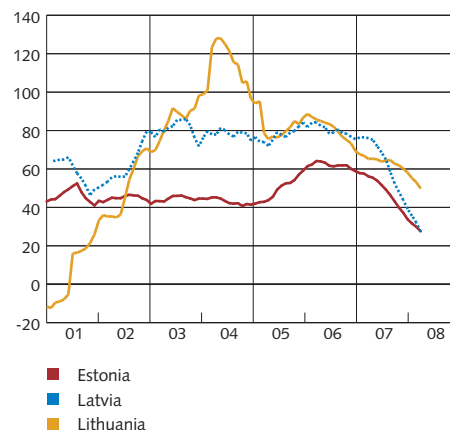
In Latvia, inflation was just over 17 per cent in April and it was slightly lower in Estonia and Lithuania (see Chart 2:30). To a varying extent, the high inflation is due to higher food prices, higher energy costs and changes in various fees. The Baltic countries have a large share of food in their CPI. This is a cause for concern in the light of the recent sharply rising food prices. At the same time, food and energy prices have historically proven to be very volatile. Inflation impulses from these components may therefore be of a more temporary nature. None the less, high inflation has a tendency to persist. The high inflation may also have a negative effect on competitiveness.

The weak demand has, together with somewhat stricter loan terms, led to a decrease in the growth of loans.

This is most clearly noticeable in Estonia and Latvia (see Charts 2:31 and 2:32). This is basically a positive development since the remarkably high growth rates of recent years were not sustainable in the long term. At the same time, it is preferable if the growth rate does not fall too rapidly since this might contribute to weakening the macroeconomic position further. A large part of lending to the private sector takes place in foreign currency (see Chart 2:33).

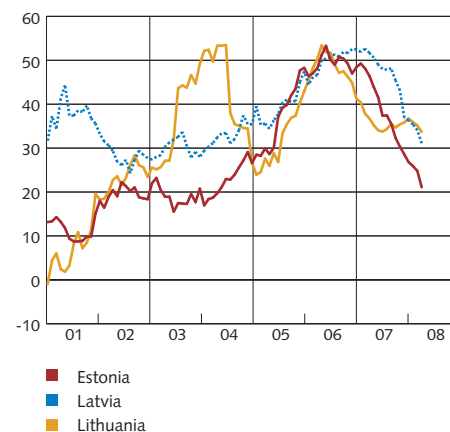
The slower growth of credit coincides with a dampening of the housing market. Between spring 2007 and spring 2008, house prices fell by 17 per cent in Riga and by per cent in Tallinn, while house prices in Lithuania were largely unchanged.⁵⁶ However, both banks and households expect house prices to fall in Lithuania during 2008. The commercial property market appears to be stable in all countries, however. The rapid credit growth in recent years has led to household and corporate debt increasing in relation to GDP (see Charts 2:34 and 2:35). When the economy enters a weaker phase, the indebtedness of the private sector in relation to GDP will increase more slowly or even decrease. In the longer term, it is probable, however, that debt in relation to GDP will continue to increase as income levels between the Baltic countries and the old EU countries converge.

Chart 2:31. Household borrowing in the Baltic countries
Annual percentage change



Sources: National central banks

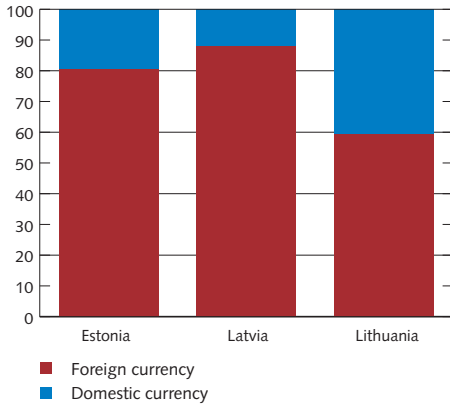
Chart 2:32. Companies borrowing from credit institutions in the Baltic countries
Annual percentage change



Sources: National central banks

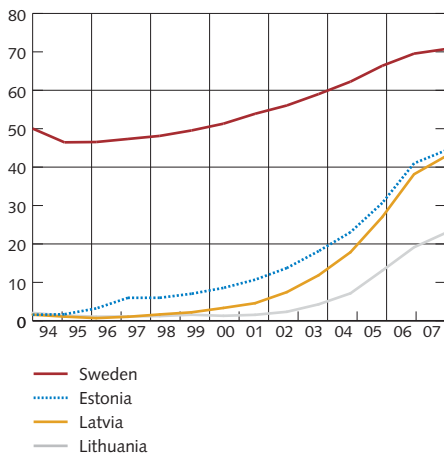
⁵⁶ There are often differences in how house prices are measured in different countries. This makes it inappropriate to make direct comparisons between countries, in particular for short period of time.

Chart 2:33. Share of lending to the private sector in foreign and domestic currency, March 2008
Per cent



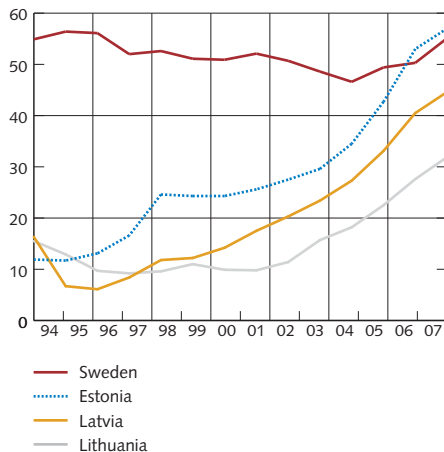
Sources: National central banks

Chart 2:34. Household debt in relation to GDP in the Baltic countries and in Sweden
Per cent



Sources: National central banks

Chart 2:35. Companies' outstanding volume in the Baltic countries and in Sweden in relation to GDP
Per cent



Sources: National central banks

Summary of risks in the borrower sector

The banks' borrowers generally have a good capacity to pay, which applies to both companies and households. However, there are some risk scenarios, which can affect different groups of borrowers in different ways.

There is a risk that the ongoing cooling off will develop into a more explicit economic downswing. A sharp decline in economic activity in the Baltic countries would reduce the creditworthiness of both companies and households. Such a scenario would probably affect the Swedish banks which have substantial activities in the Baltic countries, SEB and Swedbank. Besides deterioration in the creditworthiness of the borrowers, the banks' earnings would also be negatively affected.⁵⁷ Housing and other properties are often provided as collateral for loans. A fall in the price of housing and other properties would entail a reduction in the value of the bank's collateral. A further source of concern is that a sharp downturn in any of the countries may make investors reassess risk in the whole region. This can in turn lead to banks which are active in these countries encountering a deterioration in the terms for funding.

The foremost risks among Swedish companies are at the property companies. A lot indicates that property owners have highly-pitched expectations of being able to charge higher rents than before. A development of this kind depends on a favourable development of the economy, however. Uncertainty about the economy is great and has increased since the last stability report. There is therefore a risk that prerequisites will not be fully met which risks leading to price falls in the market for commercial property. Substantial price falls on the property market therefore affect property owners in the first place, which are an important group of borrowers for Swedish banks. Furthermore, the properties often serve as collateral for loans, which reduce in value with a fall in prices.

⁵⁷ See also in the section on the banks.

Bank developments in brief

The Swedish banks are resilient. They have buffers against unexpected events, following several years of high earnings and low loan losses. In contrast with many banks at the international level, Swedish banks have not experienced any major problems as a result of the financial crisis. This is because the Swedish banks have not been exposed to any great extent to the types of structured instruments whose value has fallen sharply.

Since there has not been any specific lack of confidence in the Swedish banks, they have had access to wholesale funding, both in Sweden and internationally. The impact on the banks has primarily been a decline in the value of certain interest-bearing assets and increased costs of funding.

The credit risk, which is one of the greatest risks faced by the banks, has increased somewhat over the past six months, mainly due to an increase in the banks' lending. In addition, the margins charged by the banks on corporate loans are low in a historical perspective. The increase in credit risks is also confirmed by the stress tests carried out by the Riksbank. At the same time, the banks' loan losses have now started to increase, following a decline for several years. However, the increased credit risk is balanced to some extent by the banks having increased their capital.

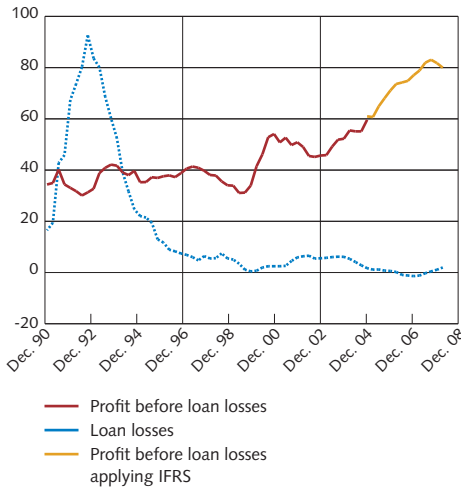
The macroeconomic developments in the Baltic countries constitute a substantial risk for the Swedish banks. Lending to borrowers in this region has continued to increase during the past year, although there are clear indications that it is no longer increasing so strongly. Growth in these countries is now slackening abruptly. A more pronounced economic slowdown would have a marked impact on the Swedish banks that have significant operations in this area.

The Riksbank's analysis focuses on the four major commercial banks: Handelsbanken, Nordea, SEB and Swedbank. These banks primarily determine the stability of the Swedish financial system. They jointly represent about 80 per cent of the market. These major banks are becoming increasingly dependent on markets other than the Swedish market, and they have considerable risk exposure in markets outside Sweden. As a result, the Riksbank analyses the entire bank groups, including their foreign operations.⁵⁸

This chapter discusses the various risks to which the banks are exposed. First, there is a description of the way profitability has developed, which provides an indication of the banks' strategic risks.

⁵⁸ The major banks are defined in the following as entire bank groups, unless stated otherwise.

Chart 3:1. Profit before loan losses and net loan losses in the major banks
Totalled over four quarters, SEK billion, fixed prices, 31 March 2008



Sources: The banks' reports and the Riksbank

This is followed by an evaluation of the quality of their assets, which gives a picture of their credit and market risks. In addition, changes in the banks' equity are analysed, which is a key feature of assessment of their ability to withstand financial stresses. The banks' funding structure provides insights into the liquidity risks that may occur. Finally, the Riksbank reports the results of several stress tests that have been carried out, indicating the bank's resilience in the event of unlikely, but nonetheless plausible risk scenarios.

The Swedish banks have been affected by the global financial crisis, but to a less extent than many other banks at the international level.

One reason why the effects are more limited for the Swedish banks is that they have largely avoided investing in various forms of structured products whose value has declined sharply. On the other hand, the Swedish banks have been affected by the market turbulence resulting from negative impacts on both the fixed income-market and the stock market. The cost of funding has increased, in line with higher prices for risk in the market. Since most of the assets are valued at market price, this also means that unrealised losses are recognised (see box on write-downs). There has also been a negative impact of net commissions as a result of the decline in the stock market.⁵⁹

Continued market turbulence means further negative impact on the banks' income statements, balance sheets and risk exposure. In the event of prolonged turbulence, market participants will probably continue to be restrictive as regards risk exposure. As a result, prolonged market uncertainty will increase the risk of ripple effects. There is a risk that a single specific event may have a more significant impact on the funding costs and liquidity risk of the bank concerned than would be the case in normal circumstances.

Profitability and earnings – strategic risk

The major banks' profitability continues to be high, but declined during the four-quarter period.⁶⁰ The return on equity amounted to almost 16 per cent, which is around two percentage points lower than a year ago. This decline in profitability is largely due to recent turbulence in the markets. But the return is still approximately five per cent higher than in 2003, which indicates that profitability remains high. The improvement in profitability in recent years is primarily due to increased income. The banks have expanded in other countries, accompanied by a diversification of income. Net interest income⁶¹ is,

⁵⁹ Net commissions comprise income less costs for services sold that are not regarded as interest, for example services involving payments, brokerage, asset management and card operations.

⁶⁰ The last four-quarter period runs to the end of 2008 Q1. Comparisons are made with the preceding four quarters, unless otherwise stated. The figures are adjusted for one-off effects.

⁶¹ Net interest primarily consists of interest income from lending, less interest expense for borrowing and deposits. The impact of borrowing and deposits on net interest is influenced by changes in both volumes and margins for each item.

and has been, the main source of revenue. In recent years, however, the rate of growth in net commissions has been considerably higher than for net interest income, although this trend has been broken during the latest four-quarter period.

Profit before loan losses increased to almost SEK 80 billion (see Chart 3:1). On the other hand, profit declined during the two most recent quarters and this reduction was particularly clear in the first quarter of 2008. At the same time, loan losses have increased, following a period in which they made a positive contribution to results. They amounted to almost SEK 2 billion during the latest four-quarter period, which represents 0.036 per cent of the major banks' lending volumes.

Uncertainty about the banks' future earnings has increased since the previous stability report. Turbulence in the financial markets is the primary factor underlying greater uncertainty (see Chapter 1), as can be seen in the implicit volatility in the banks' share prices.⁶² Volatility has not been so high since the repercussions of the IT crash (see Chart 3:2). Market participants also expect lower growth in banks' earnings than they did little less than a year ago. The expected operating profit for the major banks over the next two years was adjusted downwards by around 10 per cent between July 2007 and May 2008.⁶³

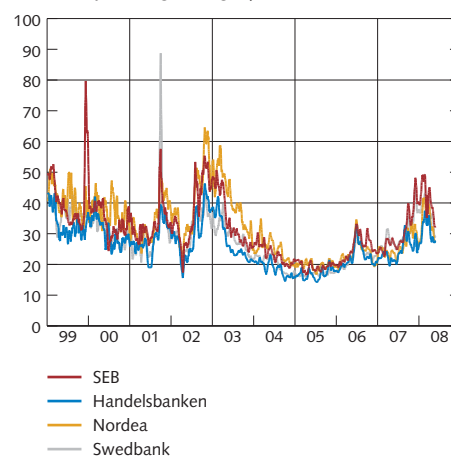
The global financial crisis has resulted in a general decline in prices for bank shares. Overall, Swedish bank shares have followed the trend in the corresponding segment in Europe, but have developed better than the U.S. banking sector (see Chart 1:18 in Chapter 1). There are, however, considerable differences between the major Swedish banks (see Chart 3:3), since the banks have had different areas of operations. SEB and Swedbank have been affected by the risk situation in the Baltic countries, since they have significant operations there.

INCOME AND EXPENSES

Expenses increased faster than income during the latest four-quarter period. Income increased by almost 6 per cent, and growth was primarily due to a strong increase in net interest income. At the same time, expenses increased by about 8 per cent, and staff costs represented two thirds of the total increase.

