Financial Stability Report 2006:2

5 December 2006

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Foreword

The Riksbank has the Riksdag's mandate to promote safe and efficient payments. This entails safeguarding financial stability, which is also a fundamental requirement 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 creates conditions for the management of any critical situations. The Financial Stability Report, which is published twice a year, presents the Riksbank's overall assessment of potential 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 9 and 23 November. The Report uses data available as at 20 November.

Stockholm, December 2006

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 has a particular interest in overseeing the functioning of payment systems because a serious crisis in the financial system can entail extensive economic and social costs.

The commercial banks are responsible for the central components of payment systems. At the same time, banking is inherently unstable in that a bank's liabilities are largely short term – either deposits or loans from other banks – whereas most of the assets are long term. In Sweden the four major banks have a dominant position, with a combined market share of around 80 per cent. Besides the systemically important 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 supervision.

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. The Riksbank is, moreover, 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.

Another aspect involves upholding a proper readiness for crises. The Riksbank is the authority that is in a position to provide emergency liquidity assistance if problems are so grave that the entire system is threatened. If an institution with problems becomes bankrupt, the state must take steps to minimise the negative consequences. In certain cases this can involve ensuring the institution's orderly closure.

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

The Riksbank currently sees no serious threats to financial stability. In the past six months, continued improvements in profitability have contributed to a further increase in the banks' resilience. There are, however, a number of fields where risks are building up. They do not constitute a threat at present but if the developments continue and the economic situation deteriorates, the risks could become more tangible. The risks are listed here without ranking them.

- In the financial markets there is still the risk of abrupt price corrections that can lead to greater uncertainty and markedly impaired liquidity.
- The Riksbank notes once again that the rapid rate at which house prices and household debt are rising is not sustainable in the longer run.
- Private equity companies are continuing to account for a growing proportion of leveraged buyouts. The combination of rising prices for these objects and increased mortgaging is leading to higher credit risks.
- Developments in the real-estate sector also constitute a risk. Commercial property prices are rising rapidly with no complete explanation in terms of rent increases and decreased vacancies.
- Finally, the Riksbank highlights the risks associated with the banks' lending in the Baltic states, where developments are characterised by growing imbalances.

Risks and threats to financial stability have various origins. Real economic and financial market developments can generate imbalances that affect stability. Problems can also arise directly in the banks. Much of the work on assessing financial stability in Sweden is therefore devoted to judging the extent to which the four major banks, which between them play a crucial role in the financial system, have the capacity to cope with shocks. The analysis of borrowers is important because credit risk is much the largest risk to which the banks are exposed.

This summary begins with a brief review of recent developments; a more detailed account is presented in the respective chapters. In this Report the Riksbank has chosen to highlight a number of fields where there is a risk of future imbalances or weaknesses. The picture of risks is accompanied by two stress tests which the Riksbank uses to assess how extreme events affect bank resilience. The summary concludes with a resume of the two articles on current topics connected with financial stability.

Economic development has remained strong in Sweden as well as internationally and this is reflected in the financial markets. After a temporary fall in the spring and summer, the level of equity prices in most stock markets is now higher than at the beginning of 2006. Since the time of the May Report, the upward adjustment of short-term interest rates has continued as monetary policy has become less expansionary, while long-term interest rates are still low. The level of credit spreads remains historically low.

The banking sector continues to be in a good position to cope with unexpected losses. Profitability shows a further improvement, above all because the growing stock-market turnover and rising equity prices have contributed to the increase in net commission income. The largest source of bank income, net interest income, shows an increase of around two per cent that comes mainly from the strong expansion of lending. All this suggests that in order to maintain the current levels of profitability, the banks are dependent on a further increase in equity prices. A future increase in net interest income is no doubt mainly dependent on a sustained growth of lending.

The risks in the banking system are limited. Lending has admittedly continued to grow but given the Riksbank's main scenario, with its expectations of a strong economic development, a marked increase in loan losses seems unlikely. The picture of market risks is more varied. There are certain signs, though they are not clear-cut, of some increase in market risks but the levels are still comparatively low. Tests to assess the risks of contagion lead the Riksbank to conclude that these risks are also moderate.

The growth of lending to households has slackened but the rate continues to be historically high, a good bit above ten per cent. The household debt ratio is still rising but the Riksbank's latest calculations suggest that households' margins widened in 2005. As a large proportion of household debt is secured with real estate, it is important to follow the development of house prices. There are no definite signs that the rapid price rise has begun to slow but the most recent data do point to some weakening. The Riksbank judges that rising interest rates will contribute in time to more subdued increases in house prices as well as in household borrowing and debt.

The growth of corporate borrowing slackened during the summer but the rate is still above the level last spring. The Riksbank foresees a continued increase in corporate borrowing at a rate that slows as interest rates rise and the investment propensity falls. Meanwhile, there has been a further improvement in the corporate sector's debt-servicing ability. The pattern is the same among real-estate companies, where the banks have their largest exposures. The debt

ratio here has risen slightly, probably in connection with the high activity in the real-estate market. At the same time, the risk premium on property investment has continued to fall.

RISKS

The Riksbank has chosen to highlight a number of fields where risks are building up. In the following account of the various risks, it is important to bear in mind that none of them is currently a threat to financial stability. But if the build-up continues and the economic situation changes, the risks could become more substantial. The order in which the risks are presented below follows the arrangement of the Report.

- **The risk premium is historically low, which can entail rapid corrections to credit market prices.** The low risk premia may be a result of investors demanding assets with a greater risk in order to obtain a higher yield. If they then required less compensation for risk than is normally the case, that would represent a risk of rapid corrections to credit market prices. Increased financial unrest can result in simultaneous portfolio adjustments by numerous investors, for example the replacement of assets with a relatively high risk by more secure investments. That in turn can generate additional turbulence, with substantial price movements and decreased liquidity. In such a situation there is a risk of a stronger correlation between asset prices that have not co-varied previously. However, price adjustments may well occur in more orderly forms. An example of an event that had relatively little impact is the collapse this autumn of the hedge fund Amaranth. That the financial system managed to handle an event of this type can be seen as a sign of increased resilience. But this would not self-evidently apply in a situation where the market is less liquid.

- **The rapid increases in house prices and household debt cannot continue in the longer run.** Although there are signs of some slowdown, household debt and house prices are rising at present at annual rates a good bit above ten per cent. These developments are being driven in the first place by low interest rates, a favourable development of income and low residential construction. Moreover, houses are bought in Sweden mainly as somewhere to live, whereas buying-to-rent is more common in other countries. A majority of borrowers are in a good position to cope with higher interest rates and a temporary loss of income, though individual households are, of course, at risk. Furthermore, the banks are in a strong position and in the past it has been unusual for them to incur major losses specifically from households. The growth of lending does not seem to be a problem at present. But it can be in favourable situations that

the seeds of future loan losses are sown. There are therefore reasons for continuing to keep a close eye on these matters.

- **Leveraged buyouts by private equity investment companies are rising strongly. The combination of rising prices for these objects and increased mortgaging is contributing to greater risks.** Private equity companies' investments in the form of leveraged buyouts more than trebled in 2005 and the trend seems to have continued in 2006. Lending to private equity companies is highly competitive and institutional investors have taken market share from banks. There is a risk of the strong competition leading to less stringent credit requirements and a larger proportion of straight loans. At the same time, however, the institutional investors contribute to the risks being priced to a greater extent and spread outside the banks, which is basically positive for financial stability. The banks' exposures to leveraged buyouts involving private equity companies are still relatively small, equivalent to approximately three per cent of the banks' stock of loans to the corporate sector. Another positive aspect is that the banks almost exclusively provide the senior credits, which have top priority in the event of bankruptcy.
- **Prices for commercial real estate are rising rapidly but there has not yet been a corresponding development of rents and vacancies. This may point to an increased risk in these investments.** Price increases for real estate have their equivalent in the longer run in increased income from rent, which is the underlying yield. Rents have risen only slightly to date and the potential for future rent increases is most likely to weaken as economic growth is expected to be lower. There has been some fall in the level of vacancies but this is by no means sufficient to warrant the strong price rise. Risk premiums for commercial real estate seem to have fallen, just as they have for a variety of assets in recent years. Still, there are grounds for asking whether the low premiums at present for real estate are reasonable. An upward adjustment to more normal levels would lead to lower commercial property prices. On the positive side, both the earnings and the debt-servicing ability of property companies are sound at present.
- **Developments in the Baltic states constitute a risk for the Swedish banks that have sizeable operations there.** Borrowing in this region is rising strongly, albeit from low levels. The loans have gone in the first place to real-estate investment and this has contributed to the economic overheating. Fiscal measures have not sufficed to subdue the growth of demand and the fixed exchange rate regime restricts the scope of monetary policy. Moreover, many borrowers are exposed to exchange

1 Loan losses consist of the sum of provisions for existing and probable future losses less recoveries and reversals from earlier losses. It follows that if reversals exceed provisions, the item makes a positive contribution to bank profitability.

risk because the loans are mainly denominated in euro. The exchange risk will remain until these countries actually join the monetary union. For the two Swedish banks with the largest exposures in these countries, the operations there are contributing a growing share of total operating profits, about 14 and 16 per cent, respectively. The consequences of debt-servicing problems among borrowers could therefore have a tangible effect on these banks, above all on income.

Two stress tests have been performed to judge how less probable but entirely plausible events could affect the banks' resilience. The results show how the credit risks in the banks' portfolios are affected in two alternative three-year scenarios. One scenario starts from a general loss of creditworthiness in the Baltic states. It envisages a successive increase in the probability of default and a gradual weakening of earnings. The tests show that the banks' cover for credit risks would be sound in every year. The other scenario takes a closer look at the effects of an economic slowdown and hence an impaired quality of credit. It assumes that the credit cycle turns in a manner similar to that in 2000. From the results it is concluded that all four major Swedish banks would be able to cope with such a development, though the banks with a large proportion of corporate loans in their portfolios would be hit more heavily. In both scenarios there would admittedly then be a smaller buffer for coping with further negative events but it is judged that resilience would still be sound.

THE ARTICLES IN THIS REPORT

Each issue of the Financial Stability Report includes one or two articles on topical subjects connected with financial stability. For this issue the Riksbank has chosen to publish two such articles.

Swedish authorities do not have adequate possibilities of managing distressed institutions. The matters to do with the credit institution Custodia are a clear reminder of this. The problem involved far more than the savers whose deposits were locked in for a remarkably long time. Much the most serious aspect is that the current rules and regulations make it more difficult for authorities to manage acute problems, such as a future bank crisis, that threaten the financial system. The Riksbank sees a great need of new legislation in this field. Further details are provided in the article *Can Swedish authorities handle distressed institutions?*

Another topical matter is trade in credit derivatives, which has grown enormously in recent years. The potential risks for financial system stability are being debated intensely. The Riksbank considers that at present the risks involved are limited on the whole. But the lack of transparency in this market and the fact that concentrations

of risk cannot be ruled out give some cause for concern and the Riksbank will continue to follow developments here. The reasons behind the Riksbank's assessment are presented in the article *Trading activity in credit derivatives and implications for financial stability*. The article also describes both Swedish and international credit derivatives markets.

Financial markets

The strong global economic development has continued and led to rising corporate profits, higher equity prices and narrow interest rate spreads. Meanwhile, long-term interest rates have fallen back, partly in connection with signs of an economic slowdown in the United States and some geopolitical concerns. Under these circumstances, there is still a risk of rapid price corrections and negative effects on market liquidity.

The Riksbank's stability assessment starts from the external factors – real economic and financial market developments – that are liable to affect banks and their borrowers. This chapter opens with an account of the Riksbank's real economic assessment.[1] Developments in financial markets are considered next and the chapter concludes with a discussion of potential associated risks.

Economic conditions and financial markets

Since the time of the previous Report in May, global economic development has remained strong. The Riksbank judges that the upward economic path will continue, albeit at a more moderate rate. Global growth is expected to be about 5 per cent in 2006 and then slacken to about 4.5 per cent in the following years.

The vigorous economic development in China has contributed to high growth in a number of other Asian countries. In the euro area there has been a further improvement in economic activity and Q2 growth in Germany was relatively high, driven above all by domestic demand. In the Baltic states, where the major Swedish banks have considerable operations, economic growth has remained high.

The upward international trend has also left its mark on the Swedish economy, where growth in 2006 has been strong. Domestic demand and exports have both done well and the GDP growth rate for 2006 is expected to be 4.3 per cent. Some fall-off in growth is foreseen in the coming years as monetary policy becomes less expansionary and export market growth slackens.

The United States has been an important driving force behind the global development. Growth there remained strong in the first half of 2006 but there are indications that it slackened after that, for example in connection with the slowdown in the housing market during the autumn. Real-estate prices in the United States have risen sharply since the late 1990s and probably had a positive effect on household consumption. However, the monetary policy tightening now seems to have passed through to house prices; the increase between Q1 and Q2 in 2006 was the lowest quarterly change since the end of 1997 (see Figure 1:1). Indicators point to an even weaker price development in the coming quarters.

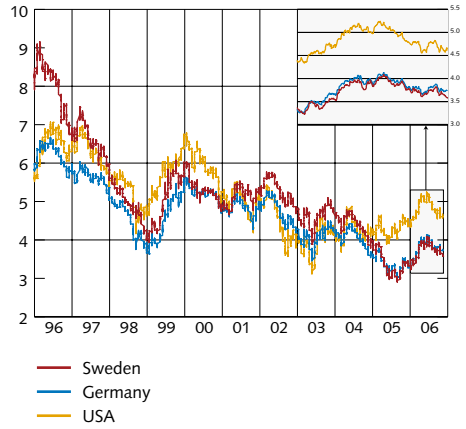
Figure 1:1. House prices in the United States
Percentage quarterly change, seasonally-adjusted data

Note. House prices reported by the Office of Federal Housing Enterprise Oversight (OFHEO).

Source: Reuters Ecowin

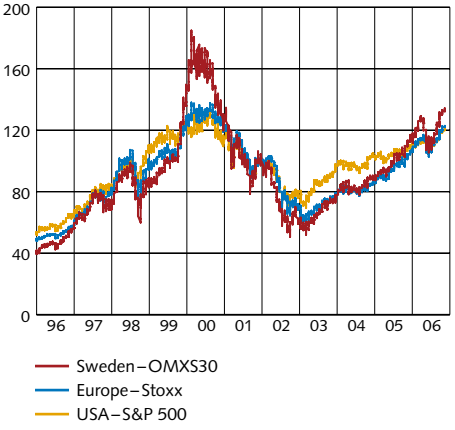
1 The account of real economic development in this Report is based on the Riksbank's Inflation Report 2006:3.

Figure 1:2. Ten-year government bond rates
Per cent



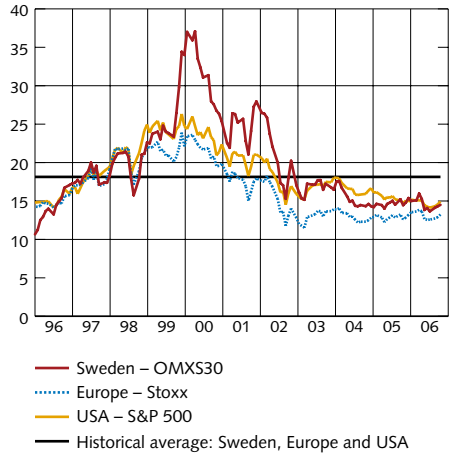
Source: Reuters EcoWin

Figure 1:3. Stock markets
Index: 2 January 2002 = 100



Source: Reuters EcoWin

Figure 1:4. P/E ratios



Source: Reuters Ecowin

INTEREST RATES

The tightening of monetary policy has continued as global economic activity has become stronger. The Riksbank as well as the Federal Reserve, the Bank of Japan and the ECB have raised their policy rates since the time of the May Report. Signs of a somewhat more subdued development in the US economy led to some financial market uncertainty during the summer and contributed to the Federal Reserve's Fed funds rate being left unchanged at the latest monetary policy meetings.

Meanwhile, long-term interest rates have fallen back after rising in the first half of 2006 (see Figure 1:2). This decline in long-term rates is largely a reflection of market expectations of a weaker macro development in the United States and uncertainty about the effects of this on global growth. Another factor behind the lower interest rates is increased geopolitical concern. The conflicts in the Middle East, continued violence in Iraq and uncertainty about Iran's enrichment of uranium meant that to some extent investors increased their demand for assets with a lower risk.

As a result, long-term interest rates are still at historically low levels. This state of affairs has been discussed in many fora in the past year. It seems that the level of long-term rates has been influenced by a number of factors that are not directly connected with macroeconomic developments. Greater confidence in low and stable inflation may have reduced the risk premium for longer-term investments. High saving in certain regions may also have tended to push interest rates down, as may rule changes that have induced institutional investors, for example pension managers, to demand long-term bonds to a greater extent than before.

STOCK MARKETS

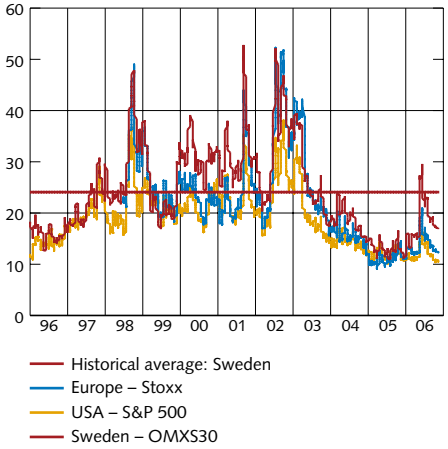
The strong economic development has been accompanied by rising equity prices (see Figure 1:3). Since the beginning of 2003 the Swedish OMXS30 has risen more than 100 per cent. A temporary break in the trend did occur in the early summer when increased uncertainty about the US economy contributed to an equity price fall throughout the world. Stock markets recovered, however, with the publication of Q2 corporate reports. Corporate profits again exceeded market expectations; more than 70 per cent of the companies in S&P 500 did better than expected in Q2, while in Sweden the corresponding figure for OMXS listed companies was over 60 per cent.