Net interest income increased by 14 per cent. Growth in net interest income was more than 10 percentage points higher than growth in net commissions during the latest four-quarter period (see Chart 3:4). This was mainly due to increased lending (see section on

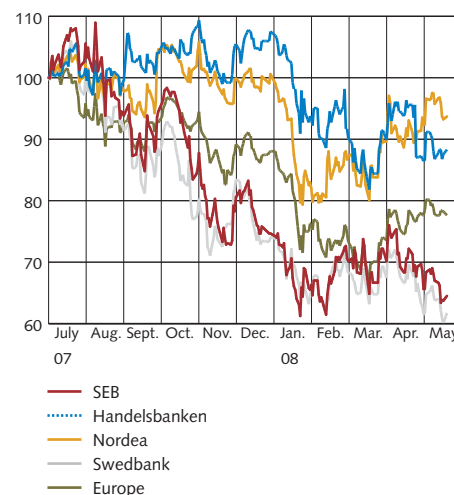
Chart 3:2. Bank shares' implied volatility
10-day moving average, per cent



Note. The implied volatility has been calculated from three-month bank equity options.

Sources: Bloomberg and the Riksbank

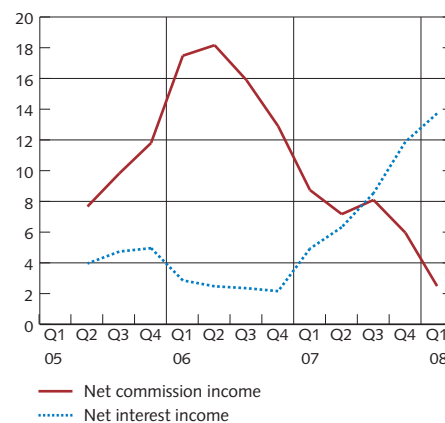
Chart 3:3. Share price development in the Swedish major banks and the European financial sector
Index: 1 July 2007 = 100



Note. European financial sector index from STOXX.

Sources: OMX and Reuters EcoWin

Chart 3:4. Development of net commission income and net interest income since 2005
Growth rate, rolling four quarters, per cent

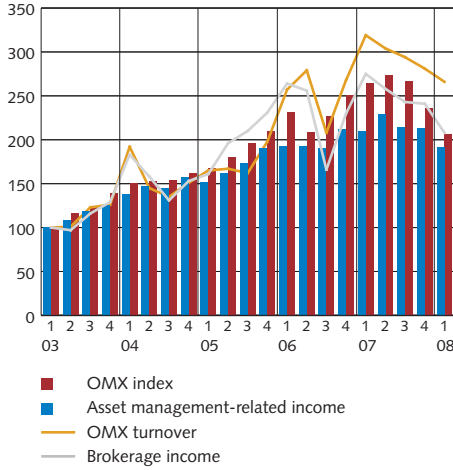


Sources: The banks' reports and the Riksbank

⁶² Implicit volatility reflects market expectations about future volatility and is calculated on the basis of prices for equity options.

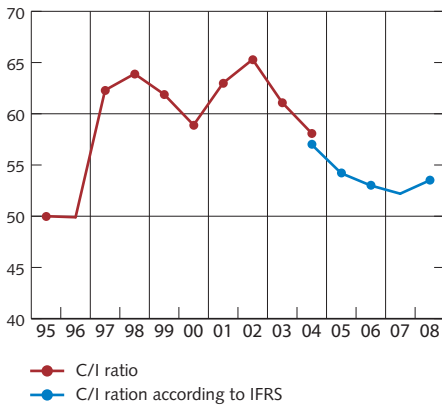
⁶³ Source: SME Direkt, 15 May 2008.

Chart 3:5. The major banks' securities-related commission income and OMX turnover and index
Index: 2003 Q1=100



Sources: The banks' reports, Reuters EcoWin and the Riksbank

Chart 3:6. Cost efficiency of the major banks
Per cent



Note. The C/I ratio stands for costs divided by income. 2008 stands for the past four quarters.

Sources: The banks' reports and the Riksbank

lending). Deposit margins also contributed positively to net interest income. This was because market interest rates rose during the period, while the banks did not increase their rates for deposits at quite the same pace. Lending margins on the loan stock have continued to decline during the latest four-quarter period, however, mainly due to the renegotiation of existing loans at reduced margins. The market turbulence has resulted in increased funding costs for the major banks. So far, this has not affected net interest income so much, since the major banks were largely able to pass on these costs to customers in the form of higher interest rates on loans. In certain cases, however, the banks report that there have been lags in this process.

Net interest income will probably continue to increase. In addition to the likelihood of continued increases in lending and deposit volumes, it now appears that the margins on new lending operations are beginning to stabilise, or even increase. During the past three years, the margins on lending in Sweden have been approximately halved⁶⁴, but the pressure on margins now seems to have ceased. These factors are contributing to continued growth in net interest income.

Net commission income increased by 3 per cent during the latest four-quarter period. This was due to increased payment-related income, which rose by approximately 6 per cent, and also somewhat higher securities-related commission income. In the past two quarters, however, the annual growth rate in net commission income has been negative. This is largely due to market turbulence, primarily the weak trend in the stock market. The banks' income from brokerage commissions is normally developing in line with the stock market turnover. The share-price trend also has a direct impact on the banks' income from asset management, since this depends on the volume of the assets under management (see Chart 3:5).⁶⁵

Commission income is expected to decline slightly in the coming period. If the stock market trend continues to be weak, trading volumes and share prices will both have a negative impact on net commission income. At the same time, brokerage competition has increased, which may mean reduced brokerage commissions for the major banks.

Unrealised changes in value made a negative contribution to the major banks' income. "Financial items at fair value" declined by 20 per cent. This item is totally or partially dependent on changes in the value of balance-sheet items. The major decline in value during the period was in interest-bearing securities, due to the financial turbulence (see box on write-downs).

⁶⁴ Pressures on margins have continued during recent years, primarily due to keener competitors, but also due to new capital adequacy rules [Basel II].

⁶⁵ Securities-related commissions represent more than half of net commission income. This means that net commission income clearly reflects trends in the stock market.

The major banks' expenses increased by almost 8 per cent.

Staff costs accounted for two thirds of this increase. Rather than simply holding back costs, the banks have increasingly focused on maintaining a certain gap between increased income and increased expenses. In other words, expenses are permitted to increase to a greater extent when income increase is high. Since changes in expenses are slower to take effect than revenues, they have continued to increase during a period in which income has slowed down. As a result, cost efficiency declined during the latest four-quarter period in terms of a higher cost/income ratio⁶⁶ (see Chart 3:6).

Assets and capital – credit and market risk

Credit risk is the major asset risk in the banks' operations. Approximately 60 per cent of the major banks' assets consists of lending to the public. The banks are also exposed to market risk, but this constitutes a smaller proportion of total risks. The Riksbank also analyses the development of the major banks' equity, which is a crucial factor in assessment of their financial resilience.

LENDING

Lending by the major banks increased by around 14 per cent.

The growth rate in corporate lending was greater than lending to households, and amounted to 22 per cent in 2007. Property management companies were the single most significant industry among the banks' borrowers, accounting for between 27 and 54 per cent of corporate lending.⁶⁷ Handelsbanken has the highest proportion of loans to property management companies (see Chart 3:4).⁶⁸

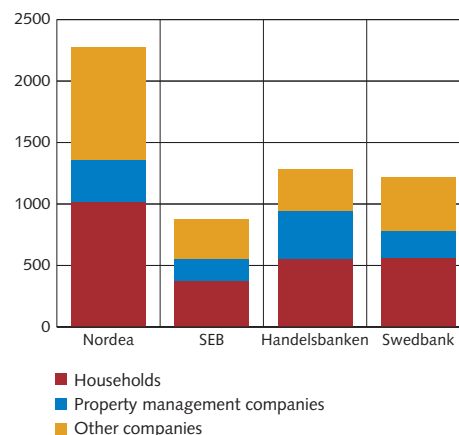
Lending operations in other countries are a significant item for the major banks.

Borrowers in other countries represent approximately half the major banks' lending operations (see Chart 2:1 in Chapter 2). The growth rate is also slightly higher in other countries than in Sweden, although it declined somewhat during the latest four-quarter period. The increase in lending abroad declined as a proportion of total lending increase in comparison with the previous year (see Chart 3:8).

The major banks' operations in the Baltic countries have continued to be substantial, although lending do not increase as rapidly as in the past.

The Baltic countries have accounted for the strongest growth in lending in recent years. SEB and Swedbank have a relatively high proportion of their lending operations in these countries (see Chart 3:9). The growth rate for these two banks has declined,

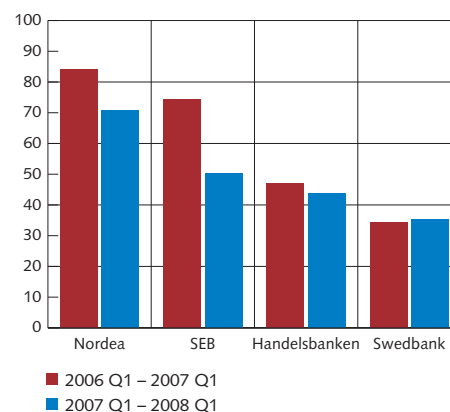
Chart 3:7. Lending broken down by segment
SEK billion, December 2007



Note. Refers to loans to the public. Repos and loans to the public sector are excluded.

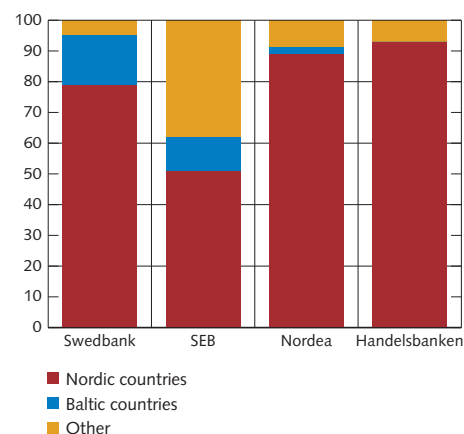
Sources: The banks' reports and the Riksbank

Chart 3:8. Contribution from foreign lending and share of total growth in lending
Per cent



Sources: The banks' reports and the Riksbank

Chart 3:9. The major banks' total lending, broken down geographically
Per cent



Note. SEB's figures include repos and credit exposure off balance sheet. The Nordic countries includes lending in Sweden

Sources: The banks' reports and the Riksbank

66 Cost/Income ratios measure the banks' costs in relation to income.

67 Excluding repos.

68 One fifth of Handelsbanken's lending to property management companies is to tenant-owner associations.

however. Swedbank's annual growth rate for lending operations was 40 per cent at 31 December 2007 (as compared with 60 per cent in December 2006), and SEB's growth rate was 30 per cent for the comparable period (40 per cent in December 2006). In the first quarter of 2008, Swedbank's growth in lending to Baltic borrowers was only 3 per cent, while SEB's lending was virtually unchanged. This indicates a substantial decline in the growth rate. According to Swedbank, the growth in lending is not to exceed 15 per cent during the coming year.⁶⁹ Nordea also has significant lending operations in the Baltic countries, although they only represent a small percentage of Nordea's total loan portfolio. On the other hand, Nordea has a higher growth rate than SEB and Swedbank, amounting to 65 per cent during the latest four-quarter period. The Swedish major banks are the market leaders in all the Baltic countries, with market shares of between 55 and almost 90 per cent of total lending in these countries.

CREDIT QUALITY

The proportion of impaired loans remain on low levels. In all, the proportion of impaired loans amounted to 0.5 per cent of the major banks' lending.⁷⁰ In absolute terms, however, impaired loans increased somewhat, but at less than the rate for growth in lending operations. Impaired loans are increasing, primarily in lending to certain operations in other countries, including the Baltic countries. The proportion of non-performing loans increased during the latest four-quarter period for all the Swedish major banks, with one exception.⁷¹ On average, this represented an increase of about 16 per cent, which is slightly higher than the growth rate for lending.

⁶⁹ According to a presentation at Swedbank's press conference on 24 April 2008.

⁷⁰ Impaired loans are receivables for which potential losses have been identified, giving rise to provisions.

⁷¹ A non-performing loan is a receivable that is due for payment but has not been settled for more than 60 days.

The banks' write-downs of financial assets

During the past nine months, banks all over the world have taken appreciable writedown losses due to changes in the value of financial instruments. According to summarised information, write-downs by the largest banks amount to a total of about USD 300 billion (see Table B1).⁷² European banks represent less than half this figure. In addition, analysts fear further writedown losses of USD 100-200 billion.

The Swedish major banks have coped well in an international comparison. In all, they have made write-downs corresponding to a total of SEK 8 billion as a result of changes in value in financial instruments (see Table B1).

One issue which has attracted attention as a result of these write-down losses is the consequence of reporting assets at "fair value". In the case of banks that apply IFRS accounting standards – which includes the European banks – or the U.S. GAAP accounting standards, fair value is based on the current market price.

One problem has been that there is sometimes no well-functioning market for financial assets that have been written down. This has meant that many people have questioned the reliability and relevance of fair value in such circumstances. The write-down losses have involved strains on the banks' equity either through the income statement or directly

in relation to equity. This in turn has forced the banks to inject more capital or sell financial instruments in a market that is already illiquid. For example, three of the banks that have made the largest write-downs – Citigroup, Merrill Lynch and UBS – have been forced to raise new capital (see Table B2). Critics of the current accounting principles consider that such write-downs are exaggerated, and that application of fair value helps to turn a liquidity crisis into a solvency crisis.

But even if applying market prices may be problematical in the prevailing circumstances, there are no obvious alternatives. One solution is to return to traditional accounting practices, under which assets are valued at their acquisition value rather than the market price. The disadvantages of this accounting method are well known: the book value is historic and does not reflect changes in market structure. In many cases, the acquisition value is totally irrelevant. Another alternative is that valuation should correspond to the present value of the asset's future cash flows. Although this method is the most attractive from a theoretical viewpoint, it is also the most difficult to apply in purely practical terms. Assessment of future cash flows can be highly arbitrary. In addition, different evaluations involve a reduction in comparability between various companies.

Table B2. Write-downs
SEK million

	Write-downs	Equity
Nordea	550	167,108
SEB	4,969	77,059
Handelsbanken	2,287	75,615
Swedbank	287	70,509
Total	8,093	390,291

Note. Refers to the period 2007 Q3 to 2008 Q1.
Sources: The banks' reports and the Riksbank

⁷² According to a compilation of Bloomberg.