Profit growth in the coming years is expected to be somewhat weaker as economic activity slackens successively.[2] Given this picture of expectations, P/E valuations of the stock markets in Sweden, Europe and the United States continue to be below a historical average (see Figure 1:4).

2 According to the JFC data base, the profits of OMXS30 companies are expected to rise about 16 per cent for 2006 and about 8 per cent for 2007.

Stock market volatility rose relatively sharply in connection with this summer's financial market uncertainty, which is consistent with some reassessment of risk (see Figure 1:5). Volatility then fell back to some extent after the summer. The higher level of volatility at present compared with before the summer could be taken to indicate somewhat greater uncertainty about future economic developments and some geopolitical concern. Notwithstanding the increase, implied volatility continues to be below the historical average for the period from 1996 to October 2006.[3]

Figure 1:5. Implied stock-market volatility
Per cent



Source: Bloomberg

CREDIT MARKET

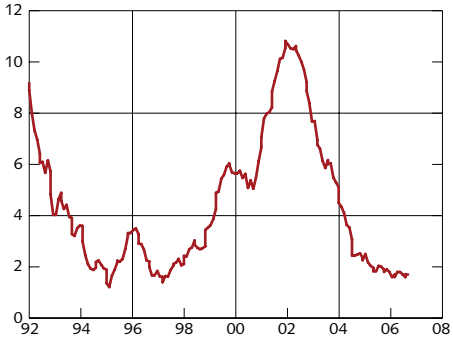
With the favourable economic climate and strong corporate profits, the number of insolvent firms has decreased markedly in recent years (see Figure 1:6). The smaller number of defaults is to some extent attributable to the spread between corporate bonds and risk-free treasury bonds having narrowed successively to historically low levels (see Figures 1:7 and 1:8). During this summer's turbulence these credit spreads widened but the adjustment was relatively modest, particularly in Europe. Since then, credit spreads have narrowed again in Europe, while the levels in the United States have remained somewhat higher. The differences are partly motivated by the different cyclical phases in these two regions.

A more appropriate measure of credit risk is provided by the type of credit derivative called credit default swaps (CDS).[4] In principle, the premium for these derivatives represents the cost of hedging against credit risk and accordingly serves as an indicator of expectations about future defaults. Figure 1:9 presents the average premia for high-grade companies in North America and Europe, respectively. Like the spreads for corporate bonds, the CDS premium has fallen with the improvement in the general quality of credit.

As global economic activity slackens, however, the number of defaulting firms is expected to grow successively, with a widening of credit spreads. The forecasting models used by credit rating companies indicate that this turn in the credit cycle will occur relatively soon in both the United States and Europe.[5] However, the expected increase in defaulting companies is smaller than during the slowdown after the turn of the century. Moreover, the prevailing price-setting in credit markets does not give quite the same picture of expectations.

The spreads for bonds issued by emerging-market economies were also affected by the turbulence in the summer and widened temporarily (see Figure 1:10). Strong economic growth and improved

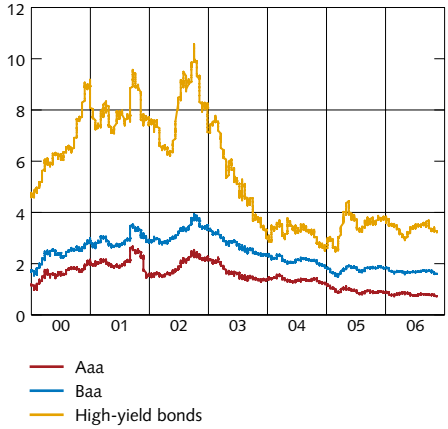
Figure 1:6. Global level of bankruptcies
Percentage of all companies



Note. The figure refers to firms graded Ba/BBB or lower because a majority of the number of defaults occurs in these categories. Moody's/Standard & Poor's ratings.

Source: Reuters Ecowin

Figure 1:7. Corporate bond spreads in the United States
Percentage points



Note. Moody's and Merrill Lynch's definitions. High yield is classified by Moody's/Standard & Poor's as Ba/BBB or lower.

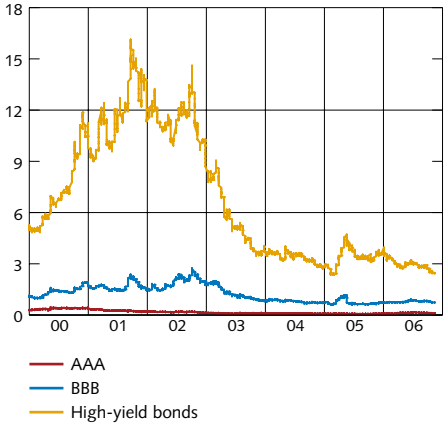
Source: Reuters EcoWin

3 Implied volatility, calculated with a formula for option pricing, indicates market participants' expectations of future volatility.

4 Credit default swaps are a variant of credit derivatives that functions in principle as an insurance against credit risk. The buyer pays a premium in exchange for compensation against certain specified credit events, e.g. a default. These premia should therefore mirror expectations of future credit risk. The indices in Figure 1:9 represent the average level of the premia.

5 See e.g. Standard & Poor´s "Global Bond Markets' Weakest Links and Monthly Default Rates", November 2006.

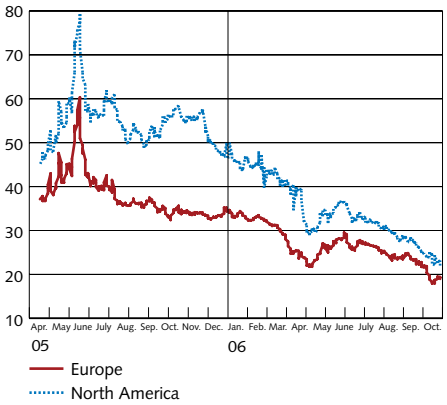
Figure 1:8. Corporate bond spreads in Europe
Percentage points



Note. Moody's and Merrill Lynch's definitions. High yield is classified by Moody's/Standard & Poor's as Ba/BBB or lower.

Source: Reuters Ecowin

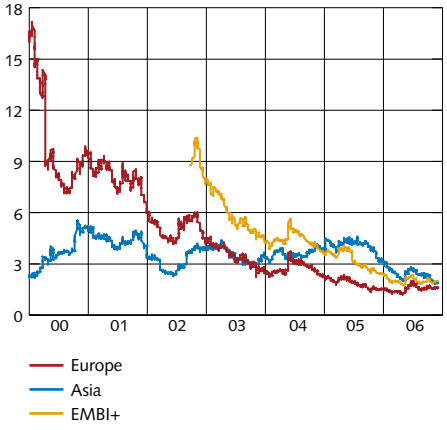
Figure 1:9. Premia in CDS indices
Basis points



Note. Indices for North America and Europe are represented by CDX and iTRAXX, respectively, in underlying 5-year bonds with an AAA credit rating.

Source: Bloomberg

Figure 1:10. Credit spreads for bonds issued by emerging-market economies
Percentage points



Note. The countries in EMBI+ are graded Baa1/BBB+ by Moody's/Standard & Poor's.

Source: Bloomberg

government finances in these countries are the main explanations for these spreads still being historically low.

COMMODITY MARKETS

In the context of stability, commodity markets are of interest on account of their influence on the real economy and inflation. Moreover, financial stability can be affected more directly in that commodities are a growing component of investors' portfolios, the aim being to diversify risks and obtain a higher yield.

The strong global growth in recent years has entailed increased demand for commodities, leading to higher prices. The capital inflow to commodity markets has risen markedly in recent years and hedge funds and institutional investors have displayed a growing interest.

During the summer the geopolitical concern generated some uncertainty about the supply of oil and this helped to keep oil prices at high levels (see Figure 1:11). Price movements became more subdued as the political uncertainty subsided. Since then the development of prices for oil and a number of other commodities has been restrained by the tendencies to an economic slowdown in the United States and the uncertainty about how this may affect global demand.

The price of gold has followed the oil price relatively closely, which could indicate that investors have seen gold as a form of insurance against the rising inflationary pressure a higher oil price can entail. The price of gold has accordingly fallen back successively this autumn as the oil price quietened down.

Risks for Swedish banks and borrowers

The development of long-term interest rates suggests that market participants expect economic activity to become somewhat more subdued. At the same time, credit rating institutions are signalling that a turn in the credit cycle, with a rising number of bankruptcies, is approaching. This picture does not, however, appear to have had much impact on credit spreads, which are still historically narrow. The narrow spreads could be a result of investors preferring assets with a greater risk in order to obtain a somewhat better yield than the low treasury bond rates. If they have not required the compensation for risk they would normally demand, there is a risk of a rapid price correction in the credit market.

Concern about this could induce many investors to adjust their portfolios simultaneously, thereby generating additional turbulence, with substantial price movements and decreased liquidity in certain markets. Large price movements affect the total risk exposures of financial market participants. However, if the exposures have been stress tested, such a development will not necessarily lead to unforeseen losses. But the scenario does entail the risk of a closer correlation between asset prices that have not co-varied earlier.

The risk models should therefore also allow for the probability of unexpected co-variations.

On the other hand, price adjustments may well occur in orderly forms. Financial markets have been comparatively unaffected by a number of events in recent years. One example is the hedge fund Amaranth's large losses this autumn; at USD 6 billion these losses were even larger than when the LTCM fund crashed resoundingly in 1998. Unlike the case with LTCM, there was no need for authorities to coordinate the financing: Amaranth managed to wind up its positions on its own and the market reactions were comparatively small (see the box). The losses did, however, occur under very favourable economic and financial conditions. In a more strained situation, the consequences could be more substantial.

The fact that the financial system coped with an event of this type might be taken to indicate that it has become more resilient. The development of markets for various types of credit derivative has increased the possibilities of spreading risks (see the separate article). Improved risk management has also helped to make the system more stable. It could, however, be the case that some of the factors which have reduced the consequences of relatively small, isolated shocks have simultaneously increased the risks of major market turbulence leading to all the more serious consequences.

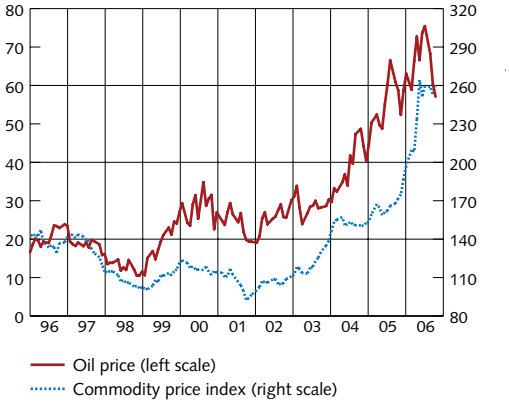
The rapid expansion of the credit derivatives market and the fact that details of contracts in this market are not divulged can make it difficult to form a picture of how market liquidity would develop in the event of a shock. Hedge funds have become increasingly important participants in this market, with a share of total activity that averages 25 per cent and is as much as 60 per cent of certain institutions' total credit derivative transactions.[6]

The presence of hedge funds contributes to better price setting and liquidity, which is positive for financial stability. But if a large number of hedge funds with high borrowing were to fail, there is a risk of an appreciable reduction of liquidity in this market. As hedge funds are also active in other markets, it is possible that they also accentuate the risk of a disturbance spreading rapidly.

However, abrupt price adjustments are not expected to affect the Swedish financial system to such an extent that the banks have problems with solvency. While there are signs of some recent increase in the banks' market risks, the levels are still comparatively low. Still, a rapid increase in interest rates and a widening of interest rate spreads could entail a fall in the value of the banks' bond portfolios. Moreover, decreased liquidity in certain market segments could make the banks' market funding more costly.

Estimating indirect effects of financial market unrest in the somewhat longer run is more difficult. A lack of investment and lower lending and securities trading would have a negative impact

Figure 1:11. Oil price and commodity price index
USD per barrel and index: January 2002=100



Source: Reuters EcoWin

6 Fitch Ratings, Global Credit Derivatives Survey 2006.

on the banks' primary sources of income: net interest income and net commission income.

A more tangible risk for Swedish banks has to do with macroeconomic developments in the Baltic states, where some of the major banks have considerable operations. The high economic growth in these countries has been driven by strong domestic demand and this has led to rapidly rising current account deficits, above all in Estonia and Latvia. These deficits will very probably be corrected gradually but a smooth process does require an adjustment of domestic demand to the potential growth rate, at the same time as a sufficiently large share of the capital inflows is used for investment in export production. If that does not happen, there is a risk that a future increase in net exports will occur at the expense of decreased domestic demand. The repercussions of such a scenario can also affect the loan losses of the Swedish banks.

Summary assessment of the financial markets

- Credit spreads remain historically low. There is still a risk of abrupt price movements and greatly impaired liquidity in the financial markets. The forms in which any price adjustments occur will largely depend on the prevailing economic and financial conditions.

- However, rapid price adjustments are unlikely to affect the Swedish financial system to such an extent that the banks have problems with solvency. But the value of the banks' bond portfolios may fall and market funding is liable to become more costly.

- The current account deficits in the Baltic states constitute a risk because some of the major Swedish banks have relatively large credit exposures to borrowers in this region. A correction of the deficits will probably occur gradually. If not, there could in time be an increase in loan losses that affects Swedish banks.

A comparison of the LTCM and Amaranth crises

This box summarises the development of the crises in the hedge funds LTCM and Amaranth. Although Amaranth's losses were considerably larger than LTCM's, market reactions to the former were comparatively small. Some of the reasons why the effects on financial markets were so different are also discussed.

LTCM was set up in the United States in 1993 and expanded very rapidly in its early years. In January 1998 the fund was managing about USD 130 billion and the investors' capital stood at USD 5 billion. In simple terms, the investment strategy was to go short in low-yield treasury bonds in order to invest in bonds with a relatively higher risk, issued for example by emerging market economies or companies with a low credit rating. Fundamental factors suggested that these spreads were unduly large and would narrow. In 1998, however, financial markets developed in the opposite direction. Russia devalued the rouble in August and suspended payments on external debt. This led to investors becoming generally nervous and also exiting from other markets that could be associated with risk. Instead of narrowing, interest spreads became markedly wider. This entailed large losses for LTCM and the investors' assets had dwindled to USD 1.5 billion when the Federal Reserve decided to intervene. In view of the size of the fund and the fact that so many financial agents were involved, the Fed perceived a risk of systemic consequences. In order to avoid an uncontrolled collapse, the Fed assembled a group of LTCM's largest creditors and they took over the fund's positions.

Amaranth was active in a variety of markets but traded above all in gas and other energy derivatives. In August 2006 the fund was managing about USD 40 billion, of which roughly half was invested in the gas market. During the previous autumn the price of natural gas had risen markedly on account of the severe hurricane season and Amaranth counted on a repetition of the price rise this autumn. What actually happened was that from August up to mid September the price fell instead by 40 per cent. For Amaranth the price fall generated a loss of about USD 6 billion (equivalent to two thirds of the fund's capital) but in contrast to the crisis in LTCM this did not elicit any sizeable market reactions. The natural gas positions were taken over by the hedge fund Citadel and the investment bank JP Morgan and in principle there were no other financial market consequences.

Three factors that explain why the consequences of the crisis in LTCM were liable to be much more serious than those of Amaranth are as follows:

- *Indebtedness.* Besides being an unusually large hedge fund, LTCM had exceptionally high liabilities. In 1998 its debt ratio fluctuated between 2500 and 3000 per cent. When the losses began to mount up, LTCM had difficulty in meeting its commitments with counterparties, who in turn called for additional collateral. Amaranth's debt ratio was in the region of 500 per cent and its equity covered the losses.

- *Illiquid positions.* LTCM was partly involved in very complex derivative positions that were difficult to leave. When LTCM's problems became known, many market participants took opposite positions to LTCM's (because they foresaw that sooner or later the fund would need to liquidise its positions) and this made LTCM's situation even more difficult. The risk of increasingly large losses meant in turn that no creditor was prepared to provide more money independently. Amaranth's losses were confined to a smaller market segment and were easier to liquidise.

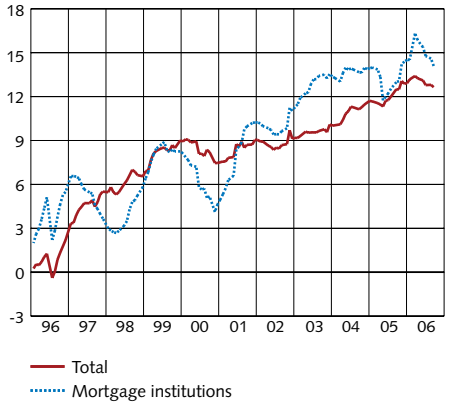
- *Financial climate.* LTCM collapsed in the aftermath of the Asian crisis and the outbreak of the crisis in Russia. The creditworthiness of a number of emerging market economies was being questioned and many of the large banks incurred similar losses. Amaranth's losses coincided with more favourable economic conditions and many investors were prepared to take over the positions in natural gas.