Table B3. Write-down losses and capital injections
USD billion

Geography	Write-downs and loan losses	Capital injections
USA	153	130
Europe	148	106
Asia	18	2
Total	319	238
Universal banks		
Citigroup	41	44
UBS	38	28
HSBC	13	2
Bank of America	15	17
Royal Bank of Scotland	15	23
IKB	9	13
JPMorgan Chase	10	6
Deutsche Bank	8	3
Bayerische Landesbank	4	0
Wachovia	7	11
Mizuho	5	0
Mitsubishi UFJ	1	0
Societe Generale	4	9
Wells Fargo	3	0
WestLB	3	8
Investment banks		
Merrill Lynch	32	16
Morgan Stanley	13	6
Credit Suisse	9	2
Credit Agricole	6	0
Bear Stearns	3	0
Goldman Sachs	3	0
Lehman Brothers	3	6

Source: Bloomberg

The major Swedish banks' loan losses increased during the last

four-quarter period. Loan losses have tended to increase over several quarters, but from very low starting points (see Chart 3:10). Total loan losses amounted to almost SEK 2 billion. The loan losses reported mainly involve increasing provisions for collectively assessed loans. In other words, this reflects conservative provisions for probable future losses rather than specific commitments.

The risks in the major banks' lending to companies increased

somewhat. In Sweden, corporate lending is increasing at a more rapid pace than lending to households. At the same time, the margins on such loans are lower. In historical terms, an economic downturn and the resultant turn in the credit cycle have primarily been influencing the banks' commitments to corporate borrowers. The value of a company's assets often complies with its ability to make repayments. This applies, in particular, to property companies. The Riksbank has previously indicated that developments in the property market represent a risk for the banks. This risk continues to apply, and has even increased since the previous stability report.

Table 3:1 shows the outcome of a simple stress test where credit quality for the banks' borrowers (corporate clients) in the property sector deteriorates. In the extreme case borrowers accounting for a good five per cent of the total loan volume to the property sector are expected to default. In this case the provision needs amounts to one fourth of the banks' operating profits before loan losses for the latest four-quarter period.

Table 3:1. The effect on the major banks of a deterioration in credit quality in their lending to the property sector.

	Base scenario		Stress test	
Lending to property management companies				
Exposure at Default (EAD), SEK billion	1,150	1,150	1,150	1,150
Probability of Default (PD) % *	0.6	2.0	5.0	5.0
Loss Given Default (LGD) % **	35	35	35	35
Provision needs				
Expected Loss (EL), SEK billion***	2.4	8.1	20.1	20.1
Provision needs as a share of the latest 4-quarter result prior to loan losses %	3.0	10	25	25

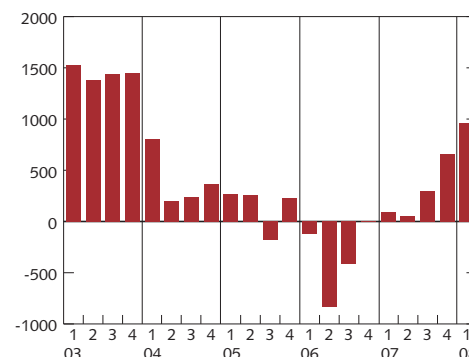
* The base scenario's PD is calculated on the basis of the banks' existing provisions in the segment.

** LGD value for exposures with collateral in property based on the IRC method (according to FFFS 2007:1).

*** EL = EAD x PD x LGD

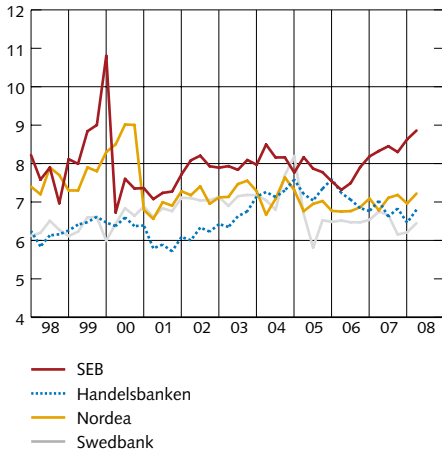
Sources: The banks' reports and the Riksbank

Chart 3:10. The major banks' credit losses per quarter
SEK million



Sources: The banks' reports and the Riksbank

Chart 3:11. Tier 1 capital ratios
Per cent



Note. Since the first quarter of 2007, the banks report in accordance with Basel II transitional rules

Sources: The banks' reports and the Riksbank

MARKET RISKS

The market risk in the major banks has increased. The Value at Risk concept (VaR)⁷³ is normally applied in an attempt to consolidate all market risks in a single risk measure. The increase in VaR is primarily due to higher interest-rate volatility and increased correlations in conditions of market turbulence. During the four-quarter period, interest-rate risk was the greatest market risk for the majority of the major banks, according to VaR. In one of the major banks, Swedbank, however, the greatest risk has been the currency risk due to the bank's expansion in other countries. On the whole, however, the market risk is relatively limited in the major Swedish banks, representing only slightly less than 5 per cent of total risk-weighted assets at 30 March 2008.

EQUITY

The banks' Tier 1 capital ratios⁷⁴ amounted to an average of 7.3 per cent at 30 March 2008 (see Chart 3:11). The average level was 0.2 percentage points higher than that at 30 March 2007. SEB's and Nordea's Tier 1 capital ratio increased, although it declined slightly in the case of Handelsbanken and Swedbank.

As from the first quarter of 2007, the major banks are reporting in accordance with the new capital adequacy rules (Basel II). This involves three-year transitional rules with adjustment of the capital requirement in steps and, as a result, comparisons over time may be misleading. As from the first quarter of 2008, the banks may apply an additional 5 per cent reduction in risk-weighted assets in accordance with these transitional rules. This is one of the primary reasons for the increase in Tier 1 capital ratios during the first quarter of the year. The banks are reporting the Tier 1 capital level both in accordance with the transitional rules and in accordance with Basel II. Handelsbanken applies an additional measure, measuring the ratio between the financial resources available and the capital requirement for credit risk. This measure is not affected by the transitional rules and closely resembles the measure applied by the Riksbank in its stress tests (see section on stress tests).

So far, the banks have used their profits to expand operations.

The high degree of profitability which the banks have experienced over several years has enabled them to build up their equity. In addition, the new capital adequacy rules mean that the banks can reduce their capital and/or increase their assets without reducing their capital adequacy. So far, the banks have preferred to increase

⁷³ Value at Risk is a statistical method which describes the maximum potential loss which can arise during a particular time period with a particular probability.

⁷⁴ Tier I capital is part of the bank's capital base. It consists of equity including untaxed reserves with deduction for goodwill. The Tier I capital relation is Tier 1 divided by risk-weighted assets.

their asset volumes rather than reduce their capital in the form of higher dividends. There was only a marginal increase in the dividends proposed for 2007, compared with the preceding year.

Funding – liquidity risk

One of the banks' major functions is the conversion of deposits into lending. The banks' liabilities are liquid, in the form of deposits and borrowing, while their assets are illiquid in the form of lending. This involves a liquidity risk.

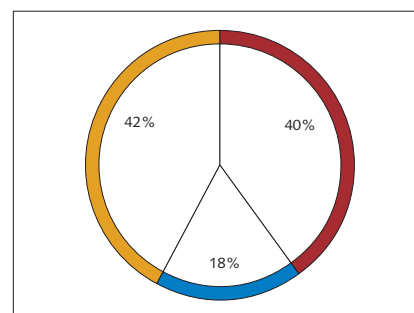
Deposits by the public account for over 40 per cent of the banks' total funding, and wholesale funding accounts for the remaining part, primarily in the form of securities issued. Bonds represent the long-term wholesale funding. Short-term wholesale funding is primarily in the form of commercial paper. Funding in the interbank market, which is primarily employed to even out liquidity, also contributes to short-term wholesale funding (see Chart 3:12).

Turbulence in the financial markets has made it more expensive for the banks to fund their operations via the market. Although the Swedish banks have not suffered to the same extent as banks in many other countries, their funding costs have increased. Funding for short-term durations has been affected, for example, by higher interbank interest rates – the rates at which banks borrow from each other. A fully operational Nordic market for covered bonds has helped to limit funding costs, but the banks also rely on funding outside Sweden's borders. The Swedish banks have had relatively satisfactory access to the European market, even if it has functioned inadequately at times.

The banks' dependence on wholesale funding has increased in recent years. This is because lending operations have increased in comparison with deposits. The deposits deficit provides an indication of the proportion of the banks' borrowing that must be funded in some other way (see Chart 3:13). The deposits deficit amounted to SEK 2,900 billion at the end of the first quarter of 2008. This corresponds to 49 per cent of lending by the four major banks to the public. Deposits from the public are a cheaper form of funding than wholesale funding. Deposits represent less than half the banks' lending and, at the end of the latest four-quarter period, amounted to SEK 3,043 billion.

A high proportion of the major Swedish banks' funding is in foreign currencies (see Chart 3:14). The fact that more than half of the Swedish banks' funding is in currencies other than SEK may be regarded as positive since this diversifies the funding. The major banks lend more in Swedish kronor than they borrow and, as a result, they have a deposits deficit in terms of SEK. This is because they

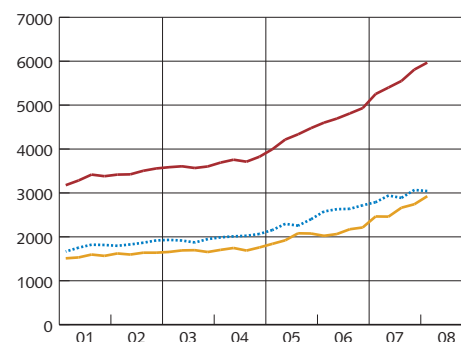
Chart 3:12. The banks' sources of funding
Per cent of total funding



■ Issued securities
■ Funding interbank
■ Deposits from public

Sources: The banks' reports and the Riksbank

Chart 3:13. The banks' deposits and lending
SEK billion

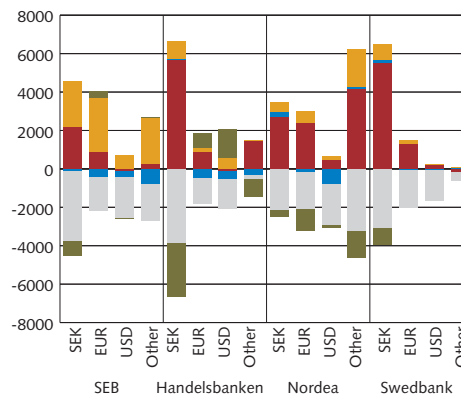


— Lending
..... Deposits
— Deposit deficit

Note. Deposit deficit = lending – deposits.

Sources: The banks' reports and the Riksbank

Chart 3:14. Interest-bearing assets and liabilities
December 2007, SEK billion

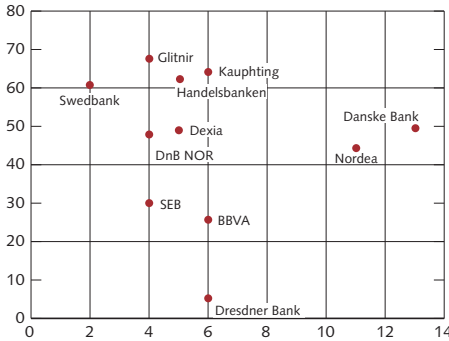


■ Net lending
■ Interbank net
■ Securities holding
■ Issued securities
■ Other, net

Sources: The banks' reports and the Riksbank

Chart 3:15. European banks' dependence on wholesale funding and average time to maturity of issued securities, March 2008

Vertical axis: Funding gap in per cent
Horizontal axis: Remaining time to maturity of issued securities, years



Note. Funding gap = (Lending – deposits)/lending, i.e. the proportion of lending not financed by deposits. The higher the funding gap, the greater the dependence on wholesale funding. After the data was constructed for this chart, Swedbank has issued covered bonds. This should eventually mean that the average time to maturity will be longer than shown by the chart.

Sources: The banks' reports and Bloomberg

have a high proportion of their operations in the Swedish market. Nordea has, unlike the other major Swedish banks, its major lending operations in Danish kroner, primarily funded on the Danish securities market. SEB's and Swedbank's lending in the Baltic countries is mainly financed in euros via each bank's group parent company. They use the derivatives market to protect themselves against the currency risk that occurs when banks borrow more money in foreign currencies than they lend.

The banks' short-term funding consists mainly of issued commercial papers in Sweden, the United States and Europe. Long-term wholesale funding mainly takes the form of bond issues in Swedish kronor. Handelsbanken and SEB supplement their short-term funding by net borrowing on the interbank market. Swedbank, on the other hand, has interbank lending operations in excess of its interbank funding.

Swedish banks rely more on wholesale funding than average European banks, and borrowing tends to be for shorter durations (see Chart 3:15). On average, Swedbank and Handelsbanken tend to depend more on wholesale funding than average. SEB, Handelsbanken and Swedbank also have shorter duration than the average. The fact that Nordea's duration is above average is due to its Danish operations. Mortgage loans in Denmark tend to have a longer fixed term than in Sweden, for example. As a result, a longer duration also applies for funding in Denmark. Banks that have a short credit duration and a high proportion of wholesale funding tend to run a greater risk of liquidity strains.

Contagion risk

The major banks play a crucial role in the financial system, involving considerable mutual claims on each other and other market participants, so-called counterparty exposures. These commitments give rise to a direct risk of contagion, that is the risk that a funding problem in one bank spreads to other banks. Contagion risk may also occur indirectly if a bank's liquidity shortage arouses fears of funding problems in other similar institutions.

DIRECT CONTAGION RISKS

The banks can actively influence direct contagion risks by controlling their counterparties' limits and collateral.

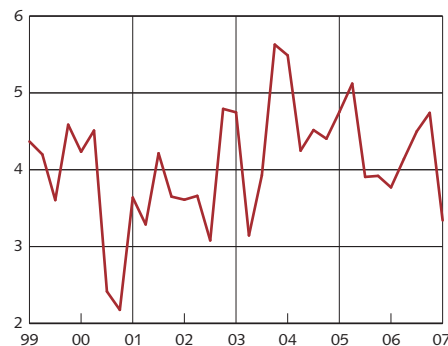
The following test is an estimate of the direct contagion risk in the Swedish banking system, applying the Riksbank's data for the major banks' counterparty exposures. The data collected by the Riksbank

⁷⁵ Since 1999, the Riksbank has compiled data on the major banks' 15 largest counterparty and settlement exposures.

at the end of each quarter provides an instantaneous picture of exposures to the major banks most significant counterparties which are often substantial players in the relatively concentrated Swedish banking system.

The banks' five largest exposures since 1989, when data was first collected, have jointly amounted to between 60 and 100 per cent of their Tier 1 capital. The Riksbank tests the direct contagion risks by assuming that one of the major banks suspend its payments and that 75 per cent of the other banks' exposures to the bank that has failed are lost. It is assumed that 25 per cent may be recovered, since part of the exposure is covered by collateral.⁷⁵ This loss is then directly deducted from the bank's Tier 1 capital.⁷⁶ During the second half of 2007, one major bank had an exposure which, in line with the assumptions applied in the test, resulted in a Tier 1 capital that failed to meet the 4 per cent statutory requirement (see Chart 3:16).

Chart 3:16. The lowest Tier 1 capital ratio which any of the banks has in every single test
Per cent



Source: The Riksbank

INDIRECT CONTAGION RISKS

Although the Swedish banking system overall has functioned well during the period of financial turbulence, the indirect contagion risks continue to be higher than normal. The banks are often exposed to the same risks, which means that they may be sensitive to the same macroeconomic events. As a result, contagion in one bank may occur indirectly, due to fears that other banks may be subject to similar problems. Fears of this nature, irrespective of whether they are well-founded or not, may result in refusal by investors to fund the bank in question. The financial turbulence and liquidity problems which commenced in August 2007 have been characterised by such fears to a considerable extent – an example, for instance, is the process that occurred during the autumn in the British mortgage institution Northern Rock (see box on the international financial crisis in Chapter 1). Although the Swedish and Scandinavian markets have functioned satisfactorily during the financial crisis, a more critical risk situation continues to apply.

Stress test of the major banks' resilience

This section presents the outcome of the stress tests carried out by the Riksbank. The aim is to test the resilience of the banks against unexpected and negative events. The way the banks would be affected by deterioration in credit quality and reduced earnings has been tested in two different scenarios. A third scenario tests the way they are affected by increased funding costs.

⁷⁵ This effect corresponds to a situation where a major bank, without any prior warning, suspends payments with immediate effect. Possible recoveries are moreover considered to be relatively low. The resulting Tier 1 capital levels which are calculated in the tests should thus be seen as outcomes of an extreme stress test.

⁷⁶ If the loss causes a bank to suspend payments, this may result in additional contagion risks. The risk of such second-round effects is drastically increased if the other banks have suffered a similar shock.

The Riksbank's method for assessing the banks' credit risks is based on a generally available portfolio model and on information from the banks' reports.⁷⁷ A number of simplified assumptions are employed in the model, and the information on which the estimates are based provides an approximate picture of the actual portfolio. The test results are therefore indicative which makes it more relevant to consider a comparison of outcomes over time than the absolute levels.

CREDIT RISK, CAPITAL AND EARNINGS

The decisive feature in the banks' resilience is that they have sufficient capital to handle significant risks. The single most crucial risk in the banks' operations is credit risk. As a result, the stress tests primarily focus on the banks' resilience in the event of deterioration in credit quality. Two measures are used to quantify the loan losses that a bank may face. One measure reflects expected losses. This measure indicates how much the bank may expect to lose on average during a year, given its portfolio and risk profile. In theory, this should correspond to the bank's provisions. The second measure – the capital requirement for credit risk – reflects the capital needed to cope with possible losses that may occur, in addition to those that are expected.⁷⁸

It is important to take both these measures into account when forming an opinion of a bank's resilience. The expected loss is compared with the profit. If the profit is not large enough to cover the expected loss, the bank's capital will decrease. The tests place the bank's Tier 1 capital⁷⁹ in relation to the capital requirement for credit risk, thus arriving at a "credit risk cover ratio".⁸⁰ And if the capital declines in relation to the capital requirement for credit risk, this will reduce the bank's resilience. This may result in a lower credit rating and higher funding costs.

The level of credit risk cover a bank needs depends on the nature of its operations. Banks with large mortgage institutions, such as Handelsbanken and Swedbank, have a high proportion of credit risk in comparison with their other operations, and therefore require a smaller buffer for other risks. Examples of other risks that should be covered by Tier 1 capital are market risks, operational risks and credit risks off balance sheet.

Having a credit risk cover of 100 per cent means, in principle, that Tier 1 capital covers the credit risk precisely. On the other hand, it does not cover other types of risk. A credit risk coverage of more than 100 per cent means that the bank has a buffer. The greater the buffer,

⁷⁷ See the article headed "Estimating credit risk with external information" in Financial Stability 2006:1 for a more detailed description.

⁷⁸ The Swedish banks have chosen to define their capital requirement for credit risk on the basis of an AA rating, which means that the default risk over a period of one year shall be at most 0.03 per cent. In the Riksbank's analysis, the capital requirement for credit risk is calculated at the level of 99.9 per cent.

⁷⁹ The bank's Tier-1 capital is somewhat simplified the bank's equity less any investments in insurance companies and goodwill.

⁸⁰ Credit risk cover = Tier 1 capital/capital requirement for credit risk.

the greater the bank's resilience in the event of additional negative events.

The calculations are based on the structure of the banks' loan portfolios at 31 December 2007, in comparison with 30 June 2007. The scenarios assume that there is no change in the portfolios. The analysis covers the four major Swedish banks and also Danske Bank, Sweden's fifth largest bank. The banks' credit risk cover is studied in two different scenarios:

- Scenario 1 concerns a general deterioration of the creditworthiness of borrowers in the Baltic countries.
- Scenario 2 concerns a cyclical downturn that results in a deterioration of creditworthiness for all borrowers.

SCENARIO 1: IMPAIRED CREDIT QUALITY IN THE BALTIC COUNTRIES

This scenario tests the effect on the banks' resilience of a substantial deterioration in creditworthiness among the borrowers in the Baltic countries. It is assumed that a shock occurs that affects all borrowers in the Baltic countries, resulting in deterioration in their creditworthiness for a period of three years. At the same time, there is also a decline in the banks' earnings from operations in these countries. In the first year, the probability of default rises to 5 per cent, in the next year to 10 per cent, and in the third year to 20 per cent.⁸¹ Pre-tax profit is assumed to be halved during the first year, and to decline by a further 25 per cent in the following year, and disappear entirely during the third year. Year three represents a very extreme situation, with a high probability of default and no earnings from the operations in the Baltic countries. The creditworthiness of other borrowers in the banks' portfolios is assumed to be unchanged, and this also applies to earnings on other operations. This scenario is applied to the two banks that have substantial lending operations in the Baltic countries, namely Swedbank and SEB.⁸²

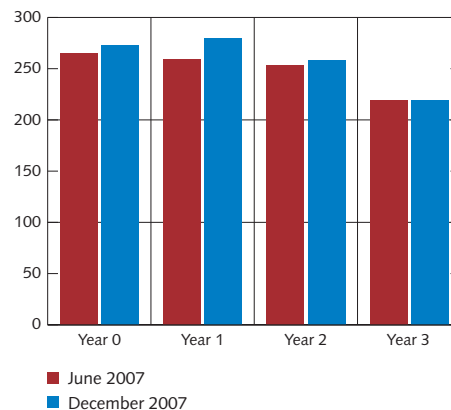
According to the outcome of the tests, both SEB and Swedbank would cope with a deterioration in developments in the Baltic countries. The banks show positive net income during all three years, despite such deterioration. This is because earnings would be higher than the new provisions for loan losses.⁸³ In the test, the positive income supports the Tier 1 capital in every year, since it is assumed that no dividends will be distributed. In every year covered by the scenario, both banks have a credit risk cover of more than 100 per cent.

⁸¹ The probability of default indicates the probability that an exposure will be in default within one year. Higher bankruptcy probabilities result in greater expected losses and increased capital requirement for credit risk.

⁸² Danske Bank and Nordea also have operations in the Baltic countries, but since their lending operations in these countries constitute a much smaller proportion of their portfolios, they have been excluded from the scenario.

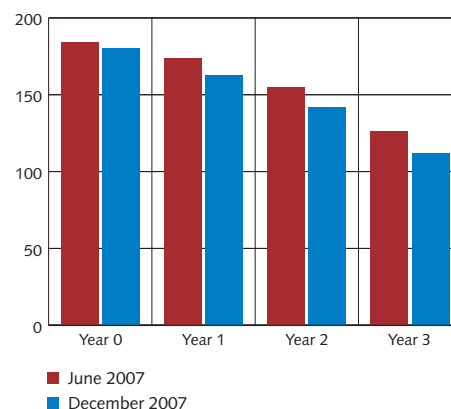
⁸³ Increased provisions for loan losses are derived from the change in expected losses between two years.

Chart 3:17. SEB's cover for credit risk according to the scenario of impaired credit quality in the Baltic countries
Per cent



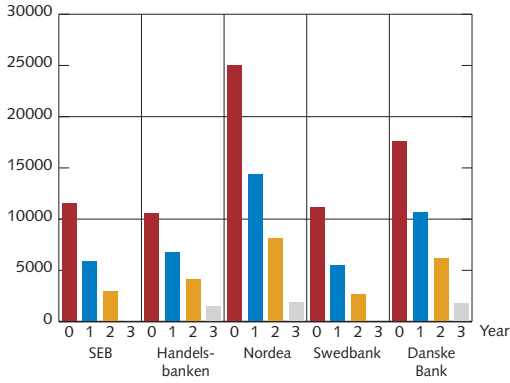
Sources: The banks' reports and the Riksbank

Chart 3:18. Swedbank's cover for credit risk according to the scenario of impaired credit quality in the Baltic countries
Per cent



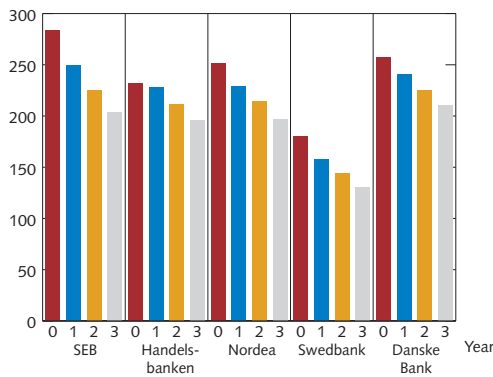
Sources: The banks' reports and the Riksbank

Chart 3:19. The banks' profit according to the scenario of a turn in the credit cycle.
Expected profit minus change in expected loss, SEK million



Sources: The banks' reports and the Riksbank

Chart 3:20. Cover for credit risk according to the scenario of a turn in the credit cycle
Per cent



Sources: The banks' reports and the Riksbank

According to the test, SEB's resilience in the event of a deterioration in the Baltic countries is, in principle, unchanged in comparison with the preceding six-month period. This is because SEB has increased its Tier 1 capital while, at the same time growth in lending in the Baltic countries has slowed down. As a result, the bank's resilience in the event of a deterioration in the Baltic countries is unchanged, or may even have improved since the last report (see Chart 3:17).

The test indicates that Swedbank's resilience in this scenario has declined slightly in comparison with the preceding six month period. (see Chart 3:18). This is because Swedbank has increased its lending in the region during the last two quarters while, at the same time, an increasing proportion of its earnings is derived from the Baltic countries. Swedbank's Tier 1 capital has not increased to the same extent.

SCENARIO 2: IMPAIRED CREDIT QUALITY
FROM A TURN IN THE CREDIT CYCLE

This scenario illustrates how a turn in the credit cycle, and hence a deterioration in creditworthiness, affects the major banks. The test indicates the way in which the banks would withstand a turn similar to that which occurred in 2000.⁸⁴ Based on this historical relationship between GDP growth and the probability of default, it is assumed that the creditworthiness of all borrowers in the banks' portfolios deteriorates over three years. In the first year, the probability of default increases to 1 per cent, in the next year to 2 per cent, and finally, in the third and worst year, to about 3 per cent.⁸⁵ At the same time, earnings drop. During the first year, pre-tax profit is reduced by 25 per cent, and subsequently continues to decline by the same percentage in the second and third year.

The test shows that the banks would be resilient to an economic downturn similar to that which occurred in 2000. Tier 1 capital increases for the majority of the banks during these three years since earnings are higher than provisions, despite an assumption that there is a sharp decline in earnings. None of the banks would report a negative result during these three years. (see Chart 3:19).⁸⁶

The five banks' credit risk cover is more than 100 per cent in all the years, and they are therefore able to cope with a substantial increase in the probably of default (see chart 3:20). The credit risk cover declines in every case, however, and hence their ability to withstand further negative events is also reduced.

⁸⁴ In the downturn after the IT crash in the early 2000's, GDP growth declined from slightly more than 5 per cent to slightly less than 0.5 per cent. In March 2003, the average probability of default in the corporate sector was four times as high as in 1999.

⁸⁵ Suspended payments in the portfolio are a "through-the-cycle" measure, which means that they are estimated on an average basis over the past five years.

⁸⁶ Handelsbanken's result has been adjusted for the sale of SPP.

The banks' resilience in the event of a downturn of this nature is marginally worse than at 30 June 2007. A larger proportion of loans in the portfolio has contributed to a somewhat higher capital requirement for the banks' credit risk. This is balanced to some extent, however, primarily because most of the banks have increased their Tier 1 capital compared with the preceding latest four-quarter period.

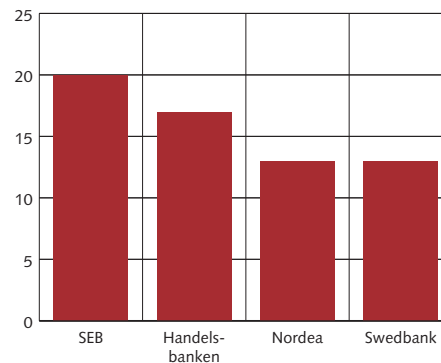
FUNDING

This test estimates how the four major Swedish banks would be affected by increased funding costs. Such costs may increase if some of the relatively cheap deposits made by the general public have to be replaced by more expensive wholesale funding. They may also rise if market rates increase or if investors require higher compensation for risk – an increase in the credit spread. This test may be applied either to the banking sector as a whole, or as a separate test for individual banks.

SCENARIO 3: INCREASED FUNDING COSTS FOR THREE MONTHS

The third scenario tests how the banks are affected by higher costs for funding. The test assumes that the cost of ten per cent of the banks' cheapest funding increases by two percentage points. In addition, it is assumed that the credit spread paid by the banks for borrowing in the securities market increases by 50 basis points during a three-month period. This scenario is very extreme, partly because market interest rates are already high, and partly because the banks are not assumed to compensate for this by increasing their interest rates on lending operations.⁸⁷ This scenario is not inconceivable, however. The results show that the higher funding costs would correspond to an average of 17 per cent of the banks' first quarter results in 2008. The increased costs would have an impact on the banks, but would not be critical (see Chart 3:21).