The Swedish banks' borrowers

Household debt is continuing to grow at a high rate, though some slowdown has been evident in recent months. The latest statistics suggest that the housing market has entered a quieter phase but it is still too early to talk of a trend break. At the same time, households' debt-servicing ability is sound. The growth of corporate borrowing remains high. Corporate financial positions are generally favourable, defaults are few and expectations that they will remain that way indicate that credit risk in the corporate sector as a whole is low. But higher mortgaging levels and transaction prices do point to an increased risk in connection with leveraged buyouts. In the market for commercial property the risk premium on real-estate investment has continued to fall.

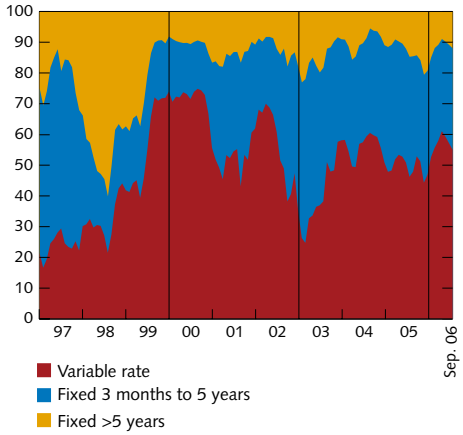
Borrowers from Swedish banks are an important aspect of the analysis because credit risk is much the largest type of risk to which banks are exposed. This chapter opens with an examination of the household sector, which has over 40 per cent of the Swedish banking system's stock of loans to the resident general public. Loans to the corporate sector make up almost 50 per cent. The development of risks is gauged by analysing, for example, borrowing, indebtedness and the debt-servicing ability. The real-estate sector is the single industry to which the banks are most exposed and is therefore considered in a separate section. Monitoring developments in the commercial property market is likewise important because they affect the debt-servicing ability of property companies. Moreover, many loans are collateralised with real estate. The emphasis in this chapter is on conditions in Sweden but other markets where Swedish banks have substantial exposures are also assessed.

Figure 2:1. Household borrowing
Percentage 12-month change



Source: The Riksbank

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



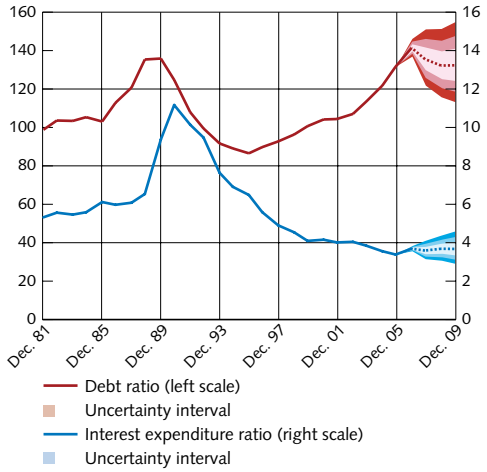
Source: The Riksbank

The household sector in Sweden

Household debt is continuing to grow but since March the rate has tended to slacken; in September the twelve-month increase in total borrowing from credit institutions was just under 13 per cent (see Figure 2:1).

More than 85 per cent of household debt is secured with real estate. The greater part of these loans comes from mortgage institutions and most of the rest are last mortgage loans from banks. The margin on mortgage institutions' lending has been pressed down as a consequence of the new capital adequacy rules (Basel II) and increased competition between these institutions. The introduction of Basel II as of 2007 will, for example, entail a capital requirement for house mortgage loans that is lower than at present. This will reduce costs for such lending, which may be one reason why the

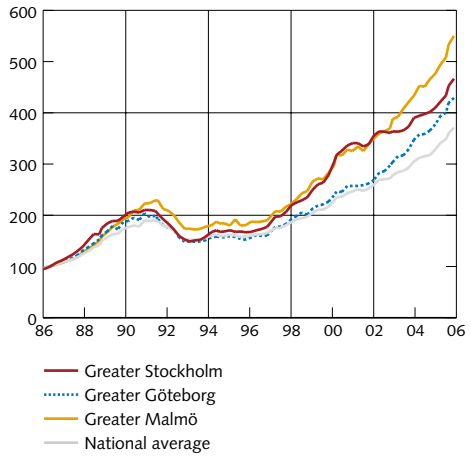
Figure 2:3. Household debt and post-tax interest expenditure in relation to disposable income
Per cent



Note. The uncertainty interval contains the 50, 75 and 90 per cent probabilities of the ratios being within the ranges shown, given the Riksbank's main scenario in Inflation Report 2006:3. Thus, the interval mirrors the uncertainty about how household borrowing and interest expenditure are influenced by changes in interest rates and disposable income. The broken line is the main scenario's forecast.

Sources: Statistics Sweden and the Riksbank

Figure 2:4. House prices
Index: 1986 = 100



Source: Statistics Sweden

banks have already reduced house mortgage rates (see Chapter 3). New borrowing at a variable rate is still preferred by a majority of households; in September such loans made up over 50 per cent of new borrowing from mortgage institutions (see Figure 2:2).

As household debt is growing faster than disposable income, the debt ratio (debt relative to disposable income) has continued to rise (see Figure 2:3); the ratio in 2006 Q2 was 137 per cent. In the Riksbank's main scenario, a gradual future increase in the level of interest rates dampens the growth of borrowing and lowers the debt ratio. Rising interest rates also imply an increase in households' interest expenditure. But as disposable income also increases, the ratio of post-tax interest expenditure to disposable income is in principle unchanged.

For ten years now house prices have risen considerably more than disposable income. From 1996 to 2005 Statistics Sweden's property price index increased almost 110 per cent (see Figure 2:4), while households' disposable income grew little more than 40 per cent. Low interest rates are the crucial force behind the house price rise. Empirical models show that house prices can be largely explained by underlying factors such as interest rates and disposable incomes. On top of this, however, the house mortgage market has undergone structural changes whereby house prices have increased by more than can be attributed to real economic factors. One such change is that mortgage institutions are lowering amortisation requirements. As a result, households are able to borrow more for a given monthly cost and this has added to the upward pressure on house prices. A study of three large mortgage institutions found that between 54 and 65 per cent of the loan stock consisted of straight loans and that the proportion has risen since 2005.[7] Another change that entails upward price pressure is that mortgage institutions are accepting an increasingly high degree of mortgaging. Between 2002 and 2006 the average loan-to-value ratio for new loans from mortgage institutions has risen from 53 to 59 per cent.[8] Higher loan-to-value ratios have meant that the cash payment is less of a restriction and thereby made it more possible for households with little wealth but sizeable incomes to demand tenant-owned and private dwellings.

Although house prices are still rising at a rate that cannot be regarded as sustainable in the longer run, in the last few months there have been indications that the housing market is entering a quieter

7 See: "Färre amorterar på bolånen" (Fewer amortise house mortgage loans), http://www.sverigesradio.se/ekot/artikel.asp?artikel=964800, 10 October 2006.

8 "Utvecklingen på bolånemarkanden" (Developments in the market for housing loans), 2006:9, Finansinspektionen.

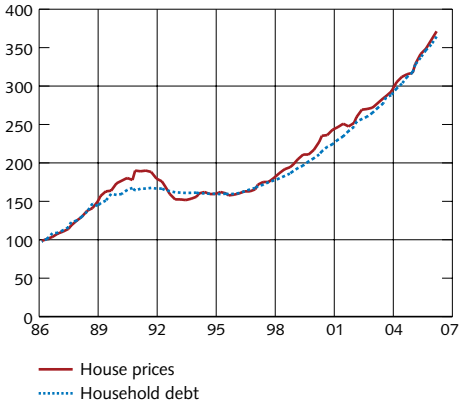
phase. There is a close historical co-variation between house prices and household debt (see Figure 2:5). In the spring of 2006 household debt with mortgage institutions and house prices were both rising rapidly, with twelve-month increases of 16 and 13 per cent, respectively. Both these rates have slackened since then (see Figure 2:6). Moreover, a survey from SBAB (the Swedish Housing Finance Corporation) that measures house agents' expectations of future house prices in the metropolitan regions, points to falling prices in 2006 Q4, while an indicator from SEB that measures the proportion of households that count on rising house prices, has decreased for three consecutive months. Taken together, the statistics in the past few months suggest that the housing market may have started to cool off.

On the other hand, international experience, not least from Australia, shows that measuring house prices in real time can be very difficult. One problem is that in the available statistics, house prices are registered when the new owner takes possession. In practice, the buyer and seller often agree on the price in advance of the actual transaction, in which case there is a time lag before the price appears in the official statistics. This calls for a cautious assessment of the latest house price outcomes and it is too early to talk of a trend break.

House prices are expected to go on rising in 2007 up to 2009, though not as rapidly as in recent years. Instead of the earlier rates around 10 per cent, price increases of a few per cent are more probable. The price rise is slowing on account of generally higher interest rates but also for other reasons. For instance, the extra effect on house prices of the less stringent repayment requirements and the higher mortgaging levels is a one-off phenomenon and cannot lead to house price increases being constantly higher. Neither can the downward pressure on lending margins continue for ever. But there are many uncertainties about the future path of house prices and experience illustrates the difficulties in making accurate forecasts. For example, the sharp slowdown in house price increases in Australia and the United Kingdom in 2004 and 2005 would probably be hard to replicate in macroeconomic models (see Figure 2.7).

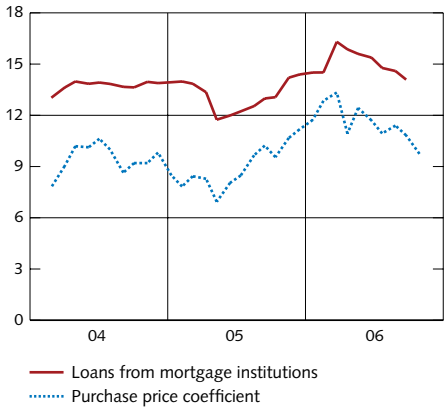
The future path of house prices will also depend on fiscal policy. The Budget Bill contains a series of proposed changes in the taxation of housing (property tax for 2007 and 2008 on 1- and 2-family houses to be frozen at the level for 2006, a ceiling to property tax on the value of land, and no taxation of tenant-owned housing

Figure 2:5. House prices and household debt
Index: 1986=100



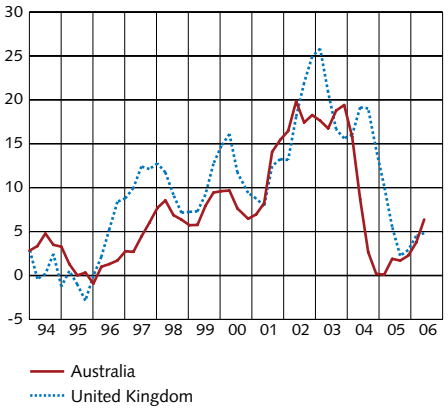
Sources: Statistics Sweden and the Riksbank

Figure 2:6. Purchase price coefficient and mortgage debt
Percentage annual change



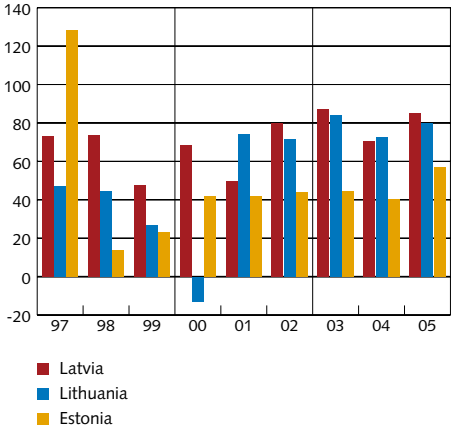
Sources: Statistics Sweden and the Riksbank

Figure 2:7. House prices in Australia and the United Kingdom
Percentage annual change



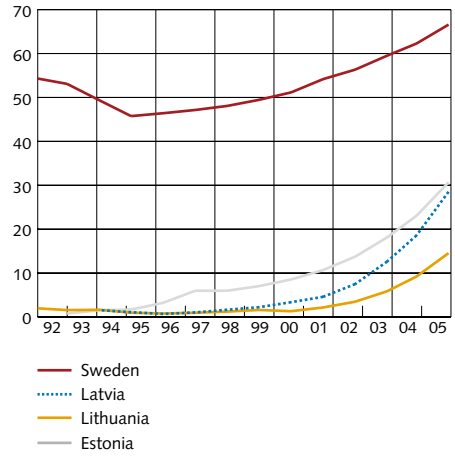
Sources: ABS and Nationwide

Figure 2:8. Household debt in the Baltic states
Percentage annual change



Sources: National central banks

Figure 2:9. Household debt in Sweden and the Baltic states
Per cent of GDP



Sources: National central banks

association's imputed income). In general, the changes that lower housing costs imply that it will be more attractive to buy a dwelling and they accordingly exert upward pressure on house prices.

The Riksbank also follows household debt at micro level with the aid of Statistics Sweden's annual cross-sectional study of households' economy (HEK). The latest survey, which covers 2004, was analysed in the May Report. The Riksbank drew the conclusion that the increased mortgaging in the household sector did not constitute a threat to bank solvency. These micro data have been projected forward by the Riksbank, using more recent outcomes from the national and financial accounts. The result indicates that households' margins (disposable income less essential living expenses and interest costs) increased during 2005. For example, the proportion of indebted households that would not be able to cope with an additional monthly expenditure of SEK 1000 decreased from 7.7 per cent in 2004 to 7.0 per cent at the end of 2005. Although the household sector's overall debt-servicing ability is sound, there is always a risk of individual households having unduly large loans that lead to payment difficulties. It is also worth underscoring that the prevailing situation, with household debt and house prices rising more than twice as fast as household income, cannot continue in the longer run.

Household sectors in other Nordic countries, Germany and the Baltic states

The situation in other Nordic countries is broadly the same as in Sweden, with annual house price increases around, or above, 10 per cent. The picture in Germany has been considerably weaker.

In the context of stability, it is most relevant at present to follow the household sectors in the Baltic states. During the past four years, the annual growth of household debt has averaged more than 50 per cent (see Figure 2:8). In the Soviet era the level of debt was artificially low in that private ownership was not permitted. The change to a market economy and deregulated credit markets has been followed by a sharp increase in household's demand for credit. A not inconsiderable part of the strong growth accordingly represents a catch-up effect. Even with the pronounced increase, the ratio of household debt to GDP is still low (see Figure 2:9) compared with many of the older EU countries.

The corporate sector in Sweden

Corporate borrowing from credit institutions is continuing to rise at a high rate, over 9 per cent in twelve-month terms in September. This represents some fall-off after the summer but the rate is much the same as at the time of the May Report (see Figure 2:10).[9]

The increase consists mainly of bank loans but corporate borrowing from other credit market companies is also rising at a high rate. The latter item includes the banks' finance companies. The fact that borrowing from other credit market companies has risen relatively strongly in the past year compared with the average for a longer period may indicate that firms are increasingly turning from bank loans to factoring and leasing via the finance companies. This could be a consequence of the new rules for preferential rights under bankruptcy law.[10] However, the increased borrowing from finance companies can mirror a need of alternative forms for corporate financing.

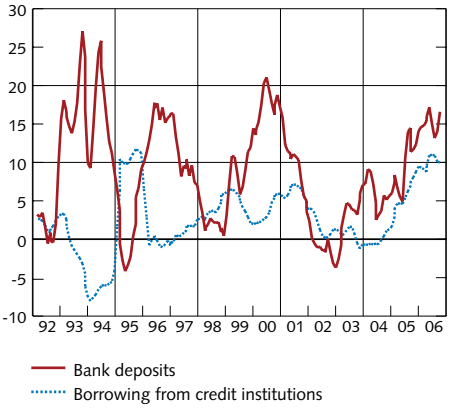
Borrowing from securities markets is an important component of corporate financing. This borrowing makes up over 20 per cent of total corporate borrowing and the share has been relatively constant over the past five years. In June 2006 outstanding bonds and certificates issued by non-financial companies totalled SEK 395 billion (see Figure 2:11).

The continued increase in total corporate borrowing has to do with the level of investment, which is still relatively high (see Figure 2:12). Total gross fixed capital formation in the business sector rose 8 per cent in annual terms in 2006 Q2 and focused mainly on housing and transport equipment. In other parts of the corporate sector the development of investment has been relatively weak.

The statistics on corporate borrowing include loans for private equity companies' leveraged buyouts, which have continued to rise sharply. The high activity in the private equity investment market during the year has probably also contributed to the increased borrowing.[11]

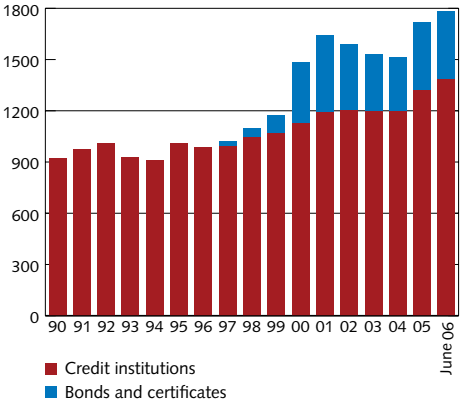
The growth of corporate borrowing is expected to continue in the coming years, though probably not at the same high rate as earlier because a slackening of investment growth is foreseen, above all in connection with higher interest rates.[12] There are, however, other factors that may sustain corporate borrowing. A persistently high investment propensity among private equity companies is suggested by their unchanged optimism and perception of favourable investment opportunities in the future.[13] Demand for loans can also be generated in the event of a sale of state-owned companies.