Chart 3.21. Increased funding costs in a three-month liquidity crisis as a percentage of a quarterly result
Per cent



Note. The quarterly results are calculated as an average of the operating profit of the latest four quarters.

Sources: The banks' reports and the Riksbank

⁸⁷ The banks have stated that they have been able to pass on the majority of the recent increased funding costs (see Income and costs).

Summary of risks for the major Swedish banks

The major Swedish banks are able to withstand unforeseen negative events. This is primarily due to the banks' being well capitalised and their high level of profitability. The stress tests carried out by the Riksbank confirm this picture.

The credit risk for the major banks have increased, however. The growth rate in lending operations continues to be high, primarily in operations in other countries, but also in loans to Swedish companies. The risks in the Baltic countries have not diminished, and margins on loans, for example to companies, are low. Narrow margins on loans to property management companies could imply that the major banks are not receiving adequate compensation for the credit risk involved.

Market turbulence may have a further unexpected impact on the result. During the next result period, the banks may experience additional negative impacts. Profitability will probably slacken off. There is also a risk that this will affect capital strength, or that the banks' growth will slow down in a situation of persistent turbulence. In the event of continued unfavourable developments, liquidity risks will probably increase.

The financial infrastructure – in brief

The Swedish financial infrastructure is of a sound international standard and provides reliable services, as shown by the Riksbank's annual assessments. The foremost effect of the recent financial turbulence has been higher volumes, although this has not led to any disturbances in the systems.

The securities market in Sweden, as in the rest of Europe, is on the threshold of major changes regarding securities trading as well as the infrastructure for clearing and settlement of securities transactions. For some time now, the European Commission has been working on a number of initiatives relating to these areas. These initiatives can have various implications but they all aim at increasing competition and the efficiency of securities markets in Europe. More integrated securities markets in Europe lead to higher efficiency while at the same time creating new risks that must be addressed.

A well functioning infrastructure is of crucial importance for financial stability. Weaknesses in the infrastructure can lead to disturbances in the financial system. If the infrastructure does not function correctly, there is a risk that one player's or market segment's problems spread to other parts of the financial system. The financial infrastructure consists of systems where payments can be carried out and systems where securities can be traded, cleared and settled.

This chapter begins with a summary of how the Swedish financial infrastructure functioned during 2007. The remainder of the chapter takes up important changes in the European securities markets. A number of initiatives have been taken at European level, which are intended to have major effects on both securities trading and clearing and settlement of securities.

The Swedish financial systems

The Swedish financial infrastructure provides reliable services.

According to the Riksbank's assessment of the Swedish systems during 2007, these systems comply with practically all international oversight standards.^{88 89} RIX and VPC comply with all international standards while BGC and OMX DM comply with all except one (which is largely complied with), (see Table 4:1).

⁸⁸ The Riksbank bases its oversight on international standards. They have been produced by the Bank for International Settlements (BIS) Committee on Payment and Settlement Systems (CPSS), and the supervisory authorities' umbrella organisation International Organisation of Securities Commission (IOSCO).

⁸⁹ The Swedish systems that the Riksbank supervises are RIX, BGC, VPC och OMX Derivatives Markets (OMX DM). In addition to oversight of the Swedish infrastructure, the Riksbank participates in monitoring of the international systems Continuous Linked Settlement (CLS) and The Society for Worldwide Interbank Financial Telecommunication (SWIFT). The Riksbank does this by participating in international working groups under the leadership of the Federal Reserve Bank New York in the case of CLS and the Belgian central bank in the case of SWIFT.

Table 4:1 The Riksbank's assessment of the Swedish financial infrastructure

System	In what function is the system systemically important?	Assessed in accordance with international standards	Assessment
RIX	The Riksbank's system for large-value payments, Real Time Gross Settlement (RTGS)	Core Principles for Systemically Important Payment Systems, Committee on payment and settlement systems, BIS January 2001	Observes all standards. However, some comments are made with regard to what should be changed and introduced into the new system that will be launched in October 2008.
BGC	The central intermediary for retail payments between the banks	Core Principles for Systemically Important Payment Systems, Committee on payment and settlement systems, BIS January 2001	Observes all standards with one exception and this is broadly observed, which is an improvement on the year 2006, when three standards were broadly observed. The regulations need to be made clearer regarding the routines for managing defaults.
VPC	The Central Securities Depository (CSD) in Sweden	Recommendations for Securities Settlement Systems, CPSS-IOSCO, BIS, November 2001	Observes all standards.
OMX DM	Central Counterparty (CCP) and clearing organisation for derivatives	Recommendations for Central Counterparties, CPSS-IOSCO, BIS, November 2004	Observes all standards except one and this is broadly observed, which is a poorer result than 2006, when all standards were observed. Deficiencies have been noted in the internal control of whether the actual size of the clearing capital is correct. Some comments are also made regarding the anonymity of the end customer.

The recent market turbulence has led to increased volumes in the systems. For a long time, volumes have been increasing in the Swedish systems. The market turbulence during the winter and spring has further affected the systems' volumes. However, increased volumes have not led to any disruptions, and all systems have functioned smoothly.

Securities markets in Europe

The European markets for trading with securities are on the threshold of major changes. At present, transactions that take place between countries are much more expensive to process than those made within countries. This is due to differences in the systems, as market practices, taxes and national legal systems. The cross-border processing in Europe has also been criticised for being far too fragmented with far too many clearing organisations

and intermediaries to be able to create effective links between markets. For some time, the European Commission has worked on a number of different initiatives that concern securities trading and the infrastructure for clearing and settlement. These initiatives are of different types but they all aim at increasing the competition and the efficiency of securities markets in Europe.

The following part takes up three of these initiatives: MiFID, Code of Conduct, and TARGET2 Securities.

MIFID AND NEW TRADING FACILITIES FOR SHARES

At the end of last year, the common EU regulatory framework for securities trading called MiFID, was introduced in Swedish legislation.⁹² MiFID is intended to increase competition in securities trading and to strengthen client protection for those investing in securities. This is achieved by the requirement that a broker shall ensure the best possible transaction for the client and that information about securities transactions shall be made public. Moreover, the regulatory framework contributes to removing obstacles which have previously obstructed cross-border trading of securities. For example, a licence from the home country's authorities enables an institution to engage in securities business in other countries in the European Union.

MiFID also makes it possible for new trading facilities to organise trade without being traditional stock exchanges. New trading places, referred to as multilateral trading facilities (MTFs), link together existing markets to new trading places.⁹³ These trading places are less regulated than the traditional stock exchanges. However, certain minimum requirements must be met, for example, requirements for information about the instruments traded. A number of MTFs have been created or are on the drawing board, including Chi-x, Turquoise and Nasdaq OMX Pan European Market. Chi-x has started operating while Turquoise and Nasdaq OMX Pan European Market are still in the start-up phase.

Chi-x now offers trade in the most traded shares in Germany, the Netherlands, the United Kingdom, Switzerland, Finland and Sweden.⁹⁴ Chi-x started its securities activities before MiFID came into force.⁹⁵ Swedish investors can trade on Chi-x via SEB and Neonet which are members. Chi-x has gradually built up its market shares during the past year and accounts for around five per cent of the daily trading in Dutch and German shares and around three per cent of the trading in companies listed on the Financial Times Stock Exchange 100 (FTSE 100).⁹⁶

⁹² On 1 November, the Securities Market Act (2007:528) came into force. This legislation applies to banks, brokers, pension and asset managers, issuers, companies provided investment services and supervisory bodies active with the EU.

⁹³ MTF is an abbreviation for Multilateral Trading Facility.

Turquoise will offer trading in the most traded shares from a number of European markets. Turquoise, which plans its launch in September 2008, is an initiative of nine global banks.⁹⁷ These banks are important in the European securities markets and have moreover important activity in the American securities market.

Nasdaq OMX Pan European Market plan to link together the largest European market places. Nasdaq OMX Group has recently announced that they intend to start a pan-European market for the most traded European shares. Nasdaq OMX Pan European Market is expected to open in September 2008 and will at the time of launch offer trading in around 300 of the most traded European shares.

The creation of the above trading facilities means that MiFID has already had effects. When these market places develop, price pressure and competition will increase. Trade will be attracted to the market place which is believed to have most liquidity since high liquidity creates competitive prices. There is a lot to indicate that the very largest European players, which have the whole of Europe as a market, will be favoured most by MiFID.

The interdependence between Swedish financial flows and foreign infrastructure will increase. Now that Swedish shares can already be traded on Chi-x, trading will to some extent take place on MTFs outside Sweden during 2008. Even if the actual settlement of these transactions takes place at the central securities registry where the security is issued, these three MTFs will use foreign central counterparties to net transactions.⁹⁸ This means that transactions in Sweden will be dependent on foreign central counterparties and possibly also foreign custody and settlement banks to a greater extent than at present.

CODE OF CONDUCT

Code of Conduct is a voluntary agreement intended to facilitate competition in clearing and settlement of securities transactions.

Code of Conduct has been adopted by the European stock exchanges⁹⁹, central counterparties¹⁰⁰ and central securities depositories.¹⁰¹ The agreement has been produced by these market

94 Chi-x started trading in Swedish shares on 14 March 2008.

95 The majority owner is Nomura-owned Instinet, which also operates the trading system, and the banks BNP Paribas, Citigroup, Credit Suisse, Goldman Sachs, Merrill Lynch, Morgan Stanley, Société Générale and UBS have bought minority holdings.

96 FTSE 100 consists of the 100 largest shares, measured in market value, on the London stock exchange.

97 The nine banks are BNP Paribas, Citibank, Credit Suisse, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, Société Générale and UBS.

98 Netting of transactions in Chi-x will take place in the European Multilateral Clearing Facility (EMCF), Turquoise plans to use Euro-CCP and Nasdaq OMX Pan European Market will be handled through a pan-European clearing facility.

99 The stock exchange in Sweden is OMX Nordiska Börs – Stockholm.

100 In Sweden's case, OMX DM is the central counterparty in derivatives clearing at OMX.

101 In Sweden's case, VPC is the central securities depository.

participants at the request of the European Commission. The intention is for the market participants to remove some of the problems hampering efficiency in clearing and settlement by self-regulation. It is also intended to increase transparency of, inter alia, pricing and processing of securities transactions.¹⁰² The agreement consists of three parts: price transparency, standardised rules for connection to systems and separate accounting of costs.

Price transparency and standardised rules for connection to different systems increases integration in the European securities markets.

The first two parts of the Code of Conduct came into force in the first half of 2007. The first part promotes greater transparency of prices. Accordingly, those offering clearing and settlement services in Europe must have a public price list. A public price list enables comparison of the costs of these services. The second part concerns standardising rules for connection to different systems. This enables the companies offering clearing and settlement systems to offer their services on other markets through open links to others. For example, a central securities depository in one European country can request a link to the central securities depository in Sweden (VPC) to be able to settle Swedish transactions for its participants. Foreign institutions shall accordingly always be able to settle their own transactions in Swedish shares without membership in the Swedish VPC. This can reduce costs for clearing and settlement for foreign institutions wishing to trade in Swedish shares.

The incentives for distorting competition have decreased. The third and last part of the Code of Conduct which came into force on 1 January 2008 means that those offering clearing and settlement services in Europe shall report the underlying costs of every service separately. A central securities depository offers some services that are more exposed to competition and other services which are less exposed. There is a risk that the central securities depositories charge a higher price for the less competitive part and use the surplus to subsidise the service exposed to competition. The ability to engage in this type of action to distort competition decreases, which indicates that competition could increase.

Through the Code of Conduct, prices are becoming more transparent in clearing and settlement of securities transactions. This – together with the ability to establish links between the markets in the EU – means that competition can increase given the many opportunities for cross-border trade which have opened.¹⁰³

¹⁰² See "Cross-Border Clearing and Settlement Arrangements in the European Union", Brussels, November 2001 for a discussion on the problems hampering efficiency in clearing and settlement.

¹⁰³ One example of this is Link Up Markets which is a collaboration project between seven central securities depositories in Europe (The Swedish VPC does not take part at present). This will in all probability affect the European securities market to some extent.

TARGET2 SECURITIES

The ECB plans to build TARGET2 Securities to increase efficiency of the cross-border handling of securities. Just over two years ago, the project was initiated to investigate the possibility of constructing a new infrastructure for settlement of securities transactions in euro.¹⁰⁴ The idea is for all securities transactions between sellers and buyers to be settled in the same system, in TARGET2 Securities. Cross-border transactions with securities would then be settled in a similar way as national transactions are now settled at the national securities depositories. It is hoped that this will lead to lower costs for cross-border settlement of securities. The new system is expected to be in operation at the latest by 2013.

During early summer 2008, the ECB will decide whether the system will be constructed. The ECB has involved both market participants and central banks in the countries concerned to work on and evaluate the proposal. The Swedish Bankers Association set up a user group¹⁰⁵ in 2007 to represent the Swedish market. The Riksbank participates in this group as an observer. The ECB Council is expected to make a decision in July on the basis of the comments received by the ECB from stakeholders.

Efficiency gains and cost savings are important variables in considering whether to construct TARGET2 Securities. The service offered by TARGET2 Securities and its costs must be compared with the current services and costs for market participants. TARGET2 Securities is a long-term project which will affect the market. For example, on the one hand, TARGET2 Securities could lead to increased competition between the central securities depositories and thus lead to lower settlement costs and speed up harmonisation. On the other hand, existing systems for clearing and settlement are given the opportunity to offer new services which may reduce the settlement cost or create synergies by working together with other central securities depositories.

The concentration risks increase with TARGET2 Securities, although these ought to be able to be dealt with. If a large part of Europe's securities settlement were to be concentrated through a system such as TARGET2 Securities, those responsible would evaluate the system on the basis of international standards.

¹⁰⁴ Other currencies are also able to participate.

¹⁰⁵ Referred to as a National User Group.

CONCLUSIONS ON THE THREE INITIATIVES

An increasingly globalised financial market makes requirements for integration. A more integrated market for securities trading leads to increased cross-border competition and better opportunities for making use of benefits of scale and synergies. Secure and efficient markets are in turn essential for the financial system and its functioning and will benefit everyone, not least the end customer.

At the same time as a more integrated European securities market leads to increased efficiency, new risks are created which must be addressed. Integration between markets creates mutual interdependence between these markets in a way which is not always the case at present in the financial infrastructure. Integration can also lead to increased concentration risks. In order to achieve the efficiency gains entailed by integration and harmonisation, it is thus important to create understanding and that there are incentives for dealing with the ensuing risks.