Figure 2:10. Non-financial companies' borrowing and bank deposits
Percentage twelve-month change, three-month moving average



Source: The Riksbank

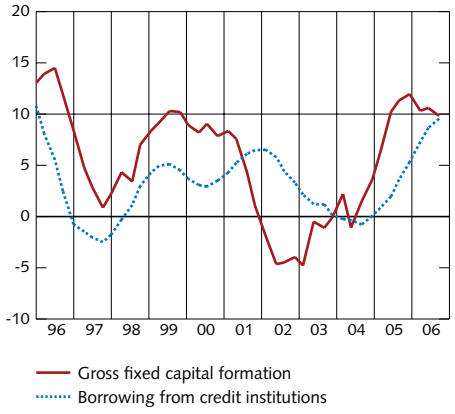
Figure 2:11. Non-financial companies' borrowing from securities markets and credit institutions
SEK billion



Source: The Riksbank

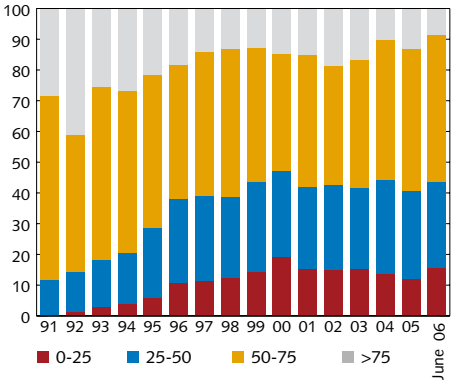
9 This can be compared with the past ten years' average annual growth rate of just over 3.5 per cent.
10 Since the new rules for preferential rights under bankruptcy law came into force in full in January 2005, corporate borrowing from banks' finance companies and other credit market companies has risen at an average annual rate of 11 per cent. The average rate in the past ten years was around 6 per cent. When the banks' preferential rights are restored from the current rate of 55 per cent to 100 per cent, borrowing from finance companies may fall in favour of bank loans.
11 See also the subsection below on Private equity companies.
12 Inflation Report 2006:3, Sveriges Riksbank.
13 See the Swedish Venture Capital Association's quarterly report 2006 Q2, www.svca.se.

Figure 2:12. Corporate sector gross fixed capital formation and borrowing by non-financial companies from credit institutions
Percentage twelve-month change, four-month moving average



Sources: Statistics Sweden and the Riksbank

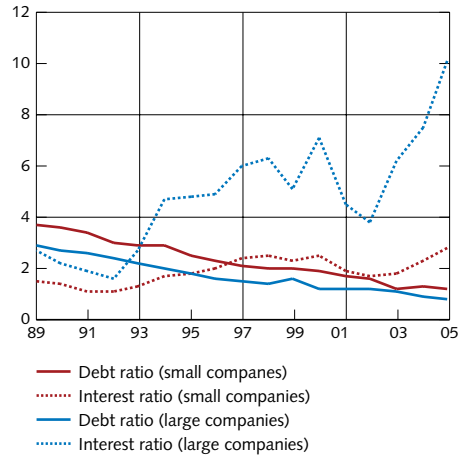
Figure 2:13. Ratio of debt to total assets in listed companies
Per cent of all listed companies



Note. The data for June 06 cover 80 per cent of the companies listed on the Stockholm Stock Exchange.

Sources: Bloomberg and the Riksbank

Figure 2:14. Interest-expenditure and debt ratios in small and large companies



Note. Interest expenditure is operating profit plus financial income relative to financial costs; debt as a ratio of book equity.

Sources: UC AB and the Riksbank

Moreover, a survey of 151 managers of bank branches around the country indicates some future increase in corporate borrowing. Four out of five of the respondents predict that corporate borrowing from banks will continue to grow in the coming years, mainly because postponed and new investments will now be undertaken. The survey data also indicate that the change of government is expected to contribute to an increased corporate borrowing requirement.[14]

The industries where future credit demand is expected to be strongest are manufacturing followed by real-estate management. Around 12 per cent of bank loans goes to manufacturing. The figure for property companies is around 40 per cent and this is the single industry to which the banks are most exposed.[15]

Even after the comparatively high growth of borrowing in the past two years, the ratio of corporate debt to assets has not risen. The average ratio of debts to total assets for companies listed on the Stockholm Stock Exchange is currently round 50 per cent. The ratio has fallen successively from over 70 per cent in 1991. In June 2006 the ratio was below 50 per cent for over 40 per cent of the listed companies and this figure has been relatively constant since 2000 (see Figure 2:13).

The picture for the listed companies matches the situation in general for all Swedish corporations. The ratio of debt to equity is low regardless of company size (see Figure 2:14).[16]

The corporate debt-servicing ability has strengthened. Semiannual financial statements from 334 listed companies show that an increased profit is reported by 60 per cent and this was accompanied by increased turnover for 54 per cent. The combined profits in the first half of 2006 were around 10 per cent higher than a year earlier. Profit growth is expected to continue in 2007 but at a lower rate than in 2006.[17] The strong development of profits is mirrored in the yield on equity, which showed a further improvement

14 Almi's lending indicator, September 2006; see www.almi.se.
15 This refers to lending by the four major banks in June 2006.
16 Small companies are those with an annual turnover below SEK 5 million.
17 Market participants' profit predictions, measured as expected growth of earnings per share for companies listed on OMXS30.

in the first half of 2006 for companies listed on the Stockholm Stock Exchange (see Figure 2:15).

The combination of higher corporate profits and low interest rates has led to a further increase in the interest expenditure cover for large as well as small companies. This is evidence of a sound financial position (see Figure 2:14).

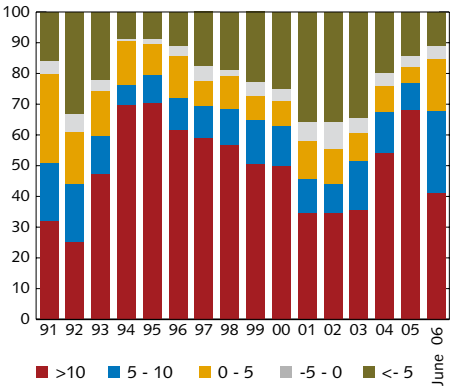
Corporate sector bank deposits are continuing to grow at a high rate, though there was some fall-off early in the summer (see Figure 2:10). These deposits totalled over SEK 570 billion in September, a twelve-month increase of around 18 per cent. The average growth rate since 2000 is just over 8 per cent. In contrast to earlier trends, corporate borrowing and bank deposits have been increasing simultaneously since 2003.

The corporate sector's strong debt-servicing ability is also mirrored in defaults, which have continued to fall. The average number of defaults decreased by 5 per cent in the twelve months to October.[18] The defaulting companies are mostly small but the numbers are low in every size group and industry (see Figure 2:16).

Expected default frequencies (EDF), calculated on the basis of stock-market information and data from financial statements, are a leading indicator of bankruptcies in the coming year.[19] The probability of default in the year ahead is on much the same level as at the time of the May Report. When stock markets fell in the early summer there was some increase in the levels for the corporate sector and a number of industries. It reflected greater uncertainty about future corporate earnings, which led to higher stock-market volatility. Since then, both volatility and the probability of default have fallen back (see Figures 2:17 and 2:18).

During the past five years the probability of corporate defaults has gradually fallen, indicating a general improvement in the quality of credit in this period. Another indication of this is that the

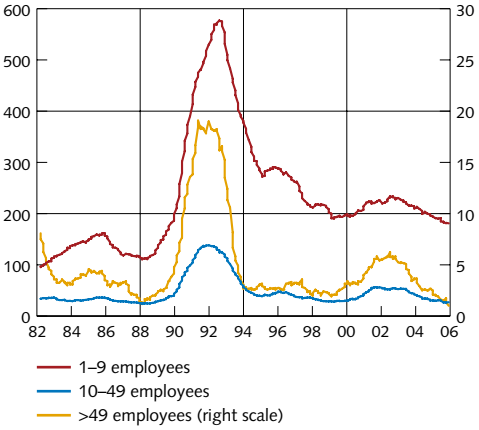
Figure 2:15. Breakdown of returns on equity in listed companies
Per cent of all listed companies



Note. The data for June 06 cover 80 per cent of the companies listed on the Stockholm Stock Exchange.

Sources: Bloomberg and the Riksbank

Figure 2:16. Number of corporate defaults by company size
Twelve-month moving average



Source: Statistics Sweden

Figure 2:17. Expected default frequency (EDF) by industry for listed non-financial companies
Per cent

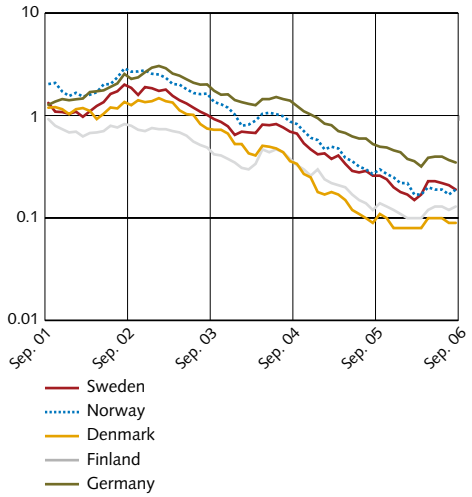
Note. EDFs are based on stock-market information and financial statements. The scale is logarithmic. A value of 1 per cent denotes a 1 per cent probability of default in the coming twelve months.

Source: Moody's KMV

18 The number of defaults refers only to companies with employees, not to individual proprietor enterprises.

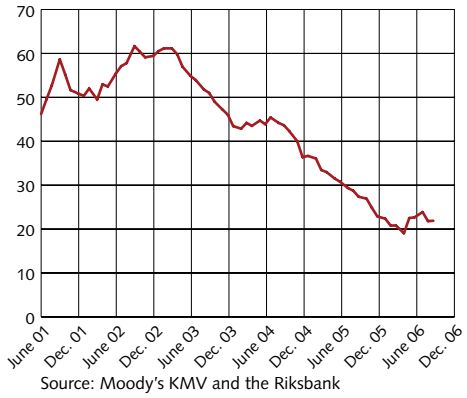
19 Moody's-KMV calculates the probability of bankruptcies among listed companies – the expected default frequency (EDF) – within a given time horizon on the basis of equity prices and financial statements. As a calculation of the probability that a company's assets will be smaller than its debts when the latter mature, the EDF represents the estimated risk of a limited company being unable to meet its commitments. The market value and the volatility of a company's assets are derived in turn from the company's stock-market value, using option pricing methods. Higher indebtedness, a lower market value and higher asset volatility all lead to a higher EDF, that is, a greater probability of default within the given time horizon.

Figure 2:18. Expected default frequency (EDF) for listed non-financial companies in Nordic countries and Germany
Per cent



Note. The scale is logarithmic.
Source: Moody's KMV

Figure 2:19. Listed companies with a default probability of 1 per cent or more
Per cent of all listed companies



Source: Moody's KMV and the Riksbank

proportion of firms with an EDF of one per cent or more has dropped from 45 per cent five years ago to 20 per cent at present (see Figure 2:19).

To sum up, corporate financial positions are robust. Although borrowing has increased relatively rapidly in the past two years, the level of corporate debt is low. The number of defaults is historically low, which suggests that it will probably turn upwards in the near future. On the other hand, the forward indicator default probabilities points to a low risk of defaults in the coming year, which indicates a low credit risk in this period.

PRIVATE EQUITY INVESTMENT COMPANIES

Loans for leveraged buyouts (LBO) via private equity companies have increased strongly in 2005 and 2006. In 2006 Q2 private equity companies invested SEK 17 billion in corporate acquisitions, which is the highest figure for a single quarter since the Swedish Venture Capital Association (SVCA) and Nutek initiated their quarterly survey of the venture capital market in 2001.[20]

Large capital flows and strong demand, above all from institutional investors, for credit instruments connected with LBO have created a favourable situation for corporate acquisitions by private equity companies. Institutional investors have taken market share but bank lending to these companies is still rising. The growing competition to finance LBO has led to high mortgaging levels and transfer prices have risen rapidly. This means that the risks in this segment of the capital market have grown.[21]

Corporate acquisitions by private equity companies are associated with very adequate information to the parties directly involved in the transaction, while the information available to outsiders in strictly limited. This naturally makes it more difficult to analyse and assess the development of risks in this segment of the capital market. However, the growing presence of institutional investors does imply greater transparency and efficiency in the pricing of LBO loans. Another positive aspect is that risks connected with LBO are priced in a market and spread outside the banks, which basically favours stability.

20 This can be compared with SEK 14 billion in the same quarter a year earlier and an annual figure of just over SEK 10.5 billion for 2004.
21 See Chapter 3 for lending to private equity companies from the four major banks.

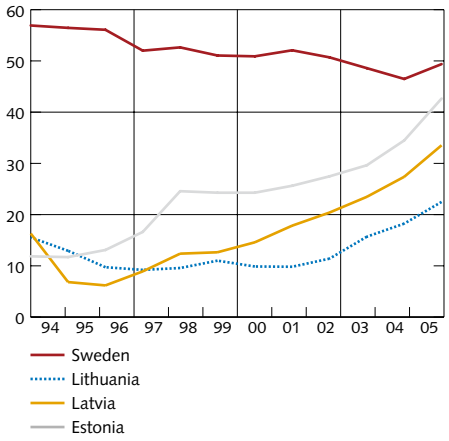
Corporate sectors in other Nordic countries, Germany and the Baltic states

A large part of the loans from Swedish banks goes to the corporate sectors in other Nordic countries, the Baltic states and Germany. The Riksbank therefore also follows developments in these countries.

As regards the three Baltic states, there are grounds for being particularly attentive to future developments. Credit growth in these countries has been high in recent years. The initial levels were admittedly low but the growth cannot continue indefinitely. The fixed exchange rate presupposes that demand stabilisation is achieved with fiscal policy because in such a regime the central bank's possibility of doing this is very limited. A large proportion of the loans is denominated in foreign currency, primarily euro. The Baltic states are expected to join the monetary union but the currency risk is there until this actually happens. In the twelve months to June 2006 borrowing from credit market institutions rose 50 per cent in each of the Baltic states. The proportion of euro loans in these countries is between 60 and 70 per cent. The loan stock has also grown rapidly relative to GDP; the ratio in Estonia is now not far from the level in Sweden (see Figure 2:20). The growth of debt is accompanied in all three countries by sound corporate profitability and rising profits. A continued increase in profits is expected, possibly not to the same high extent as earlier. The number of defaults is low in all three countries and a large number of new companies are being set up.

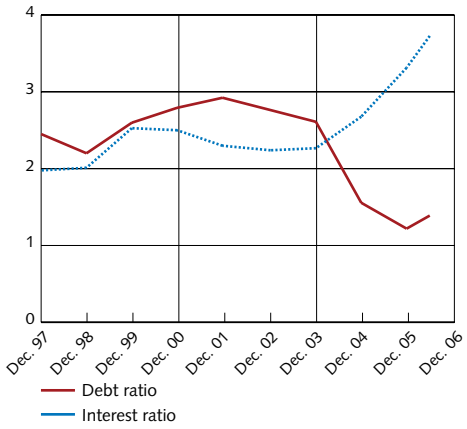
Bank exposures to the real estate sector have increased in all the Baltic states. This is partly due to increased borrowing by property companies and partly because other companies are using borrowed funds to purchase real estate for their own requirements as well as for commercial purposes. Property prices have risen gradually in Estonia and Lithuania in connection with falling vacancies, while the level of rents is relatively stable. Demand in Estonia is particularly strong for commercial premises and shopping centres. In Latvia, on the other hand, the central bank points to developments in the property market as a risk factor in view of the past five years' rapid house price increases combined with a falling required direct return and expectations of rising interest rates. Thus there are grounds for keeping an eye of future developments.

Figure 2:20. Corporate loan stocks relative to GDP in the Baltic states and Sweden
Per cent



Sources: National central banks

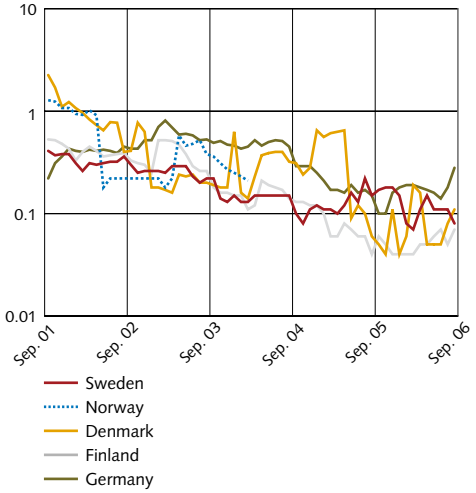
Figure 2:21. Debt ratio and interest expenditure cover for listed property companies



Note. Debt in relation to book equity; interest cover calculated as the sum of operating profits and financial income in relation to financial expenditure.

Sources: Annual reports and the Riksbank

Figure 2:22. Expected default frequency (EDF) for listed property companies in Nordic countries and Germany
Per cent



Note. Logarithmic scale.
Source: Moody's KMV

The picture in other Nordic countries is broadly the same as in Sweden. In Denmark and Norway, corporate borrowing from credit market institutions in June 2006 was 16 and 21 per cent, respectively, above the level a year earlier as a result of high investment activity. The growth of borrowing in Finland has slackened during the year; the twelve-month increase was 5 per cent. The weaker credit demand can be explained by favourable corporate profitability and a lack of investment opportunities. Expected default frequencies in the coming year in the total corporate sector remain low in these three countries, though there has been some increase in Finland (see Figure 2:18). Defaults among property companies are also expected to become somewhat higher in Finland as well as Denmark (see Figure 2:22).