Integration also makes demands on the authorities concerned to take greater account of developments outside Sweden. Already today, Swedish shares are traded on market places outside Sweden. At the same time, it is reasonable to believe that an increasing part of the processing that take place after trading will take place outside Sweden in the near future. The possible sources of instability in the financial infrastructure will therefore change in character and be situated outside Sweden to an increasing extent. Central banks as well as supervisory authorities will thus need to review their working methods and objectives to ensure a balance between national financial stability and the continued development of an efficient globalised securities market.

Foreign exchange risk

Banks carry out large transactions in foreign currency. Settlement risk arises in connection with these transactions.

One way of reducing this risk is to use CLS Bank (CLS).¹⁰⁶ Since CLS started operating in 2002, use has increased, not least by Swedish banks, and the risk has thus decreased. However, considerable risk still remains in settlement of currency transactions.

In foreign exchange trading, one currency is sold for another. Payments thus pass in both directions between the counterparties. Settlement risk arises because there is a time gap between contract, payment instruction and delivery. The greatest risk, known as Herstatt risk, is that the bank will pay for the currency purchased, but that the counterparty will not deliver according to the agreement, known as Herstatt risk.¹⁰⁷

Settlement risk has decreased in the past ten years, according to a report recently published by the Bank for International Settlements (BIS).¹⁰⁸ A decisive cause is that an increasing number of trading institutions use CLS, which started operations in 2002. CLS provides a system for clearing and settlement of foreign exchange transactions. By linking the payment of the two currencies in a transaction,

CLS eliminates the credit risk associated with settlement of a currency transaction.¹⁰⁹

Although development is moving in the right direction, the remaining settlement risk is considerable. In 2006, an average of 55 per cent (around USD 2,100 billion) of all currency transactions were settled via CLS (see Table B4). This means that as much as 45 per cent (around USD 1,700 billion) of transactions were settled in a risky way.

Of the currency transactions not settled in CLS, most take place through a correspondent bank.¹¹⁰ This gives rise to exposures since there is a risk that a bank will pay out the currency sold without receiving the currency purchased. From the report referred to above, it is also evident that these exposures are of a substantial size and that they can last a long period of time – on average more than 24 hours and in some cases up to 72 hours.

Accordingly, considerable risk in settlement of currency transactions still remains and work to reduce this risk should continue. One way of reducing these risks is to use CLS to a greater extent. In cases where it is not possible to use CLS, for instance, in transactions with currencies which are not associated, the institutions should work for the period of exposure to be as short as possible.

Table B4. Settlement method, percentage of total value settled 2006 and 1997¹¹¹

Settlement method	2006		1997
	Amount settled	Settlement in %	Settlement in %
CLS	USD 2100 billion	55	-
Correspondent banking	USD 1200 billion	32	84
Bilateral netting	USD 300 billion	8	15
Other	USD 200 billion	5	1
TOTAL	USD 3800 billion	100	100

Source: CPSS (BIS)

¹⁰⁶ See Financial Stability Report 2004:2 "The financial infrastructure" for a description of CLS and CLS functions.

¹⁰⁷ This problem arose when the German bank Herstatt went bankrupt during the 1970s. This bankruptcy led to considerable liquidity problems and large losses for other banks. The currency settlement risk is therefore often referred to as Herstatt risk.

¹⁰⁸ See the report "Progress in reducing foreign exchange risk", CPSS, May 2008. This report is based on quantitative and qualitative information from 109 financial institutions (the majority banks) in the 26 countries whose currencies are included in CLS. This represents around 80 per cent of the market in the 15 currency areas.

¹⁰⁹ CLS at present settles payment instructions relating to FX spot, FX Forwards, FX option exercises, FX swaps, NDFs and FX option premiums. Currencies included are US dollars, Australian dollars, British pounds, Danish kronor, euro, Hong Kong dollars, Japanese yen, Canadian dollars, Korean won, Norwegian kronor, New Zealand dollars, Swiss francs, Singapore dollars, South African rand and Swedish kronor.

¹¹⁰ "Progress in reducing foreign exchange risk", CPSS, May 2008 and Reducing foreign exchange settlement risk: a progress report, CPSS, July 1998 which included 63 institutions active in the countries whose currencies were included in CLS in the year in question.

¹¹¹ A correspondent bank means a bank which accepts transfers and carries out bank services for other financial institutions. See Financial Stability Report 2001:2 "CLS Bank – improved risk management in the foreign exchange market" for a more detailed description of correspondent banks.

Since 2003, the Swedish krona has been one of the currencies settled by CLS. Among the Swedish banks, Handelsbanken, Nordea and SEB are direct members of CLS. Swedbank is what is known as a third-party member. This means that participation in the system takes place through a direct member. Swedish banks use CLS to a somewhat greater extent than average. Of the trade in Swedish kronor, an average of

66 per cent was settled through CLS in 2006. The Swedish use is not higher because the trade takes place in currencies that are not included in CLS and CLS does not provide settlement for all kinds of currency-related trade. The Riksbank is therefore positive to an expansion of CLS activities to include more currencies and more currency-related services.

■ PART 2. ARTICLE

■ Liquidity risk in the banking system

During the financial crisis in the autumn and spring, liquidity risks in the financial system have been very apparent. When demand collapsed in a number of securities markets during the autumn of 2007, banks were affected both in the United States and Europe by acute funding problems. The whole of the global bank sector has been affected by the liquidity crisis since then. Several central banks have taken steps during the crisis to attempt to ease the strains. The question is what can central banks and other authorities do to reduce these risks in the future. Is there a need to create a completely new regulatory framework for management of liquidity risk?

Introduction

In its simplest form, liquidity means access to liquid assets to meet commitments. The risk of a company or institution not having sufficient liquid assets to fund its activities is called funding risk. This is closely associated with what is known as market liquidity. In a liquid market, assets can be bought and sold without a major effect on prices. With the definition we use in this article, an illiquid market means that the value of the assets traded in the market has become so uncertain that the market participants hesitate, and, in certain cases, refrain from quoting prices. This may lead to funding problems for companies and institutions which depend on obtaining funding in the market.

Liquidity risk is a natural part of banks' activities since they normally obtain short-term funding and provide long-term loans. This means that liabilities fall due and must be rolled over more often than assets. Banks are accordingly very dependent on the availability of funding. Banks' activities are also based on bearing credit risk which is closely associated with liquidity risk. The greater the uncertainty about creditworthiness of a bank's loan portfolio, the more difficult it will be to obtain funding or to resell loans to a third party. Banks can limit their credit risks by careful selection of borrowers. Liquidity risk is more difficult to manage since it is largely dependent on efficient markets. It is also dependent on the depositors' confidence in the bank.

In recent years, structural changes have made banks increasingly dependent on efficient markets for funding. At the same time, the classic role of banks as bearer of credit risk has partly been shifted from the banking system to other players. While the spreading of risk is fundamentally positive, this particular development has also led to increased vulnerability. This has become evident during the financial crisis when reduced liquidity in certain markets, for instance in the market for structured products and in the interbank market, created funding problems for a number of international banks.

This article is intended to describe how changes in banks' way of handling loans has contributed to the extent of the financial crisis and how liquidity risks have been a driving factor. Furthermore, this

article sheds light on deficiencies in current regulations which have become apparent during the crisis, as well as the challenges that have confronted central banks in the past year. The article also describes how banks have been affected by the crisis and how they are working to manage liquidity risk.

What characterises the current financial crisis?

Bank crises have been relatively common in the world during the past two decades. However, the current crisis is unique in the respect that large parts of the international banking system have been affected by a liquidity shock over a long period. This is because widespread distrust and uncertainty have arisen between banks, partly due to new complicated financial instruments which are difficult to evaluate, reduced transparency and increased dependence on short-term funding.

BANKS HAVE DEVELOPED GREATER DEPENDENCE ON MARKET LIQUIDITY

A structural shift has taken place in the banking system with respect to how banks manage loans. The traditional and most common model is that banks provide loans to companies and households and retain the loan as an asset until it falls due. This is usually referred to as "originate and hold". Recently, an increasing number of international banks have, however, started to apply the business model "originate and distribute". This means that loans are repackaged and sold in the form of securities. This securitisation has taken place to an increasing extent in structured credit instruments, for example CDOs (Collateralised Debt Obligations). A liquid market is a prerequisite for being able to resell the securitised loans.

As part of this development, special legally independent investment vehicles have been created outside the banks' balance sheets. Depending on their construction, they are either called SIVs or conduits. They invest in assets with high yields and long durations, for example, structured credit products and fund these by issuing certificates known as Asset Backed Commercial Papers (ABCP). Since the papers have short maturities, they must be rolled over frequently. This requires that there are always investors willing to buy the papers and thus provide liquidity.

THE TRADITIONAL ROLES OF BANKS HAVE BEEN PARTLY TAKEN OVER BY OTHER PLAYERS

At the same time as new instruments have been introduced, new types of players have appeared and have to some extent taken over the banks' roles. These players include hedge funds and pension

funds as well as SIVs and conduits. It is beneficial that some credit risk has been moved out of the banking system since it can be efficiently distributed among more players. At the same time, this development has entailed considerable risks.

In the first place, the new players are often not subject to supervision by the authorities. In fact, the appearance of these players is to some extent a result of regulatory arbitrage. Under the Basel rules banks must hold capital cover for their assets but these rules do not apply to, for example, SIVs and conduits. By selling assets from their own balance sheet to investment vehicles of this kind, the banks can reduce their total assets and thus release capital. At the same time, the investment vehicles take over parts of the banking system's credit risk. They have also carried out the transformation of short-term liabilities into long-term investments. In this way, the investment vehicles have been able to earn money on the spread between the cost of funding in the ABCP market and the return on investments.

Furthermore, securitisation and the development of new complex credit instruments have contributed to reducing transparency. This has led to difficulties in assessing the credit risk. Reduced transparency increases the risk that information will be lost in the process, which in turn reduces the ability of investors to obtain information about the underlying risks. In addition, a "principal-agent" problem is created since the creditor and the risk-taker are not the same. Creditors who do not retain loans on their balance sheets, and thus do not retain the risk either, have less incentive to carry out credit analysis. The importance of not damaging one's reputation among investors may counteract the risk of inadequate credit analysis but it does not wholly eliminate it.

Unlike banks, these new players cannot obtain new funding from central banks. The financial system has thus created dependence on players which are important for financial stability but which do not have access to the same back-up facilities as the banks. Moreover, they are usually backed up by less capital and are thus less resistant to shocks.

A further role which the new players have partly taken over is the provision of market liquidity. The hedge funds in particular have become more important in this respect. One of the reasons is that they take advantage of incorrect pricing in the market in their trading strategies. By quoting prices for buying and selling assets, they correct imperfections and thus provide the market with liquidity. However, their ability to provide liquidity depends on their ability to use leverage. The crisis was preceded by a long period of low interest rates, stable macroeconomic development and high risk propensity, which entailed a search for yield. In many hedge funds, this took the form of increasingly high leverage.

Chart 1. Spread between corresponding interbank rate and the three-month treasury bill rate
Basis points

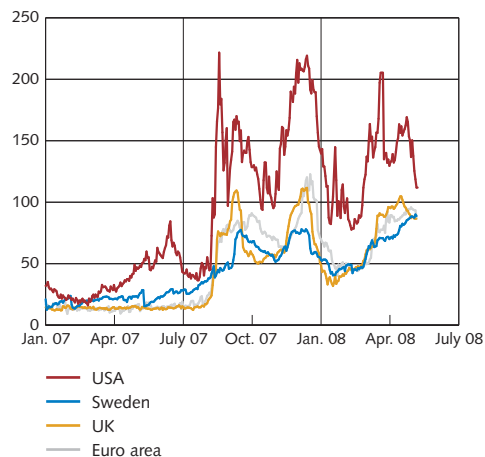
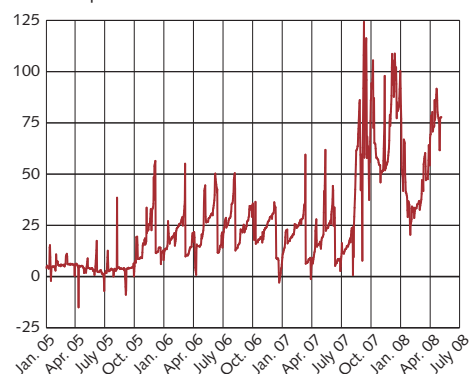


Chart 2. Spread between LIBOR 3 months and overnight, EUR
Basis points



A CRISIS OF CONFIDENCE

Investors who are willing to bear risk are essential for market liquidity. This requires in turn that they are able to value assets. Market liquidity is therefore to a great extent about access to information. Insecurity increased apace with the problems in the subprime market and the credit market growing during the summer of 2007. Questions arose as to which banks had problems with credit losses or liquidity guarantees issued to SIVs and conduits.

Credit risk which had been moved out to investment vehicles of this kind had been regarded as separate from the banking system. However, to be able to issue commercial papers with a high rating, the investment vehicles were backed up to a great extent by guarantees. These guarantees not infrequently originated from the bank that originally sold the credits. When it emerged that subprime loans were included in the assets of many investment vehicles, demand for commercial papers fell and the banks were obliged to meet their liquidity guarantees. The banks thus had to take back the risk to their own balance sheets. Even in cases where the bank had not issued any guarantees itself, many chose none the less to take back the risk to avoid destroying their reputation among investors. This took place at the same time as the banks already had problems in reselling other credits. Altogether, the banks' balance sheets were expanded and liquidity problems arose since the new assets had to be funded.

Many of the structured products which have emerged are moreover designed in such a complicated way that they are difficult to evaluate, which has reduced transparency. This has made it difficult for investors to assess the creditworthiness of their counterparties. Uncertainty about the underlying creditworthiness of a number of financial players then led to a more general uncertainty about availability of funding and the future conduct of investors. During the crisis, it has become apparent that the credit analysis in the securitised subprime loans has been inadequate in many cases. Increasingly poor credit quality in the subprime loans was also a trigger factor in the development of the crisis.

The fact that the banking system underestimated the risk in their commitments to investment vehicles is probably largely due to the complexity of securitisation and reduced transparency.

During the crisis, a number of different assets have been affected by falling prices, including structured products. Falling prices have led to banks increasing collateral requirements, in particular from customers with high leverage. Among other things, this has affected a number of hedge funds, which have been obliged to sell assets to reduce their leverage. This has led to further price reductions and decreased liquidity for a number of types of asset.

All this has contributed to a crisis of confidence in the interbank market, the market where banks trade with one another. Banks have hoarded liquid assets in order to strengthening their own reserves. There has also been uncertainty about the credit risk. This has been

noticeable partly through the TED spread, the difference between interbank rates and T-bills, which have sharply increased (see Chart 1). Lenders have also been reluctant to provide loans with longer maturities, which is reflected in the difference in interest rates between a three-month investment and an overnight investment (see Chart 2).