The economic recovery in Germany is continuing, driven mainly by export growth but increasingly also by higher domestic demand. Corporate investment has started to pick up and this, together with higher corporate profitability, has led to upturns in borrowing from banks as well as markets. Corporate profits are rising for all size groups and defaults continue to fall. A fall is also foreseen for defaults in the coming year (see Figure 2:18). A further increase is foreseen, however, for defaults among German property companies (see Figure 2:22).

Property companies

The growth of Swedish property companies' borrowing from banks has continued at a high rate. In the first half of 2006 the listed property companies' average debt ratio rose marginally after a fall since 2004 (see Figure 2:21). This is probably a reflection of the high activity in the property market in recent years.

The improvement in earnings has also continued. Financial statements for the first half of 2006 show that the operating surplus (rent income less operating and maintenance costs) improved from a year earlier for 9 out of 13 listed property companies, while the operating result improved for 10 out of 13. The stronger result has led to a somewhat higher average interest expenditure cover, which indicates that the financial position of the listed property companies continues to be sound.

There are few defaults in this industry and expected default probabilities point to a broadly unchanged and low credit risk compared with the time of the May Report (see Figure 2:22).

The listed property companies are exposed to a high degree to the office market. Office premises make up almost 60 per cent of these companies' total stock of real estate. Stockholm is the predominant geographical region, followed by Göteborg and Malmö. Exposures are small to other regions in Sweden as well as abroad. Real estate in other countries accounts for only two per cent of the total value. Individual companies can, of course, have larger exposures to other types of property and other regions.[22]

22 The figure for the property company with the largest share of its stock abroad is 8 per cent (from Leimdörfer, February 2006).

The future earnings potential of property companies is accordingly dependent in large measure on how the office markets in the three metropolitan regions develop. Demand for office premises is slowly beginning to pick up in all these regions, while rents are relatively unchanged (see the subsection below on the commercial property market). So the market has not yet really turned. The prospect of somewhat weaker economic activity limits the possibility of future rent increases, which is negative for future income. At the same time there is the risk that a rapidly rising interest rate can affect property companies because their increased borrowing is being accompanied by a shortening of interest periods.

THE COMMERCIAL PROPERTY MARKET

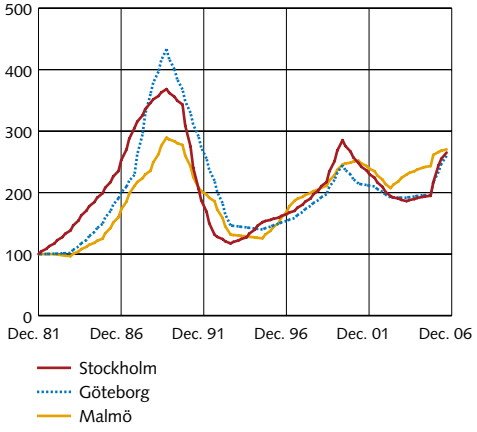
The debt-servicing ability of property companies is affected by developments in the market for commercial property. As office premises make up the major part of the listed property companies' portfolios, the Riksbank's analysis focuses on them.

Activity in the Swedish property market has remained high in 2006. Turnover in the first half-year totalled around SEK 70 billion, which can be compared with SEK 50 billion a year earlier and an annual figure of SEK 120 billion for 2005. High turnover is foreseen in the rest of 2006. Foreign investors have been very active for some years but competition from domestic investors has grown recently. In the first half of 2006 foreign investors were responsible for over 40 per cent of the real-estate investments. In the peak year 2003 their share of the transactions was 75 per cent. These investors are interested in all types of real estate in every part of Sweden, though they focus on the Stockholm region.[23] In the context of stability, the presence of international investors is positive in that risks are spread among more investors. At the same time, foreign investment can lead to greater risks of contagion in the property market because the capital may be more mobile. Falling property prices in some other market might induce investors to sell their assets in Sweden in order to cover losses abroad. That in turn could affect property prices in Sweden.

Prices for office premises are determined by the development of the property's net operating result (rent income less costs) and by the return investors require. The level of rents is determined in turn by vacancies and the required yield via the risk-free interest rate plus a risk premium. In 2006 Q1 real prices rose relatively strongly in all three metropolitan regions even though rents and vacancies were relatively unchanged. The price rise can accordingly be explained mainly by a lower required yield. A persistently low risk-free interest rate indicates that it is the risk premium for property investment that has decreased. This is in line with the recent fall in risk premia for a variety of other assets.

Prices for office premises have continued to rise strongly since

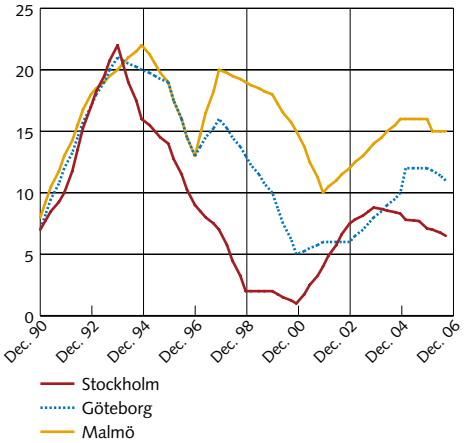
Figure 2:23. Real prices for office premises in central locations
Index: 1981 = 100



Note. Deflated with the CPI.

Sources: NewSec AB and the Riksbank

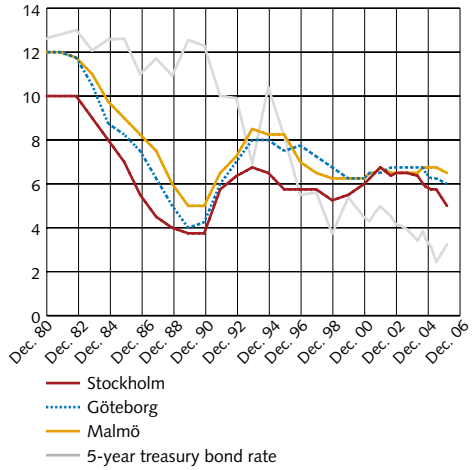
Figure 2:24. Vacancy rates for office premises in central locations
Per cent



Sources: NewSec AB and the Riksbank

23 See Nordic Report Real Estate Autumn 2006 from property consultants NewSec AB.

Figure 2:25. Average direct return required for office premises in central locations
Per cent



Sources: NewSec AB and Reuters EcoWin

the time of the May Report. The twelve-month Q3 increases in real prices were 36 per cent in Stockholm, 32 per cent in Göteborg and 11 per cent in Malmö (see Figure 2:23). Rents in the three metropolitan regions rose in the same period by between 1 and 1.5 per cent. After the real-estate crisis in the early 1990s, rents and prices followed each other closely. In recent years, however, prices have risen considerably more than rents, which have hardly changed.

The weak development of rents has to do with relatively high vacancies, though the latter are now slowly beginning to fall. Developments in the past year have been most favourable in Stockholm, where employment has started to pick up in small and medium-sized firms as well as in office-intensive activities. Vacancies also fell during the year to some extent in Göteborg and Malmö (see Figure 2:24). Vacancies are higher, on the other hand, in the outer areas of the metropolitan regions as well as among older office premises.

The level of vacancies is expected to go on falling in all the metropolitan regions as a consequence of the strong labour market. Employment has risen relatively markedly during 2006 and this is expected to continue in 2007, followed by a somewhat more subdued increase as GDP growth slackens.[24] Another factor that affects the level of vacancies is the supply of new office premises. New construction is low in Stockholm and as a large part of the completed office space has already been rented out, the new office premises are not expected to have any sizeable effect on vacancies. In Göteborg the construction of new office premises came to a halt during 2005 after a relatively strong increase in 2003. New construction is expected to remain low in the coming year, though probably higher than in 2006. The supply of new office space in Malmö has likewise been low in recent years. An increase is foreseen in the year ahead but is likely to be absorbed by the increased demand for offices.[25]

There has thus been some reduction of vacancies and a marginal increase in rents but there has not yet been a really strong recovery in the office market. However, a further fall in the required yield in all three regions has contributed to a continued increase in prices (see Figure 2:25). The combination of a continued reduction of the required yield since 2006 Q1 and a higher risk-free long-term interest rate suggests that the risk premium on property investment has gone on falling, as it has on other investments. There are reasons for drawing attention to the grounds for the expectations about future income growth that this implies. Despite the strong economic development, there has not yet been a proper market turnaround in terms of office vacancies and rents. The prospect of successively weaker GDP growth in the coming years implies limited possibilities of increased income from rent. A reduced required yield can therefore be questioned.

24 See Inflation Report 2006:3, Sveriges Riksbank.
25 See Nordic Report Real Estate Autumn 2006 from property consultants NewSec AB and Nordic City Report Autumn 2006 from Jones Lang Lasalle

Summary assessment of the Swedish banks' borrowers

- The growth of household debt remains strong, though the rate has become somewhat lower. In the coming three years the Riksbank counts on borrowing as well as house prices being more subdued. The latest statistics suggest that the market for 1- and 2-family houses may be entering a quieter phase but it is too early to talk of a trend break.

- The household sector's debt-servicing ability is generally strong and household debt does not currently constitute a threat to financial stability. But there is always a risk of individual households borrowing unduly and having difficulties with payments.

- Corporate borrowing continues to rise rapidly, though the rate has become somewhat lower. The Riksbank counts on a weaker future increase in borrowing as investment growth slackens. But some forces, such as leveraged buyouts, are working in the opposite direction. The level of defaults is historically low and can hardly continue to fall. Some increase seems more likely. But forward indicators do point to persistently low default levels in the coming year.

- An increased interest in leveraged buyouts via private equity companies has led to stronger competition to finance them. This has resulted in higher mortgaging levels and high transfer prices. The risks in this segment of the capital market are therefore growing.

- Households and companies in the Baltic states are continuing to increase their borrowing at a high rate. Although the initial levels were low, this development cannot continue in the longer run. A large proportion of the loans are denominated in euro, which entails an exchange risk until these countries have actually joined the monetary union.

- In the market for office premises, the required yield on property investments is continuing to fall at a time when interest rates are rising. Despite the strong economic upswing, this market has not turned properly in terms of rents and vacancies. A falling required yield is indicative of expectations of higher future incomes but the possibility of future rent increases is probably limited.

Developments in the banks

The major banks' profitability has continued to improve, though in Q3 there were some signs of a fall-off. It is mainly securities-related income and the value of financial instruments that have risen. Loan losses made a positive contribution to bank profits because recoveries and reversals were larger than new provisions. The favourable growth of profits is accompanied by a continuation of limited risks in the banking sector. The Riksbank therefore considers that the major banks' resilience to unexpected losses has become still stronger. Two stress tests by the Riksbank likewise show that the banks can cope with sudden and relatively unforeseen events with comparatively sound margins.

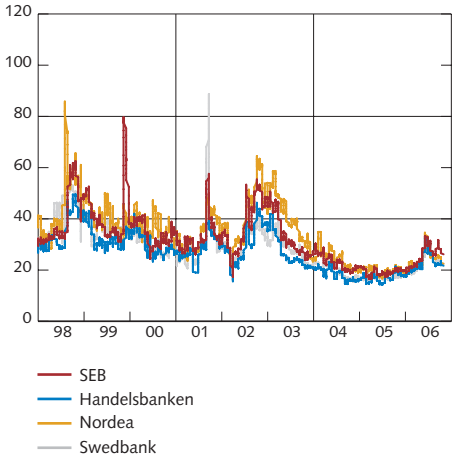
This chapter takes a closer look at the banks. The Riksbank's analysis concentrates on the four major Swedish banks – Handelsbanken, Nordea, SEB and Swedbank[26] – because it is primarily these banks that are of importance for financial system stability. All these banks now operate to various extents in markets abroad. The analysis deals with each bank group as a whole because it is a bank's consolidated risk exposure that is relevant for financial stability.[27]

The development of profitability can indicate the banks' strategic risks. An evaluation of asset quality and the development of bank equity show how credit risk and market risk are developing. The banks' funding capacity provides a picture of potential liquidity risks. The chapter concludes with the results of stress tests the Riksbank uses to illustrate the banks' resilience to two scenarios that are unlikely but plausible.

Stock-market uncertainty about the major banks' future earnings is mirrored in implied volatilities of bank equity.[28] In the period from May to June 2006 these volatilities rose sharply, in keeping with those of the stock market as a whole (see Chapter 1). Volatilities did fall back again but remain higher than at the time of the May Report (see Figure 3:1). In the case of SEB, implied volatility rose again towards the end of the latest four-quarter period.

The major banks have recently been expanding their operations, for example by making minor acquisitions and opening new branches. The expansion has mainly occurred abroad but there are also instances in Sweden, for example in savings programmes. The banks have also disposed of some relatively small items, for example minority holdings.

Figure 3:1. Implied volatility of bank equity
Per cent, moving 10-day average

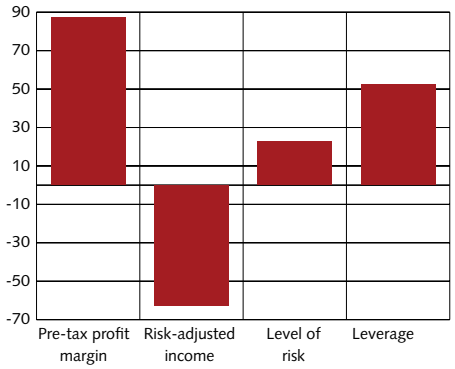


Note. Implied volatility is calculated from 3-month bank options.

Sources: Bloomberg and the Riksbank

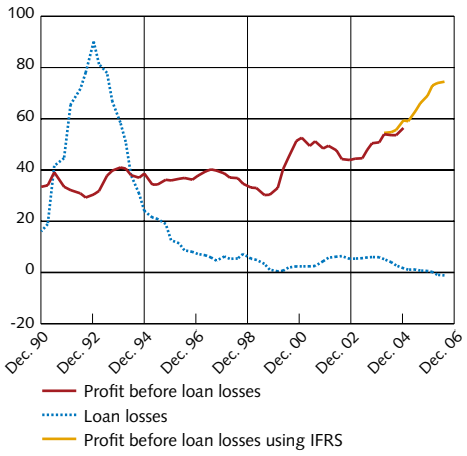
26 Föreningssparbanken changed its name to Swedbank in September 2006.
27 Unless stated otherwise, the term major banks accordingly refers here to the bank groups.
28 Implied volatility, calculated from equity option pricing, represents market expectations of future volatility.

Figure 3:2. Composition of pre-tax return on equity
Per cent



Note. The data refer to the latest four-quarter period.
Sources: Bank reports and the Riksbank

Figure 3:3. Profit before loan losses and net loan losses in the major banks
Four-quarter figures, SEK billion, 2006 prices



Sources: Bank reports and the Riksbank

Profitability and earnings – strategic risk

The profitability of the four major banks rose during the latest four-quarter period; the return on equity (ROE) was just over 18 per cent or almost 2 percentage points higher than in the preceding four-quarter period.[29] The growth of profitability did, however, tend to slacken towards the end of the period.

To obtain a clearer picture of the driving forces behind the development of profitability, this can be decomposed into profit margin, risk-adjusted income, risk level and leverage.[30] An increase in the first two components can be assumed to strengthen a bank's resilience. A larger profit margin implies a greater difference between incomes and expenditures, while higher risk-adjusted income means that income has risen relative to risk-weighted assets. An increased risk level or higher leverage, on the other hand, can indicate that the bank is taking greater risks, in which case it does not necessarily represent an increase in financial resilience.

$$\text{Pre-tax ROE} = \overbrace{\frac{\textit{pre-tax profit}}{\textit{operating income}}}^{\text{Profit margin}} \times \overbrace{\frac{\textit{operating income}}{\textit{risk-weighted assets}}}^{\text{Risk-adjusted income}} \times \overbrace{\frac{\textit{risk-weighted assets}}{\textit{total assets}}}^{\text{Risk level}} \times \overbrace{\frac{\textit{total assets}}{\textit{equity}}}^{\text{Leverage}}$$

The improvement in profitability came mainly from higher profit margins (see Figure 3:2). Risk-adjusted income fell. Leverage and risk level rose, which can indicate that the major banks are taking greater risks (see also the discussion in the section on assets and capital).

Underlying earnings of the major banks, defined as profit before loan losses at constant prices, have risen continuously since mid 2003; in the latest four-quarter period they totalled over SEK 74 billion, which was about 13 per cent more than in the preceding period (see Figure 3:3). The growth of earnings has been accompanied by a successive reduction of loan losses. In the latest four-quarter period the average effect of loan losses was positive, which may seem remarkable; the explanation is that recoveries and reversals exceeded provisions for new loan losses (see also the section on credit quality).[31]

29 The latest four-quarter period runs to the end of 2006 Q3. Unless stated otherwise, comparisons are with the preceding four-quarter period (up to the end of 2005 Q3). All performance data have been adjusted for sizeable one-off effects. As of 2005 the banks present financial statements in accordance with International Financial Reporting Standards (IFRS), see the box on pp. 49–51 of Financial Stability Report 2005:1, Sveriges Riksbank. The banks have also published versions of statements for 2004 that follow IFRS and these have been used here in comparisons with the preceding four-quarter period.