How the crisis affected the banks

The financial crisis has entailed a number of tangible consequences for the banks. Rising spreads have increased the cost for the banks of obtaining funding via the market, in particular for longer durations. This has applied both to the interbank market and to the securities market. The reluctance to provide long-term funding has meant that many banks have been obliged to fund increasingly large amounts on short durations, often on the overnight market. This has increased the risks for the banks since they have had to roll over their debts more frequently.

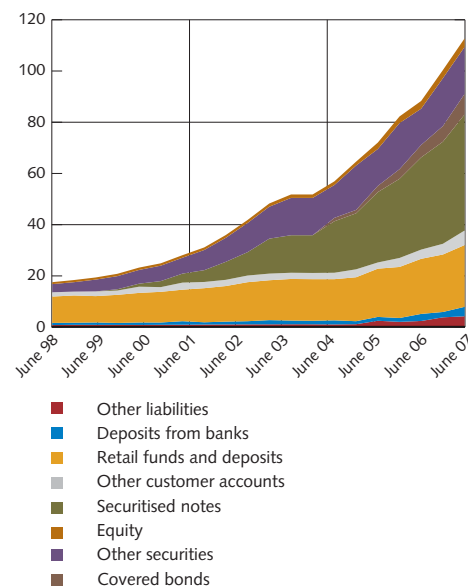
The fact that certain markets for funding have ceased to function has compelled greater use of other sources of funding. For example, there has been a large funding requirement in dollars for many European banks, which have provided liquidity guarantees to US conduits. The deterioration of liquidity in the interbank market for dollars has made it difficult to obtain loans with long durations. This has led many players to use foreign currency swaps instead, which has in turn affected the liquidity of this market as well.¹¹²

A number of international banks have been hard hit. One of the first to experience problems was the German IKB. At the end of June 2007, it was notified that IKB had incurred large losses through an investment company that was highly exposed to the US subprime market. Only a few weeks later, another German bank was affected, Sachsen Landesbank. These were the two banks that had the largest liquidity guarantees in relation to their funding of all European banks.

In September, the British bank Northern Rock announced that it had acute funding problems. Northern Rock was greatly dependent on short-term securitised funding. When liquidity decreased in the market for securitised assets, Northern Rock was unable to refinance. It then had to turn to the Bank of England for emergency liquidity assistance. These problems led to a bank run by depositors.

Another example of a bank which encountered serious liquidity problems is the US investment bank Bear Stearns. In mid-March, the funding problems were so great that the bank had to accept emergency liquidity assistance. The Federal Reserve provided Bear Stearns with emergency credit through JP Morgan Chase (Bear Stearns did not have access to refinancing itself in central banks since it was an investment bank and not a commercial bank). A few

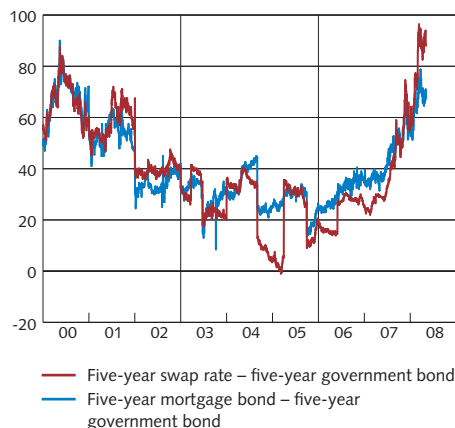
Chart 3. Funding structure, Northern Rock
GBP billion



Source: Bank of England

¹¹² A FX-swap is a commitment to buy a currency at today's rate and later sell the same currency at a given date at a given rate. This way temporary funding needs in different currencies can be met in the FX-swap market

Chart 4. SEK mortgage bond spread och swap spread, 5 year



Source: Reuters EcoWin

days later, JP Morgan Chase announced that it intended to buy Bear Stearns, and at the same time guaranteed its obligations.

EFFECT ON SWEDISH BANKS

The financial crisis has had relatively limited effects on the Swedish banks. Their extremely limited exposures to the type of structured products affected by problems have played a crucial role here. The Swedish banks have mainly been affected by higher cost for funding and some valuation losses in their bond portfolios. The utilization rate of off-balance sheet items has, however, in principle been unchanged throughout the crisis. The Swedish market for covered bonds has been one of the few in Europe which has functioned throughout the entire crisis.

How the banks deal with liquidity risk

The ongoing liquidity crisis has increased the focus on the banks' liquidity risk management and raised the question of whether this is sufficient. The importance of good risk management has increased apace with increasingly sophisticated and complex instruments, and an increased dependence on market funding. The following section describes how banks normally work to manage liquidity risk.

LIQUIDITY FORECASTS

A bank's liquidity management aims at having sufficient means of payment at all times to make its payments. The bank makes forecasts to assess the liquidity requirement. These forecasts are difficult to make since uncertainty increases with time and many unknown cash flows require assumptions. The banks often make their forecasts in the form of GAP analyses. These show the cash flows from maturing assets and liabilities at different time periods.

For short-term liquidity management the banks make forecasts for every single day. These forecasts often cover a couple of days to a couple of months.¹¹³ However, they may be quickly changed, due, for example, to large transactions with the bank's clients. Longer-term forecasts provide an overview of structural imbalances. A structural deficit, which is common in banks, is due to assets with long durations having short-term funding. By making long-term forecasts, the bank can see large net outflows at an early stage and plan for refinancing. This may, for instance, consist of large redemptions of mortgage bonds on IMM days (International Money Market).¹¹⁴

Off-balance sheet items are difficult to forecast. These may, for example, be unutilised credit commitments. Items of this kind are often excluded from liquidity forecasts since, as a rule, there

¹¹³ Institute of International Finance, "Principles of Liquidity Risk Management", March 2007.

¹¹⁴ Standardised contracts are normally settled on IMM days. These occur four times a year (the third Wednesday in March, June, September and December).

is insufficient good historical data. Likewise, credit losses are very seldom taken into account in their liquidity forecasts. They quite simply assume that their counterparties will repay their debts in full. To be able to cope with unexpected outflows, both in the short and long term, banks maintain a buffer of liquid assets, known as a liquidity reserve. Funds in this reserve can be used as collateral in repos or quickly sold in the market, and are therefore included in cash flow forecasts.

LIQUIDITY RESERVE

Banks' liquidity reserves consist mainly of liquid securities that can be used as collateral for loans at central banks, since they can by definition be converted into cash. This means that central bank rules on eligible assets partly control the content of the reserves. To a lesser extent, securities are also held that cannot be used as collateral for loans at the central bank, but which are considered to be liquid.

The return requirement on assets in the liquidity reserve is important for their composition, even if there is not usually any explicit required return stated. To a certain extent, banks maintain reserves in different currencies, although they generally rely on the efficiency of the swap market.

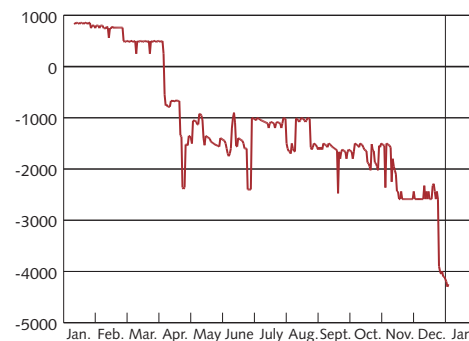
The size of the liquidity reserve varies between banks. The appropriate size of a liquidity reserve depends on a number of different factors. Size must be related to the quality of assets and duration and diversification of the debt portfolio. Furthermore, the duration of funding of the liquidity reserve is important. Altogether, it is therefore difficult to compare banks' liquidity reserves. Many banks endeavour to have a liquidity reserve which can provide for their needs until they have found alternative long-term sources of funding, should a situation arise where the current sources of funding disappear or become more expensive.

LIMITS

The banks have liquidity limits as part of their risk management. These are normally set at group level and apportioned downwards in the organisation (to subsidiaries, divisions, desks, etc.). Limits regulate and control liquidity risk by limiting the outflows of cash. A limit is often set which limits net outflow per day or accumulated during a particular period of time. Major refinancing requirements on particular days or during a long period can lead to increased costs. Through limits, the banks ensure that they do not have larger outflows than can reasonably be funded in the market given their risk tolerance. Limits can also regulate the length of time that banks are to have positive cumulative cash flows without additional access to funding in the capital market. This means that maturing assets and liabilities on contracts already entered into shall create a positive inflow of cash to the bank during a particular period.

Chart 5. GAP analysis

Fictive example of cumulative cash flows from maturing assets and liabilities at different time periods, USD million



Source: The Riksbank

Over a longer period of time, the banks usually use balance sheet relations where maturing assets are placed in relation to liabilities. For instance, measures are used which show how large a part of the bank's illiquid assets are funded by long-term/stable liabilities. Some banks also have a target for how large the liquidity reserve is to be in relation to total assets.

Regulating liquidity

Liquidity shortage at a bank affects not only the bank and its owners but also small depositors, who can hardly be expected to keep a check on a bank's activity. In addition, a liquidity crisis spreads quickly through the financial system and affects other banks. This can either take place through direct exposures, if the affected bank suspends its payments and withdraws lines of credit to other institutions. It can also take place indirectly, if a bank's liquidity shortage arouses suspicions about funding problems in other, similar institutions. As noted above, the financial crisis which began in August 2007 has to a very great extent being characterised by suspicions of this kind. This has raised the question of whether current liquidity regulation is sufficient.

CURRENT REGULATION OF LIQUIDITY

The new capital adequacy rules, Basel II, came into effect in Europe on 1 January 2008. This regulatory framework stipulates that banks must have "risk management systems and sufficient capital to manage and cover all risks that they encounter". However, the rules, which specify the amount of capital banks are to hold to cover different risks, do not cover liquidity risks. This is because a bank's capital adequacy has little bearing on liquidity risk. High capital adequacy should certainly counteract funding problems since investors have less reason to doubt the solvency of the institutions. However, this is far from being a guarantee against liquidity shortage.

Unlike the capital adequacy rules, there is no harmonised regulatory framework for liquidity. On the contrary, there are considerable differences between the regulatory frameworks in different countries. The capital adequacy directive does require institutions to have a documented policy for liquidity management and action plans to deal with liquidity crises. However, according to a questionnaire carried out by the EU Committee CEBS on liquidity regulations in the EU/EEA, only one country required the liquidity policy to be approved by the supervisory authority.¹¹⁵ While all supervisory authorities require institutions to carry out liquidity stress tests, there are seldom any predefined criteria for the design of these tests, or the stress level that is considered acceptable.

¹¹⁵ "First part of CEBS technical advice to the European Commission on liquidity risk management: survey of the current regulatory frameworks adopted by the EEA regulators", CEBS, August 2007.

A traditional component in many regulatory frameworks is liquidity ratios. These are normally designed in such a way that liquid assets is to amount to a particular proportion of liquid liabilities. Another rule is limits for how large the difference may be between the banks' inflows and outflows over different durations. In January 2007, Germany adopted a new liquidity regulation. This differs from the regulation in other countries primarily due to the choice of a standardised and advanced method like the Basel rules. In the advanced method, banks use their own internal quantitative models, provided that approval has been given by the supervisory authority. The Bundesbank considers that the new regulation will modernise liquidity rules by creating a more risk-oriented and principle-based supervisory regime.¹¹⁶

Like many other European countries, Sweden has adopted a more qualitative regulatory framework for liquidity risks. The focus is primarily on the bank's internal processes and systems. In Sweden banks and credit market companies with total assets exceeding SEK 5 billion must submit a quarterly report to the Swedish Financial Supervisory Authority, Finansinspektionen. This report is at a consolidated level and is based on the banks' own assumptions and models. It includes imbalances in cash flows and major liabilities in the interbank and money market. The Riksbank also regularly obtains liquidity data from the major banks.

An important part of the liquidity protection of many banks is the deposit guarantee. In some form, this means that the state guarantees part of the deposits of the public. This guarantee is intended to prevent bank runs. A rumour that a bank cannot meet its payments rapidly becomes self-fulfilling when financiers withdraw. However, if the depositors know that their funds are guaranteed, this reduces the risk for a bank run. The events at Northern Rock showed, however, that the rules relating to the guarantee, for example, the size of the guaranteed amount and how quickly depositors can obtain access to their money, are crucial for the conduct of depositors.

HOW SHOULD A NEW LIQUIDITY REGULATION BE DESIGNED?

Regulation and supervision of liquidity risk is subject to review in many countries and international organisations.¹¹⁷ The financial turbulence has reminded both authorities and the market participants that liquidity risks are a neglected area. How should one go about reforming the regulatory frameworks?

Work is in process in a number of international fora to create internationally harmonised rules and guidelines for supervision of liquidity risks in banks.¹¹⁸ This work is focused on providing guidelines of a principled character to avoid rigid detailed regulation. These

¹¹⁶ Bundesbank.de.

¹¹⁷ Both the Basel Committee and the Committee of European Banking Supervisors (CEBS) are at present in the process of drafting new recommendations and principles for liquidity risk.

¹¹⁸ The Basel Committee for bank supervision in BIS, CEBS in the EU och in Financial Stability Forum (FSF).

organisations will publish their guidelines during the summer of 2008. According to a recent report from Financial Stability Forum (FSF), the guidelines of the supervisory process will, among other things, cover the following areas:¹¹⁹

- Identification and measurement of all types of liquidity risk, including those caused by off-balance sheet exposures
- Liquidity stress tests that capture systemic risk and which are linked to the bank's funding plans
- Management of intra-day liquidity risk that arises due to payment and settlement commitments
- Cross-border flows and management of liquidity risk in foreign currency
- The importance of reporting and market discipline to promote better management of liquidity risk

Internationally harmonised guidelines for liquidity risk management of a principled character do not, however, exclude application differing from country to country. Accordingly, cross-border banks will continue to encounter different rules for management of liquidity risk in different countries. To avoid this, it is important that the supervisory authorities co-operate internationally to harmonise their supervision and regulatory frameworks.

The Riksbank supports a qualitative regulatory framework based on principles. Excessively simple rules and quotas may be misleading and give rise to regulatory arbitrage when applied to banks and financial undertakings with differing business models. Limits of various kinds will not help against serious liquidity shocks, such as bank runs.

However, the supervisory authorities have a natural role in formulating guidelines for how liquidity risk is to be assessed and reported. An example is the design and evaluation of stress tests of liquidity. They also have a duty to intervene if a risk situation is identified. It is also unclear as to the extent to which it is currently possible to punish a bank for insufficient liquidity management by imposing larger capital requirements according to the Second Pillar of the Basel Rules. A continuous dialogue between market participants and supervisory authorities is necessary to achieve a common vision as to how liquidity risks are to be assessed.

The most efficient way to ensure cost-effective liquidity management is probably to require greater transparency from the banks. The financial turbulence has increased the demands on banks and financial institutions to report their commitments on and off-balance sheet. The institutions with inadequacies in transparency will be penalized by rating agencies and investors and will meet higher funding costs. Accordingly, the market participants have themselves an incentive to improve transparency. Through the Third Pillar of the

119 Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience, FSF, 7 April 2008.

Basel Rules, the supervisory authorities can speed up this process and set the standard for the information institutions are to provide to the market. Standardisation of reporting of structured products can be a way of reducing the risk of uncertainty arising.

The role of the central banks

The central banks are always able to provide liquidity to the banks in their own currency. This usually takes place by the central bank purchasing or borrowing (repo) securities from the banks, in exchange for money. Most central banks also have an explicit mandate to provide emergency liquidity assistance. This means that they can provide special liquidity support to banks provided that these are solvent. Furthermore, many central banks have market maintenance tasks.

Several central banks have carried out a number of special measures due to the financial crisis. On a few occasions when the financial turbulence has been particularly intensive, many banks have preferred to invest their surplus liquidity in the central banks instead of in the interbank market. The shortest interbank rates have risen sharply and the central banks have increased their repos to stabilise interest rates around the monetary policy key rate.

A number of central banks have expanded the list of eligible collateral that banks may use when they borrow at central banks. Some central banks have also offered the banks government securities in exchange for less liquid mortgage securities. This was intended to make the securities in the banks' portfolios more liquid. This assists banks which have difficulties in selling or using their securities as collateral for loans in the market. However, this also means that the central banks assume some credit risk. Moreover, the high interbank rates and the difficulty of obtaining long-term funding has led to demands that central banks should provide loans with longer durations. Many central banks have used long repos to try to press interbank rates down on slightly longer maturities.

The risk with this action is that the market for certain securities will remain illiquid. The banks will then become dependent on the central bank as financier. The events at Northern Rock showed that liquidity support from central banks is associated with a great stigma: an institution which turns to the central bank indicates in principle that it cannot secure funding in any other way. This risks frightening off even more investors and – in the worst case – gives rise to a bank run. The need for funding through the central bank then risks becoming permanent.

SWEDISH CONDITIONS

The Swedish interbank market has to date performed well during the turbulence and the Swedish banks have been able to obtain funding in the market, even if at slightly higher cost. The Swedish Riksbank has therefore not had to take action. However, these events have brought to the fore a number of issues for Swedish authorities as well. Analysis and monitoring of liquidity risks is a prioritised issue. An important tool for managing financial crises is an effective regulatory framework to deal with insolvent financial institutions. The events at Northern Rock showed the deficiencies in the UK legislation, deficiencies which also exist in the Swedish legislation to a large extent. The new regulatory framework must provide the state with a strong negotiating position to enable institutions of systemic importance to be quickly taken over or sold, without the flows in the financial system collapsing. A regulatory framework of this kind would provide the market participants with the right incentive to price and manage credit and liquidity risks

Concluding comments

A number of innovations have been created in the financial markets in the past decade. Complex structured instruments have been developed, as well as new players that manage risk. In good times, this leads to a spread of risks and better liquidity than before, but in poorer times (or in the event of a sudden crisis of confidence), the system is more vulnerable than before. This has become evident during the financial crisis when uncertainty, distrust and liquidity shortage have been marked.

The crisis has made clear that liquidity risks are a neglected area. The banks' own measures for securing liquidity have proven insufficient from society's perspective. At the same time, there are considerable deficiencies in the current regulation of liquidity.

Regulation and supervision of liquidity risk are now subject to review in many countries and international organisations. In this work, it is important that supervisory authorities in different countries work together and harmonise their supervision and their regulatory frameworks. The authorities and central banks must give careful consideration to how banks and other institutions and they themselves will deal with these issues in the future.

■ Articles in previous stability reports

■ 2007:2

Financial stability – new challenges

With a separate article the Riksbank marks the 10th anniversary of its reports on financial stability. The Riksbank advocated at an early stage that risks and vulnerabilities in the financial system should be discussed openly. Since the time of the first report a lot has happened in the financial field which has led to a number of positive effects on both the efficiency and the stability of the financial system. But developments also bring authorities with responsibility for stability in the financial system face to face with a number of challenges. The article, describes these challenges and what they may entail for the Riksbank's future activities regarding financial stability.

■ 2007:1

Effects of increased foreign ownership in the bank sector

The Riksbank assesses the consequences for financial stability of a foreign owner buying up a Swedish bank. The conclusion is that increased foreign presence is positive for financial stability. It may also be positive for competition in the bank sector. On the other hand, it puts greater demands on the authorities in the countries concerned to cooperate on issues concerning supervision and crisis management.

■ 2006:2

Can Swedish authorities handle distressed institutions?

Swedish authorities do not have sufficient possibilities of handling distressed institutions. The complications connected with the credit institution Custodia were a clear reminder of this. The problems are by no means confined to the small savers whose assets were locked up for a remarkably long time. By far the most serious aspect is that the current rules and regulations hamper the handling of acute problems, such as a future bank crisis, that threaten the financial system. The Riksbank considers there is a great need of new legislation.

Trading activity in credit derivatives and implications for financial stability

The tremendous increase in credit derivatives trading in recent years has given rise to an intensive debate about possible risks for the financial system. The Riksbank considers that at present the combined risks in this trading are limited. There is, however, some cause for concern about the lack of transparency in the market and the possibility of risks being concentrated. The article presents reasons for the Riksbank's assessment.

Read more about previous articles at www.riksbank.se

Glossary

Acquisition value: Acquisition value is the amount paid by the company for an asset at the time of acquisition.

Balance sheet: Shows a company's financial position at a particular point in time. It consists of an assets side, e.g. liquid assets, bank deposits, receivables and a liability side, which contains items such as equity, bank loans, etc.

Bankruptcy: Legal procedure which means in principle that all assets owned by an indebted legal entity or natural person are taken charge of to pay all debts.

Basel II: Bank standards regulating how much capital a bank must retain in relation to the risk it is facing.

Basis point: One basis point is one hundredth of a per cent, i.e. 0.01 per cent. 100 basis points thus correspond to 1 per cent.

Bond: A long-term promissory note or debt security issued by a state, municipality, credit market company, mortgage institution or large company. Bonds generally have a long time to maturity, at least a year. On maturity, the principal amount of the bond is repaid.

Bond market: The part of the credit market consisting of interest-bearing securities issued for a period of more than one year.

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

Carry trade: A strategy that involves speculating that an exchange rate in a country with a high interest rate level will not weaken in relation to another country's currency to the same extent as the interest rate differential.

CDO (Collateralized debt obligation): A structured credit instrument where bonds from many different securitised loan portfolios and other assets have been put together. This composite portfolio is structured in different parts with different credit risks.

CDS (Credit default swap): An instrument that can be used as an insurance against credit risk, for example the credit risk in a corporate bond. The CDS premium normally measures the credit risk in the company's underlying assets.

Capital adequacy rules: Rules concerning the minimum level of required capital for banks. See Basel II.

Capital adequacy: Consist of capital which is available to cover an institution's or a bank's losses.

Capital market: An umbrella term for stock market, credit market and derivative market.

Cash flow: Describes the actual payments to and from a company during a defined period of time.

Central counterparty: The institution that acts as a seller to all the buyers and a buyer to all the sellers of the traded instruments.

Central securities depository: An institution that handles securities transactions post-trade.

Clearing: When transaction instructions of a payment is transferred to a payment recipient's account.

Correspondent bank: A bank can make use of banks in other countries, correspondent banks, to make a payment in another currency than its domestic currency.

Counterparty limits: Set lending limits for counterparty.

Covered bonds: A bond where the 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.

Credit: The right to dispose of a particular sum of money belonging to the creditor (usually a bank) in return for certain compensation, mainly interest.

Credit market: A market for debt capital for short- and long-term loans. An umbrella term for the money and bond market.

Credit rating agency: A company that assigns ratings i.e. makes an assessment of the creditworthiness of companies and indirectly of the company's securities.

Credit rationing: A situation that arises in the credit market when lenders' supply of credit is less than the demand from potential debtors on the current loan terms.

Credit risk: The risk that a debtor will not meet his/her/its commitments.

Credit spread: Refers to the difference in yield between securities with the same maturity but different credit risks, for example, the difference between the interest rate on corporate bonds and the interest rate on government bonds.

Currency swap: An agreement to buy a currency at the current rate and to sell the same currency back at a specified exchange rate on a specific day in the future.

Currency transaction: Transaction that takes place when a currency is traded for another currency.

Debt ratio: Household debt in relation to disposable income.

Derivative: A financial instrument that entails agreements on commitments, rights or other prerequisites 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, forwards and swaps.

Disposable income: The total of all income that a person or a household has less taxes and charges.

EDF (Expected default frequency): The probability that a listed company will become bankrupt within a year. Calculated as the probability of the company's assets being less than the amount of debts when they fall due. Used as a measure of default risk.

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

EMBI: Emerging Market Bond Index.

Financial markets: The market where financial assets are bought and sold. The financial markets in Sweden are the stock, fixed income and foreign exchange market.

Fixed income market: Instruments are traded in the fixed income market providing a return, interest. The fixed interest market is usually divided into the bond market and the money market.

Concern: A group of companies united by ownership.

Hedge fund: A collective term for different types of funds with greater investment choices than ordinary funds. They may, for example, use large parts of the portfolio as collateral for loans and invest large parts in particular securities, protecting themselves with forward contracts and options to even out the risk. They may also engage in short selling, i.e. sell shares that they do not own.

IMM days: IMM stands for International Money Market, and the IMM days are the four days that financial forward contracts are priced in relation to the IMM division at the Chicago stock exchange. These take place on the third Wednesday of March, June, September and December.

Write-down: Accounting term which means that an asset's book value is reduced to an amount corresponding to the asset's market value.

Implied volatility: Describes the market participants' expectations on future variations of share prices, and is derived using option pricing.

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

Interbank rate: The interest rate at which the banks can obtain funding for any deficits or invest any surpluses in the interbank market at the end of each business day.

Interest coverage ratio: The interest coverage ratio is a measure of the company's ability to pay the interest expenses.

Interest ratio: Households post-tax interest expenditure in relation to disposable income.

Investment bank: A bank that issues and sells financial assets. They also provide financial services to their clients and trade on their own behalf.

Issue: Issue of securities.

Key policy rate: The interest rates that a central bank sets for the purpose of monetary policy. In Sweden, this is the repo rate and the deposit and lending rate. The repo rate is the most important key policy rate.

K/T ratio: See purchase price coefficient.

Liquidity: Access to liquid assets to meet commitments. Liquidity may also refer to the ability of an asset being rapidly converted into cash.

Market risk: Market risk is the risk of loss ensuing from an unfavourable development in the financial markets mainly for interest rates, shares and currencies.

MBS (Mortgage-backed securities): A specific version of securitisation which means trade with securities that are backed by mortgages on properties as an underlying asset.

Money market: A market consisting of banks and other financial institutions which receive short-term deposits and provide short-term loans, from one day up to a year. The money market is the part of the credit market for loans with a shorter duration than a year.

Municipal bonds: Bonds issued by municipalities

Net assets: Assets less liabilities. Net wealth may accordingly also be negative.

Net commission income: Income less cost of services sold when they are not regarded as interest, for instance, services related to payments, share trading, asset management and card operations.

Net interest: Consists primarily of interest income less interest expense for funding and deposits.

Net operating income: States the difference between rents and operating and maintenance costs for a property or property company.

New issue: Means that a limited company issues (sells) newly-issued shares and thus strengthens the company's restricted equity.

Present value: The value of a future amount today. Calculated mainly in connection with investment appraisals.

Private equity investment company: Company that invests or acts as an intermediary in provision of risk capital.

Purchase price coefficient: The purchase price of a property in relation to its assessed value

Operational risk: Operational risk is the risk of losses due to inadequate or failed internal processes, systems, or from external events.

P/E ratio (Price/Earnings): Describes the price of a share compared to the expected earnings.

Primary market: The primary market is the market where the security is sold for the first time (on issue).

Profitability: Concept used in profitability assessment, which, in principle, can be approximated with return.

Repo rate: The Riksbank's most important key policy rate.

Return: The difference between how much is invested and how much is received when the money is repaid, that is the profit on invested capital.

Risk capital: Relates to equity or own capital. Also referred to as venture capital. It is called risk capital because the risk taking is greater than with the capital lent.

Risk capital requirement: The capital required to cope with any unanticipated losses.

Risk-free assets: A risk-free asset provides a certain return without the investor being exposed to any form of risk. Approximated to in practice by government bonds.

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

Secondary market: Second-hand market for trading with issued securities.

Securitisation: A financing process through which a number of loans (for instance, mortgages or credit card loans) are aggregated, and resold to a specially created company which is in turn financed by issuing securities in the market.

Settlement: Final regulation of a debt, when money and securities are transferred from one party to another, often payment from one account to another.

Settlement risk: The risk of any of the parties involved in the final settlement of a debt not being able to perform their commitments.

Solvency: A company's ability to pay its debts as they fall due.

Spread: Normally specifies the difference between two interest rates. The spread in the bond market is measured in basis points (see basis point).

Stress test: Analysis of various scenarios to test the banks' resilience to unexpected and negative events.

Structured products: Consists of pools of securitised loans. The most common products are referred to as collateral debt obligation (CDO) and mortgage-backed securities (MBS).

T/N rate: The interest rate in the deposit contract which standardises deposits and loans without requiring underlying collateral at a rate determined in advance (T/N rate) and maturity (T/N, from Tomorrow to the Next day).

TCW (Total Competitiveness Weights): A measure of the krona's value in relation to a basket of 20 different trade-weighted currencies. A rising value means that the krona is depreciating; the basket of currencies has become more expensive to buy with Swedish kronor.

TED spread (Treasury/euro-dollar-spread): States the difference between the interbank rate and the corresponding rate on a treasury bill.

Tier 1 capital: Part of the banks' capital base (see definition). It consists of equity including untaxed reserves with a deduction for goodwill.

Vacancy rate: Refers to the property market and states the proportion of unlet units.

Value at Risk (VaR): A statistical method that describes the maximum potential loss that may arise with a particular probability during a particular period of time. Used by investors to measure the risk of a specific asset or a portfolio of assets.