30 The components are described in more detail in a box on pp. 35–36 of Financial Stability Report 2004:1, Sveriges Riksbank.

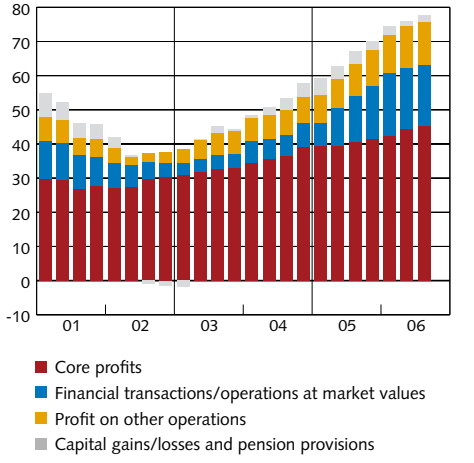
31 Loan losses were not positive for every major bank.

INCOME AND EXPENDITURE

An account of how the major banks' incomes and expenditures developed in the latest four-quarter period can help to explain the improvement in profit margins.

- Almost half of the improvement in profitability came from an increase in core profits – net interest and commission income less expenditure and loan losses (see Figure 3:4).
- Net interest income rose about 2 per cent from the preceding period. This is mainly explained by the strong growth of lending to both the household and the corporate sector (see Chapter 2). A negative effect on net interest income came from continued downward pressure on lending margins.[32]
- Net commission income contributed over 60 per cent of the improvement in profitability from the preceding period.[33] Payment-related commissions, which are a relatively stable source of income, increased slightly, while income on other commissions, which include lending and guarantees, rose by around 20 per cent. Income from securities-related commissions increased most, by over 22 per cent.
- Expanding operations involved an increase in staff-related costs in the latest four-quarter period. Moreover, profit-related salary costs tend to rise with an increase in equity-related income. Total expenditures rose about 5 per cent.
- Financial items at current values also contributed an appreciable part of the improvement in profitability. Equity-related income increased for some banks. Long-term interest rates rose for much of the latest four-quarter period, which lowered the value of the banks' bond portfolios and contributed to lower interest-related income. Long-term interest rates then fell towards the end of the period and interest-related income rose. Developments in this respect also differed between the banks. At the same time, rising long-term interest rates can be positive for the banks' insurance operations, for example, in that insurance liabilities are reduced. Some of the banks include income and value changes from insurance operations in financial items; the outcome was negative when long-term interest rates fell but the period result was an increase. The improvement in financial items also came from acquisitions.
- Other insurance income, for example from insurance commissions, also rose during the latest four-quarter period, likewise aided by acquisitions.

Figure 3:4. The major Swedish banks' profits
Four-quarter figures, SEK billion

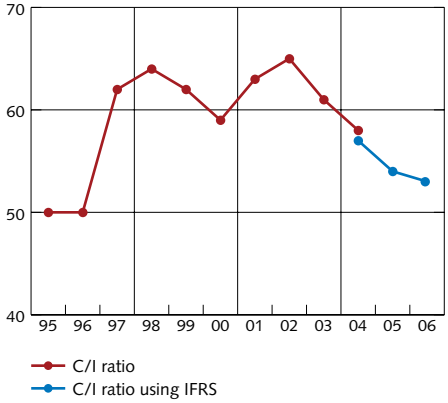


Note. Core profits are net interest and commission income less total costs and loan losses. The profit on other operations comes from other earnings, minority interests and insurance operations.

Sources: Bank reports and the Riksbank

32 Net interest and commission income are considered in more detail in a box on pp. 39–40.
33 The net commission income of the four major banks is considered here excluding Handelsbanken's insurance item and Nordea's life assurance item.

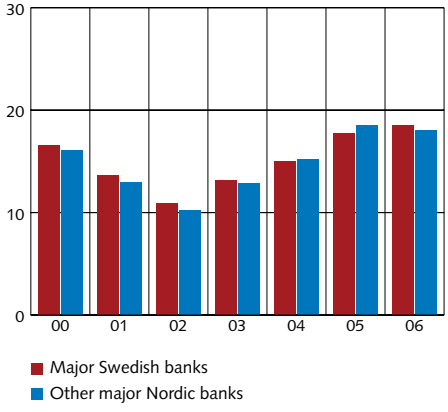
Figure 3:5. Cost/income ratio for the major Swedish banks
Per cent



Note. The data for 2006 are for the latest four-quarter period.

Sources: Bank reports and the Riksbank

Figure 3:6. Post-tax return on equity
Per cent



Note. The data for 2006 are for the latest four-quarter period.

Sources: Bank reports and the Riksbank

The cost efficiency of the major banks, measured as costs relative to income (C/I), has been improving since 2002 (see Figure 3:5). This was mainly due to decreased costs initially, when the development of income was weak. More recently, however, the C/I ratio has improved because bank income has risen more than costs.

In the May Report the Riksbank noted that a further improvement in bank profitability would probably require rising stock markets and high lending growth. This still holds. However, the higher long-term interest rates that lie in market expectations would reduce the value of the banks' bond portfolios.

In contrast to the major Swedish banks, profitability fell to some extent in the other major Nordic banks (see Figure 3:6).[34] However, the average level continued to be above the peak in 2000. Moreover, profitability's somewhat lower level came from a fall for Jyske Bank, where it was mainly a consequence of a decreased profit margin, which in turn was a result of greatly increased costs. DNB NOR and Danske Bank achieved a further marginal improvement in profitability.

Net interest income in the other Nordic banks rose as a result of rapidly expanding credit volumes but continued to be exposed to downward pressure on margins, mainly due to the highly competitive situation. There are signs, however, that the pressure on lending margins is beginning to ease even among these other Nordic banks, at the same time as rising interest rates are leading to larger margins on deposits. Net commission income grew in the latest four-quarter period, though the increase slackened markedly in the final quarters after the stock-market setback in the spring. The upward interest rate tendency affected financial items at current values towards the end of the period in that it lowered the value of bond portfolios.

The C/I ratios for the other Nordic banks have also been improving in recent years. The trend has involved strong income growth and relatively stable costs. In contrast to the major Swedish banks, however, in the latest four-quarter period the average C/I ratio for the other major Nordic banks deteriorated. This was a consequence of increased costs in connection with commission-based salaries, new establishments and investment, mainly in IT. The level of costs differs between banks in the Nordic market, partly on account of differences in the composition of their operations. A larger element of investment banking usually entails a relatively higher level of costs. A majority of the Nordic banks have a C/I ratio between about 50 and 60 per cent.

34 The reasons for making certain comparisons between the major Swedish banks and three other major Nordic banks (Danske Bank, DNB NOR and Jyske Bank), even though the latter are not regarded as systemically important in Sweden, is that the former operate abroad in much the same markets as the latter.

Net interest and commission income

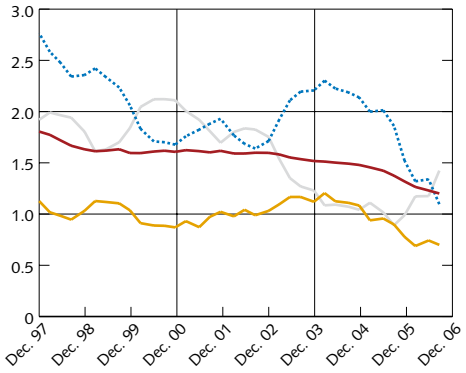
Net income from interest and commissions is the banks' primary source of income. Net interest income mainly consists of income from the loan stock less costs for deposits and borrowing. Net commission income comes mainly from securities-related trading on behalf of customers and card payment commissions less the associated costs. The account of net commission income in this box focuses on the securities-related component.

In the early 1990s net interest income was clearly the banks' largest source of income. Since then, income has become increasingly diversified and commission income is contributing a growing share of the total. For stability, this diversification is positive because bank earnings are less dependent on a particular source of income. At the same time, bank income can be more volatile in that commission income is partly dependent on stock-market developments. There does not appear to be an exact relationship between net interest income and net commission income but to some extent they have served as counterweights. In the latter part of the 1990s the growth of net interest income was weak, even negative at times, partly due to narrowing margins on lending. A strong stock market and higher commission income were able to make up for this. When stock markets then fell in the early 2000s, net interest income helped to offset the loss of income from commissions. This trend was broken towards the end of 2003 and since then a marked increase in commission income has been accompanied by low growth of net interest income.

Net interest income

The growth of net interest income in the latest four-quarter period came mainly from a continuation of the strong increase in lending. This was accompanied by a further narrowing of lending margins, mirrored in a falling net interest margin, that is, lower net interest income relative to interest-bearing assets (see Figure B1).[35] In the Swedish market, however, mortgage lending margins tended to stabilise towards the end of the period.[36] Moreover, rising market interest rates led to increased deposit margins.

Figure B1. Net interest margin and spreads for the major banks on deposits, bank loans and mortgage loans in Sweden
Per cent, moving 4-quarter average



Note. The spreads are the difference between the average bank rate and the six-month treasury bill rate, and between the average mortgage rate and the three-month treasury bill rate.

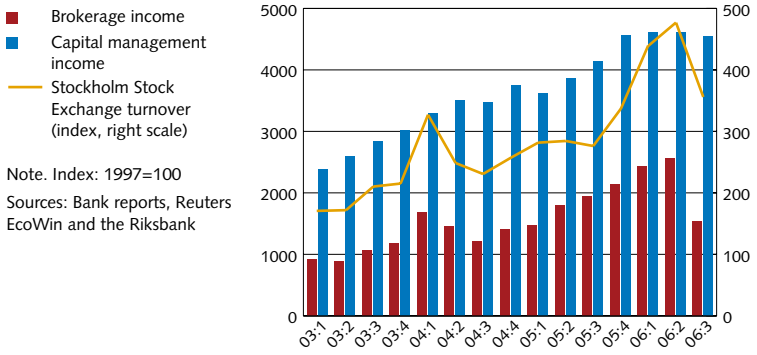
Sources: Bank reports and the Riksbank

Strong competition in house mortgage lending, combined with the new capital adequacy rules as of 2007 (see the section on capital), may have contributed to the pressure on margins and thereby to net interest income's relatively modest growth in recent years. Moreover, in the Swedish market the pressure on margins has also applied to lending to the corporate sector. Narrower margins here accompanied by increasingly strong lending growth can indicate that the banks are taking greater risks.

The possibility of a marked improvement in lending margins is limited, not least in view of the strong competition. Furthermore, the margins on parts of the stock of house mortgage loans are higher than on new lending. When the former loans are renegotiated, their margins may be smaller than before, which implies continued pressure on margins even if those on new loans stabilise. However, given a continued increase in market interest rates, the margins on deposits will probably widen.

35 Interest-bearing assets are defined as the sum of interbank claims, loans to the general public and interest-bearing securities.
36 Lending and deposit margins are represented by interest rate spreads, calculated, for example, as the difference between the average of bank deposit and lending rates and the six-month treasury bill rate or between the average mortgage rate and the three-month treasury bill rate.

Figure B2. The major banks' securities-related commission income and Stockholm Stock Exchange turnover
SEK million and index



Note. Index: 1997=100

Sources: Bank reports, Reuters EcoWin and the Riksbank

The growth of net interest income should therefore primarily depend on a continued expansion of lending to both the corporate and the household sector. The growth of lending to both these sectors is, in fact, expected to continue, albeit at a slower rate (see Chapter 2).

Net commission income

The temporary stock-market fall during part of the latest four-quarter period was only partially visible in the major banks' securities-related commission income (see Figure B2). One reason for this is that turnover on the Stock Exchange remained high in the early phase of the fall, which led to high bank income from securities trading. Towards the end of the period, however, income from securities trading decreased in connection with lower stock-market turnover.

Approximately half of net commission income comes from securities-related sources. Rising stock markets and high turnover can therefore result in these sources generating a large proportion of improvements in bank profitability, just as falling stock markets and decreased turnover can have the opposite effect.

The stock market dip during the latest four-quarter period raises the question of how the banks' net commission income might be affected if the Stockholm Stock Exchange were to drop abruptly. In a hypothetical example in which the OMXS index fell 30 per cent in the latest four-quarter period, the major banks' securities-related commission income could have decreased by between 25 and 40 per cent.[37] But as other commission income is assumed to stabilise the more volatile securities-related commissions, the effect on total net commission income would be less negative. The overall reduction of profit would have been in the interval 8 – 18 per cent.[38]

37 The example is confined to the major banks' securities-related net commission income. The OMXS index is assumed to fall in the course of a quarter and then remain at the lower level, though a natural drift in securities-related commissions is included.
38 The example assumes that other components of profits develop as in the latest four-quarter period.

Assets and capital – credit and market risk

The assets of the major banks rose almost 9 per cent in annual terms. The increase came mainly from interest-bearing securities as well as lending between banks and to the general public. This was accompanied by a fall in the value of other assets, an item that includes derivatives and equity. As mentioned earlier, the ratio of risk-weighted assets to total assets tended to rise in the latest four-quarter period (see Figure 3:2). This was mainly due to an increase in assets weighted for credit risk, though assets weighted for market risk also rose.

The increase in assets weighted for credit risk can be explained by the strong growth of lending to both the corporate and the household sector.

The increase in assets weighted for market risk could mean that the banks have larger market risks. Some banks also report a higher value at risk (VaR), though to some extent this can be explained by the higher stock-market volatility (see Chapter 1). However, the picture of market risks is not clear-cut; other indicators of market-related risks point to relatively little change.

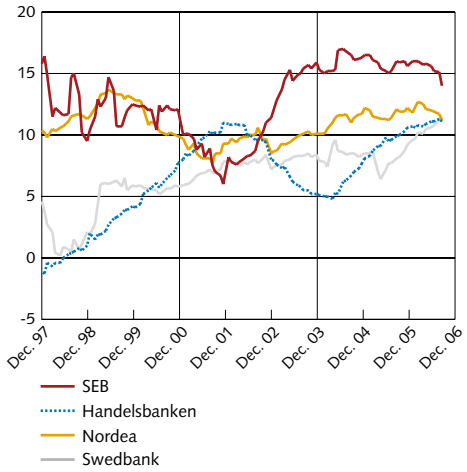
LENDING

Total lending by the major banks rose about 11 per cent in annual terms, which is a somewhat lower rate than earlier in the year.

Corporate lending in Sweden rose less than 5 per cent in annual terms in the latest four-quarter period.[39] The figure differed relatively markedly between the banks, from 2 to 6 per cent. The growth of corporate lending has picked up since 2005, after little change for a couple of years. Lending to the household sector in Sweden continued to grow rapidly, with a rate of almost 12 per cent in the latest four-quarter period. Here there was little difference between three of the major banks, while the rate for SEB was higher (see Figure 3:7). However, SEB's higher rate can be partly explained by this bank being somewhat smaller than, above all, Handelsbanken and Swedbank. As earlier Reports have shown, the growth of lending comes mainly from the banks' mortgage institutions.

Besides their operations in Sweden, the major banks have a large though varying presence abroad, for example in the other Nordic countries and the Baltic states. Economic development in the Baltic states is extremely strong at present. The growth of lending to the household sector was in the interval 60 – 83 per cent and the rate for corporate lending was around 50 per cent (see Chapter 2).[40] In the other Nordic countries the growth of lending to households was also relatively high, 13 to 14 per cent. The growth of lending to the corporate sector varied, from about 5 per cent in Finland to about 16

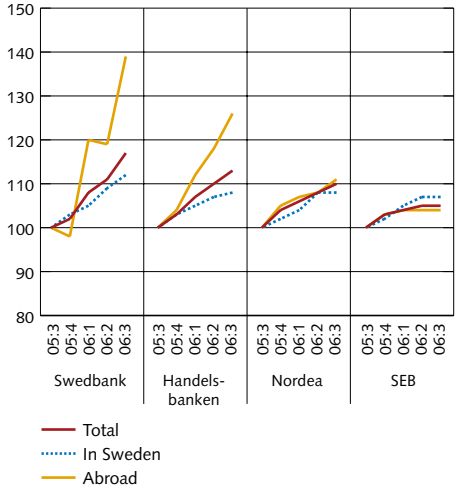
Figure 3:7. Lending by credit institutions to households in Sweden
Percentage 12-month change



Source: The Riksbank

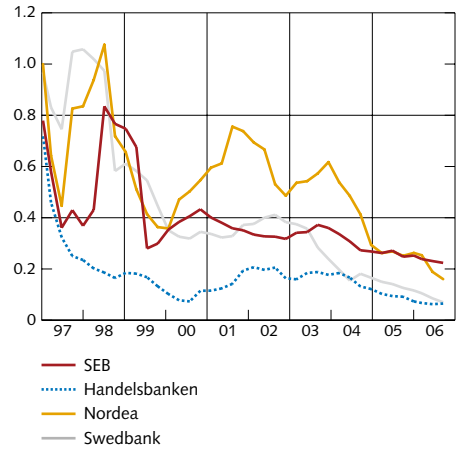
39 Quarterly average of the annual growth rate.
40 Lending to the other Nordic countries, the Baltic states and Germany refers to annual growth up to mid 2006.

Figure 3:8. Lending to the general public in Sweden and abroad
Indexed stock: 2005 Q3 = 100



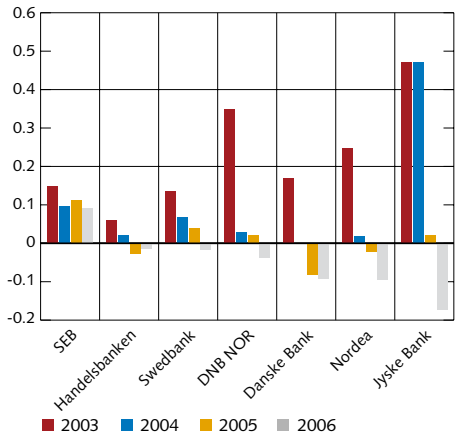
Sources: Bank reports and the Riksbank

Figure 3:9. Provisions for incurred and probable loan losses
Per cent of loan stock, accumulated over four quarters



Sources: Bank reports and the Riksbank

Figure 3:10. Loan losses, net
Per cent of loan stock



Note. DNB NOR 2003 is pro forma; 2006 refers to the latest four-quarter period.

Sources: Bank reports and the Riksbank

and 21 per cent, respectively in Denmark and Norway. Lending in the German market increased slightly.

For Swedbank and Handelsbanken the growth of lending in the latest four-quarter period was higher in operations abroad than in Sweden (see Figure 3:8). In Swedbank's case this is explained by the rapid expansion of lending in the Baltic states. Nordea and SEB have relatively large proportions of their operations abroad and their reported growth of lending there was much the same as in Sweden.

CREDIT QUALITY

The proportion of impaired loans in the major banks' loan stock has decreased successively and was 0.6 per cent at the end of the latest four-quarter period. This ratio and that of loan losses to the total loan stock are indicators of the quality of a bank's lending.[41] Both ratios concern existing deteriorations in credit quality and therefore say nothing about the probability of future losses.

For three of the four major banks there have been one or more quarters in which recoveries and reversals have exceeded provisions for new and probable loan losses. As a result, the aggregated level of the major banks' loan losses in the latest four-quarter period was positive. Decreased provisions for new and probable loan losses added to the positive contribution to bank profits (see Figure 3:9).

However, besides reflecting actual reductions, the smaller proportion of impaired loans and provisions for existing and probable loan losses is a consequence of a larger loan stock.

Loan losses in the other Nordic banks also continued to fall and the contribution from loan losses in the latest four-quarter period was positive in every bank (see Figure 3:10). The generally low levels have to do with the economic climate, where low interest rates in particular are contributing to a financial situation that is more favourable for the banks' borrowers. As a result, the banks are winding up group reserves, reversing earlier provisions and increasing recoveries.

The economic outlook makes it unlikely that loan losses will rise markedly in the near future.[42] But the Riksbank again draws attention to the risks associated with the rapid growth of lending in the Baltic states. These risks are accentuated by a large proportion of the loans being denominated in euro, so that some borrowers are exposed to exchange risk. SEB and Swedbank are the major banks with the largest exposures in this region and their operations there are contributing a growing share of the total operating profit, about 14 and 16 per cent, respectively, in the latest four-quarter period.[43] A slackening of growth or a sudden weakening of the currency in these countries, leading to payment difficulties for borrowers, could therefore have appreciable consequences. However, loan losses in the

41 Impaired loans are the claims on which potential losses have been identified, thereby leading to loss provisions. Here, impaired loans are calculated gross, that is, before accumulated provisions; loan losses are calculated as the net of provisions for actual and probable loan losses after recoveries and reversals.

42 The economic scenario in this Report is based on the Riksbank's assessment in Inflation Report 2006:3.

43 The figure for Swedbank includes Russia and operations are measured by the operating profit after investment. The figure for SEB includes Russia and Poland.

Baltic states can be 7 to 12 times higher than at present before the banks' operations there cease to show a profit (see the section below on stress tests).[44]

The high growth of lending to the real-estate sector can also be a source of some uncertainty if the required yield continues to fall and lending goes on rising (see Chapter 2).

As mentioned earlier in this Report, there has been growing competition to finance leveraged buyouts via private equity companies. Developments suggest that these companies now have a stronger position in the negotiation of loan agreements and this could lead to the banks accepting agreements that are more favourable for private equity companies. Interviews with the four major banks show that their credits for leveraged buyouts in which private equity companies are involved total over SEK 80 billions. That is about 3 per cent of these banks total stock of corporate loans. However, the banks almost exclusively retain the credits that have the highest priority in the event of bankruptcy. Credits with a lower priority are disposed of immediately as a rule in the secondary market, which reduces the risks associated with lending.

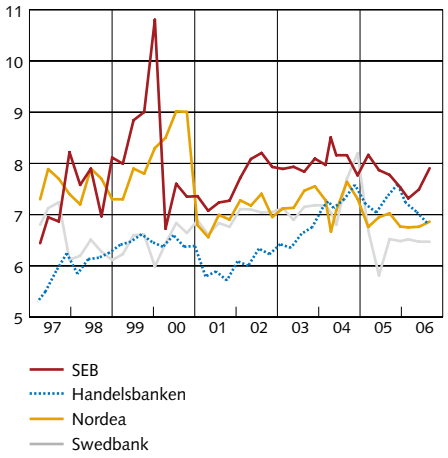
There are also signs of increased risks in the house mortgage market in Sweden. Narrower interest margins appear to have induced mortgage institutions to accept a higher credit risk, at the same time as mortgaging levels and repayment times have risen.[45] One explanation may be that the effects of the new capital adequacy rules have been discounted (see the section below on capital). Lending has been most aggressive for tenant-owned housing and developments here can represent an increased risk. At the same time, however, the Riksbank judges that the household sector's debt-servicing ability is generally sound (see Chapter 2).

The growth of lending and the quality of credit do not appear to pose any problems at present. But it can be in favourable situations that the seeds of future loan losses are sown. There are therefore reasons for paying close attention to the future development of credit quality.

CAPITAL

The Tier 1 capital ratios of the major banks at the end of the latest four-quarter period averaged 7 per cent, which was somewhat lower than at the end of the preceding period (see Figure 3:11). Capital adequacy was practically unchanged at 9.9 per cent. For most of the banks the high profitability in the latest period did not raise the Tier 1 capital ratio. Some of the banks have previously adjusted their capital structure by increasing dividends and buying back equity but there was less of that in the latest period. The main explanation for the relatively unchanged capital ratio can be that the banks have expanded operations and also need capital for the current growth of lending.

Figure 3:11. Tier 1 capital ratios of the four major Swedish banks
Per cent

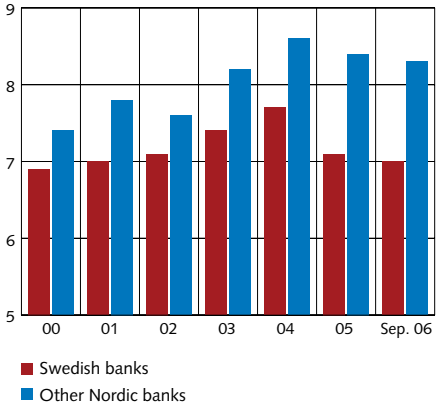


Sources: Bank reports and the Riksbank

44 The level is calculated net of loan losses; the fact that a higher level of loan losses entails less interest income is disregarded.

45 "Utvecklingen på bolånemarknaden" (Developments in the housing market), 2006:9, Finansinspektionen.

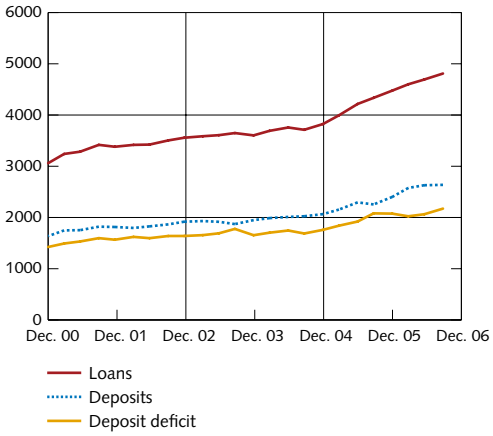
Figure 3:12. Average Tier 1 capital ratios of the major Swedish and other Nordic banks
Per cent



Note. September 06 includes either total or 50 per cent of accrued profit.

Sources: Bank reports and the Riksbank

Figure 3:13. The major Swedish banks' deposits, loans and deposit deficit
SEK billion



Note. Deposit deficit = loans less deposits.

Sources: Bank reports and the Riksbank

New capital adequacy rules (Basel II) come into force as of 2007. Their purpose is to improve transparency and risk management in banking. Preparatory studies show that for the major Swedish banks the new rules will lead to lower legal capital requirements. This is mainly because a large part of these banks' credit portfolios consists of low-risk loans to households.[46] However, opinions differ among market participants as to whether capital can be reduced without this leading to an adjusted credit rating. A lower credit rating would lead to increased funding costs. So it is not self-evident that the banks will reduce their capital as much as the legal requirements permit.

The other Nordic banks have Tier 1 capital ratios that average just above 8 per cent (see Figure 3:12). DNB NOR and Danske Bank are on a par with the major Swedish banks, while Jyske Bank's ratio of 10.6 per cent deviates from the general pattern. However, Jyske Bank's Tier 1 ratio is above the bank's target and a downward adjustment seems likely. All the other Nordic banks lowered their targets for the Tier 1 ratio in the first half of 2006. This may represent an adjustment to what the new capital adequacy rules will allow but the rapid expansion of lending also contributed to the fall.

Funding – liquidity risk

FUNDING

A major function of a banking system is the conversion of liquid liabilities, in the form of deposits and borrowed funds, into illiquid assets in the form of credit. The nature of banking, with short-term deposits and long-term loans, renders banks vulnerable to problems with funding. The structure of funding is therefore a central issue for stability.

Bank lending is funded in the first place with deposits. If deposits do not suffice to cover lending, banks resort to market borrowing. Deposits are traditionally regarded as a stable source of funds. Participants in the interbank and securities markets are more sensitive to ratings and credibility, making it reasonable to assume that these sources of funds would be the first to disappear if a bank's debt-servicing ability were to be questioned.

The major Swedish banks have had a deposit deficit since the early 1980s (see Figure 3:13). At end September 2006 these shortfalls totalled over SEK 2100 billion. The proportion of a bank's lending that is not covered by deposits and accordingly has to be funded in the market is known as a funding gap. This gap has been relatively constant for a considerable time. During the past year, however, the funding gap has become somewhat smaller.

All the major banks are dependent, to different degrees, on market funding to cover their deposit deficits. Handelsbanken and

46 For the first three years, however, capital reductions are restricted by a series of steps that specifies the levels below which capital adequacy is not permitted to fall even if a bank's internal models allow this.

Swedbank fund a larger part in the market compared with SEB and Nordea. The differences are explained by differences in the composition of the banks' operations. Swedbank and Handelsbanken have large proportions of their operations in house mortgage lending, which entails a large securities funding requirement.

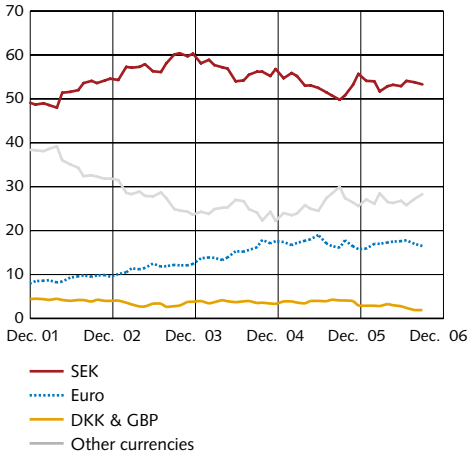
Of the major banks' market funding, just over 30 per cent consists of interbank borrowing and almost 70 per cent of borrowing against securities. The interbank market is used in the first place for short-term liquidity management and the major banks do not fund their deposit shortfalls there. Funding is arranged instead by issuing securities. As there is a range of maturities in the stock of bank loans, securities are issued with different maturities to achieve a match between assets and liabilities. Derivatives are used for a further adjustment of the match.

The major banks issue about 75 per cent of the total stock of securities from Swedish credit institutions.[47] Of the securities issued by the major banks, 40 per cent have short maturities up to one year, 15 per cent have maturities between one and two years and 45 per cent have maturities of more than two years. Since January 2002 the shortest segment, maturities up to one year, has become smaller and the longest, over two years, has been relatively constant. Maturities between one and two years made up a small proportion, about 5 per cent, up to the end of 2004, when it began to grow. In the past year the breakdown by maturities has been relatively unchanged.

Approximately half of the major banks' funding is currently arranged in Swedish kronor, which is the currency the banks use almost exclusively for long maturity issues (see Figure 3:14). The next largest currency is USD (included in other currencies), which is used above all for shorter maturities. From 2002 onwards, however, USD borrowing has decreased as a share of total securities funding, though a part of the change may have to do with the US dollar's depreciation against the Swedish krona in this period. The euro's share has grown instead and exchange rate movements are not an explanation for this. The euro is used to a large extent for security issues with short and medium maturities. As the banks use currency swaps or other derivatives, their exchange risk, if any, is very small. A greater geographical diversification makes the banks less dependent on particular money markets, investors and currencies.

The first covered bonds to be issued in Sweden were launched in June 2006 by AB Sveriges Säkerställda Obligationer (a fully-owned subsidiary of SBAB) and Nordea Hypotek. Since then, Handelsbanken's mortgage company Stadshypotek has converted its outstanding bonds into covered bonds. A covered bond is one that is issued against earmarked assets and gives the investor a preferential right if the borrower defaults.[48] The main purpose of the conversion is to obtain a rating for the covered bonds that is higher than the

Figure 3:14. Currency breakdown of securities-related borrowing by the major bank groups' Swedish banks and mortgage institutions
Per cent



Source: The Riksbank

47 In this and the next paragraph the term major banks refers only to the Swedish banks and their mortgage institutions.
48 The law on the issuance of covered bonds came into force on 1 July 2004.

mortgage institution's, thereby lowering funding costs. SEB Bolån has also obtained a licence from Finansinspektionen to convert its bonds into the covered type and Swedbank plans to apply for a licence.

Counterparty exposures – risk of contagion

The central role of the major banks in the Swedish payment system and the Swedish markets for securities, currency and derivatives entails considerable exposures to counterparties and settlements. The banks therefore have sizeable claims on one another, as well as on other market participants (counterparty exposures). As the exposures are primarily to other financial institutions and non-financial companies with a sound credit rating, the probability of default is low as a rule.

But if a major bank were to lose a large exposure, it could have problems with solvency. The gravity of the solvency problem in the event of a counterparty failure depends not only on the exposure's size but also on how much of the original claim the bank manages to recover. For stability, counterparty and settlement exposures are of particular concern when the counterparty is a bank or other financial institution because there is then a risk of problems for one bank spreading to other banks.

The combined counterparty and foreign exchange exposures of the four major banks in the first half of 2006 were about 12 per cent higher than a year earlier.

In order to monitor the risks of contagion, both within and from outside the Swedish banking system, since 1999 the Riksbank compiles data on the major banks' counterparty and settlement exposures. These risks have decreased since 2004 and today they can be said to be very moderate. Prior to 2002 the largest category of exposures was foreign exchange settlement. These exposures have decreased after that, while those in unsecured loans[49] in particular but also in securities have grown. The contraction of foreign exchange settlement exposures after 2003 was mainly a result of the Swedish krona's participation in Continuous Linked Settlement (CLS).[50]

To gauge the risk of contagion between the major banks, tests are made on the interbank exposures the banks report at quarter ends. The tests assume that one bank suspends payments and that the other three banks lose 75 per cent of their exposures to the defaulting bank. The assumption that 25 per cent can be recovered is based on a part of the exposure being backed by collateral.[51] A bank becomes insolvent if its Tier 1 capital ratio falls below the statutory requirement of four per cent.

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49 For instance overnight loans, other loans or off-balance-sheet commitments.

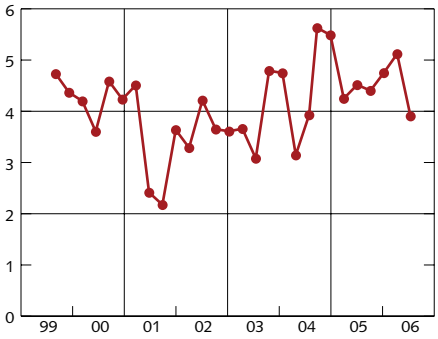
50 CLS Bank provides a system for foreign exchange settlement that markedly reduces the risks that are normally associated with currency trading. For further details see Financial Stability Report 2004:2, Sveriges Riksbank.

51 This effect represents a situation where a major bank or a large company suspends payments with immediate effect and no prior warning and the possibility of recovery is judged to be comparatively slight. The resultant calculated levels of Tier 1 capital should therefore be seen as outcomes of an extreme stress test.

The plots in Figure 3:15 represent the major bank with the lowest Tier 1 capital ratio in each period after the test of interbank exposures. The calculated Tier 1 capital ratio was below the statutory requirement in 5 per cent of all the tests since 1999. Since September 2004 only one interbank exposure was so large that it would have led to insolvency. From this the Riksbank concludes that the risk of contagion between the major Swedish banks is moderate.

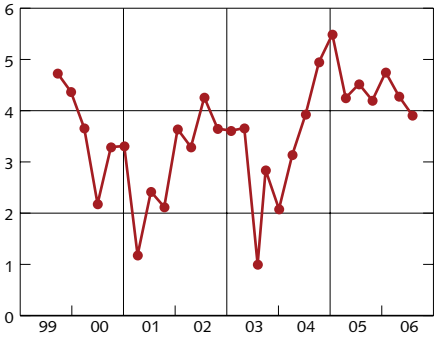
The banks' largest counterparty exposures are not necessarily to other Swedish banks. There is also a risk of Swedish banks encountering problems if a large company or a foreign bank were to suspend payments. Given the same assumptions as in the test above, if the largest counterparty were to default, the banks would incur insolvency in 20 per cent of the cases.[52] In half of these cases the counterparty is another Swedish bank. Between mid 2004 and mid 2006 there would have been only one case of insolvency, which again suggests that the risk of contagion is moderate. The plots in Figure 3:16 represent the major bank with the lowest Tier 1 capital ratio after the largest counterparty has defaulted.

Figure 3:15. The lowest Tier 1 capital ratio among the other three major Swedish banks after the fourth has suspended payments
Per cent



Source: The Riksbank

Figure 3:16. The lowest Tier 1 capital ratio among the four major Swedish banks after the default of each bank's largest counterparty
Per cent



Source: The Riksbank

Stress test of bank resilience

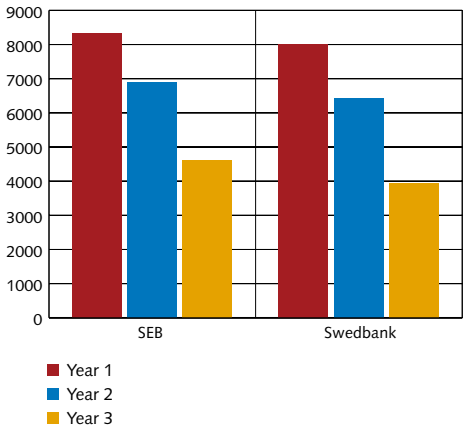
For financial stability it is crucial that systemically important banks are in a position to withstand unexpected shocks. Credit risk is the largest risk category in the Swedish banks and the Riksbank has therefore developed a method for measuring it. The method uses an existing and readily available portfolio model together with information from the banks' financial statements (see the box on p. 50).[53]

The model provides a measure of the capital required for credit risk in a particular loan portfolio. The calculated capital requirement mirrors the credit risk and can be related to the bank's existing Tier 1 capital.[54] This results in what the Riksbank calls cover for credit risk.[55] A credit risk cover of 100 per cent means that Tier 1 capital exactly covers credit risk but not other types of risk in a bank's operations. A credit risk cover above 100 per cent means that the bank has a buffer that can be used to cover other types of risk as well as increased credit risk. The larger this buffer, the greater the bank's resilience to unforeseen events. At present the credit risk cover of the Swedish banks ranges from 187 to 264 per cent.

The effects of two alternative scenarios on the banks' credit risk cover are studied below. The scenarios start from the composition of the banks' loan portfolios at end 2005.

52 Calculated for the period 1999–2006:2.
53 For a fuller account see the article on pp. 75–88 in Financial Stability Report 2006:1, Sveriges Riksbank.
54 Note that a bank's Tier 1 capital is dimensioned not only for credit risk in the bank's portfolio but also to cover market and operational risks. The amount of capital is also a matter for the bank's shareholders to decide.
55 Credit risk cover = Tier 1 capital/capital requirement for credit risk.

Figure 3:17. Bank profits with the scenario for the Baltic states
Expected profit less the change in expected losses, SEK million



Sources: Bank reports and the Riksbank

- Scenario 1 concerns a general deterioration of the creditworthiness of borrowers in the Baltic states.
- Scenario 2 concerns an economic slowdown that leads to a general deterioration of the creditworthiness of all present borrowers.

Tests of the scenarios show that each of the four major banks would still have a buffer, which suggests that their resilience is sound but would be less able to cope with further negative events.

IMPAIRED CREDIT QUALITY IN THE BALTIC STATES

The effect of a loss of creditworthiness among borrowers in the Baltic states is studied with a scenario that runs for three years. The assumption is a successive increase in default probabilities for loans in the Baltic states. A higher probability of default gives a loss of creditworthiness and that in turn implies higher expected losses and an increased capital requirement for credit risk. The Swedish banks' corporate loans in this region are mainly credits to companies in trade, property management and manufacturing.[56] The average probability of default for these activities in Sweden is just over 1 per cent.[57] However, the analysis of the banks' borrowers (Chapter 2) shows that there are grounds for assuming that the risks in lending to customers in the Baltic states are greater than for the corresponding borrower categories in Sweden. The scenario assumes that for lending in the Baltic states, the probability of default rises in year one to 5 per cent, in year two to 10 per cent and in year three finally to 20 per cent. Year three represents a very extreme situation. The creditworthiness of other borrowers in the banks' loan portfolios is assumed to be unchanged. It is also assumed that bank earnings from the Baltic states are reduced by half in year one, by another 25 per cent in year two and to zero in the final year three. Earnings from other operations are assumed to be unchanged.

The scenario is applied to Swedbank and SEB, the two Swedish banks with substantial lending operations in the Baltic states.

Profits are positive for the banks in all three years because earnings exceed the new provisions for loan losses (see Figure 3:17).[58] Each year a positive profit is added to Tier 1 capital, which accordingly grows.

56 According to the quarterly accounts of the Baltic subsidiary banks.
57 Default probabilities in the Swedish loan portfolio average about 2 per cent. A probability of 5 per cent, for example, implies a 5 per cent probability of the exposure failing in the coming twelve months.
58 Increased provisions for loan losses are derived from the year-on-year change in probable losses.

Besides leading to increased provisions, the scenario entails a growing risk in the loan portfolios and the banks therefore need more capital. Figure 3:18 presents each bank's existing Tier 1 capital in relation to the calculated capital requirement for credit risk in each of the three years. The banks' credit risk cover is above 100 per cent in every year. In year three, however, both banks' credit risk cover falls more than 20 per cent, which indicates a loss of resilience and less possibility of coping with further negative events.

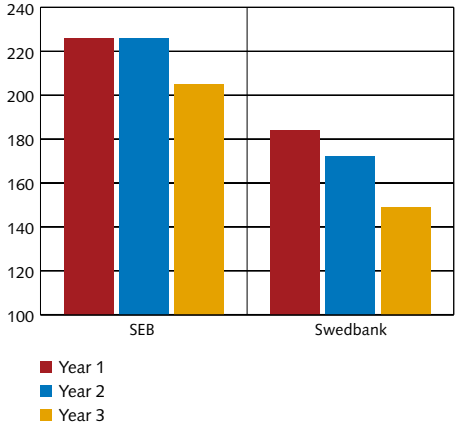
IMPAIRED CREDIT QUALITY IN CONNECTION WITH A TURN IN THE CREDIT CYCLE

The effect on the major banks of a turn in the credit cycle and hence a loss of creditworthiness is illustrated in the second scenario. The historical relationship between GDP growth and the probability of default can be used to present a picture of the levels of the default probabilities for the banks' borrowers in different phases of the business cycle.[59] In the period from June 2000 to September 2001, GDP growth dropped from over 5 per cent to less than half of one per cent. The declining GDP growth had a marked impact on the average corporate default probability, which more than doubled in this period. In March 2003 the average probability of corporate default was four times higher than in 1999. In this scenario, default probabilities for all borrower categories are assumed to double in year one, followed by a further loss of creditworthiness as the probabilities are three times higher in year two and four times higher in year three. The scenario is also assumed to involve a negative impact on earnings, which fall 25 per cent in each of the three years.

Tier 1 capital grows in the first two years for all the banks because even though earnings fall sharply, they still exceed provisions (see Figure 3:19). In year three, however, SEB's provisions exceed earnings, so that the bank shows a loss, which reduces Tier 1 capital.

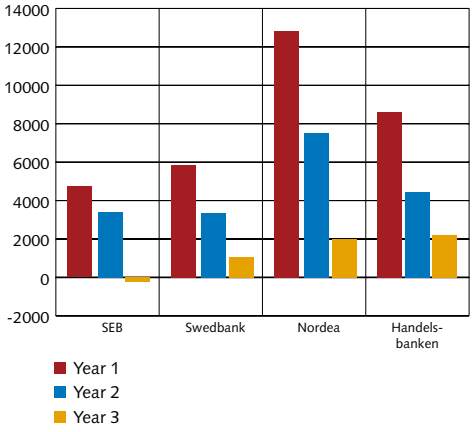
The credit risk cover shows that all four major banks could cope with a quadrupling of default probabilities (see Figure 3:20). But the capital buffer is reduced in every case and so, therefore, is the banks' resilience to further negative events. The higher default probabilities affect SEB and Nordea somewhat more than the other two banks because their portfolios contain a larger share of corporate loans. Corporate lending is associated in general with a higher probability of default than lending to households, for example.

Figure 3:18. Cover for credit risk with the scenario for the Baltic states
Per cent



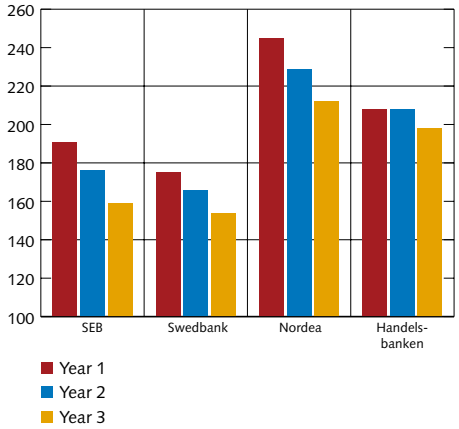
Sources: Bank reports and the Riksbank

Figure 3:19. Bank profits in the scenario with a turn in the credit cycle
Expected profit less the change in expected losses, SEK million



Sources: Bank reports and the Riksbank

Figure 3:20. Cover for credit risk in the scenario with a turn in the credit cycle
Per cent



Sources: Bank reports and the Riksbank

59 Sweden's GDP growth compared with the average default probability in the Swedish banks' loan portfolios.

The credit risk model

In the May 2006 Report the Riksbank presented an analytical instrument for measuring the resilience of the four major Swedish banks.[60] With public information on the compositions of the banks' loan portfolios and a readily available portfolio model, it is possible to calculate the capital that is required to cover the credit risk in a bank's loan portfolio. Relating a bank's calculated capital requirement for credit risk to its Tier 1 capital gives a picture of the bank's resilience to unforeseen events.

The method is based entirely on information that is readily available and therefore rough; neither does it allow for a bank's particular ability to assess risks and recover claims. But notwithstanding certain shortcomings and simplifications, this method makes it possible to perform various kinds of stress tests and scenario analyses.

In order to calculate loan losses with a portfolio model, information is needed about

- the portfolio's composition
- the probability of default
- recoveries

To arrive at an approximate picture of loan portfolios, the Riksbank starts from the four major banks' annual financial statements. Default probabilities are derived from year-end and equity data.[61] If data are not available, industry practice is used instead. The assumptions about the degree of recovery for company exposures are based on US data because the Swedish statistics in this field are less comprehensive.[62]

Using this information, the credit risk model delivers a distribution of losses for the loan portfolio. The distribution shows the probability of portfolio losses of different sizes, from zero to loss of the entire portfolio. The loan losses a bank can incur are quantified in two ways. One measures the expected loss, that is, the loss a bank, given its portfolio, can expect in the coming twelve months. The cost of the expected loss is covered by the bank, in the form of interest, when it prices the loan. The other approach measures the buffer that is needed to cover any losses on top of the expected losses, what the Riksbank calls the capital requirement for credit risk. This requirement also affects the price of borrowing because holding capital involves a cost in the form of the shareholders' required yield. At the same time, high cover for credit risk is a prerequisite for a high rating. In this model, capital for credit risk is calculated so that it covers 99.9 per cent of all possible losses in the distribution of losses.

60 The method is presented in more detail in an article on pp. 75–88 in Financial Stability Report 2006:1, Sveriges Riksbank.
61 The probabilities are represented by expected default frequencies (EDF) and are calculated in Moody's KMV CreditMonitor.
62 The assumptions about corporate loan recoveries are based mainly on US data on industry-specific recoveries from the bond market.

Summary assessment of developments in the banks

- The Riksbank considers that the major banks' capacity to manage unexpected losses continued to strengthen in the latest four-quarter period. Profitability rose and the banks' risks were relatively stable. The rate of improvement in profitability did, however, tend to slacken towards the end of the period.
- The improvement in profitability is mainly a result of higher net commission income. Securities-related income rose in particular, in connection with rising stock markets and high turnover. The banks' largest source of income, net interest income, increased about two per cent. Recoveries and reversals from earlier loan losses exceeded new provisions, so loan losses made a positive contribution to bank profits.
- A continued improvement in bank profitability at an unchanged rate probably requires a persistently strong stock market. The future growth of net interest income is no doubt mainly dependent on a continuation of high lending growth. Higher long-term interest rates in keeping with market expectations may lead to a fall in the value of the banks' bond portfolios.
- Lending is still rising strongly but at present neither the growth of lending nor credit quality appears to constitute a problem. Still, it can be in good times that the seeds of future loan losses are sown. Risks are growing in some specific categories of borrower. This is particularly the case in the Baltic states, where strong lending growth is accompanied by economic imbalances. Other risk areas are the real-estate sector and the growing frequency of leveraged buyouts via private equity companies.
- Tests of the banks' interbank exposures lead the Riksbank to conclude that the risks of contagion between the banks are moderate.
- The Riksbank has stress tested the major banks' resilience in two scenarios. One of them assumes a general impairment of creditworthiness for borrowers in the Baltic states and the other assumes that creditworthiness deteriorates for all borrowers in loan portfolios. The tests show that the major banks are left with a buffer, which indicates sound resilience. But the remaining buffer for coping with further negative events is smaller.

PART 2. ARTICLES

Can Swedish authorities handle distressed institutions?

The Swedish credit institution Custodia was recently declared bankrupt. The proceedings to do with this problem-burdened institution have been complex and protracted. Around 1300 customers have had to put up with having their savings locked up for a remarkably long time. The event is a clear illustration of defects in the rules which have been evident for a considerable time. It has also drawn attention to other, less well-known deficiencies. All this weakens confidence in the protection of depositors and other creditors. What is more serious is that it undermines confidence in government's ability to manage a large future bank crisis. The Riksbank therefore considers that there is a great need of new legislation in this field.

Introduction

Credit institutions have a number of central functions in society, among them the provision of saving services and the conversion of savings into loans. This in turn serves to finance investments of various kinds that benefit the community through economic growth and employment. These institutions also help customers handle various financial risks. The stability of individual credit institutions is therefore of importance in general for society and also for its customers and funders. At the same time, the operations are inherently unstable because the assets in the form of loans are considerably less liquid than the funding, which consists of deposits and more volatile securities-market borrowing. That is partly why the operations are supervised and specifically regulated to a greater extent than many other activities in society. Banks belong to a special category of credit institutions in that they have the right to provide payment services.[63] As all other economic activity is dependent on payment services, enabling customers' payments is a vital public interest. Banks' participation in payment systems means that they are liable to have very large mutual exposures that entail a risk of contagion, so that a problem in one bank can spread to other parts of the financial system. The potentially very large social and economic costs of such a systemic crisis are other reasons for overseeing the risks in the banking sector. It is also the primary reason why the Riksbank in special circumstances is entitled to provide emergency liquidity assistance for an institution that the Swedish Financial Supervisory Authority (Finansinspektionen) supervises. What matters, however, is not the rescue of an individual institution but upholding vital public functions. There is therefore a need to be able to close a credit institution in an orderly and efficient manner whereby the social and economic costs are minimised and the depositors and other creditors receive reasonable protection.

63 Swedish law distinguishes between two types of credit institution: banks and credit market companies. A credit market company is authorised to carry on business for purposes that include accepting repayable funds from the general public and providing credit, while a bank is authorised to carry on business that includes mediating payments via general payment systems and accepting funds that the creditor can withdraw at up to 30 days' notice.

Depositor protection exists today in the form of a statutory deposit guarantee that is activated when a credit institution is adjudged bankrupt. The guarantee covers deposits, including accrued interest, that at the time when the bankruptcy is declared are booked on an account that allows withdrawal either immediately or at up to one month's notice. The cover is limited to SEK 250,000 per customer and institution.[64] Corresponding investor protection exists for customers of institutions that perform securities operations.

Apart from the deposit guarantee, the closure of a bank is regulated only by the general rules for bankruptcy and liquidation. However, problems in a bank that threaten financial system stability require immediate action. One can hardly assume that a receiver will possess the insights into a bank's systemic role that are necessary for making the right decisions at short notice in a critical situation. Moreover, as a receiver is appointed to serve the best interests of creditors, it is debatable whether he or she can be expected, or is even entitled, to take the requisite measures to safeguard systemic stability. The general bankruptcy procedure also includes certain matters than can be directly unsuitable for application to a systemically important institution. For example, many banks are so important for the payment system that a sizeable bank's payments cannot be suspended without further ado because this would have unforeseeable consequences for the financial system.

The banking crisis in Sweden in the early 1990s was managed without a bank being declared bankrupt. The state intervened instead with specific measures that included a general guarantee to bank creditors. Moreover, a crisis management authority, Bankstödsnämnden, was set up and a number of coercive regulations were introduced so that the bank guarantee would not expose the state to extortion. These regulations included a law whereby Bankstödsnämnden in principle would be entitled to take over a bank's executive by means of state expropriation if the bank's capital ratio fell below two per cent. These temporary regulations, as well as the general bank guarantee, were terminated in 1996. Bankstödsnämnden was then transformed into Insättningsgarantinämnden, with the more limited function of managing the deposit guarantee and investor protection.

In the aftermath of the bank crisis the government set up the Banking Law Committee, to investigate the need of more up-to-date legislation. A clear finding by the committee was that the lack of specific rules for resolving a bank could weaken government's ability to manage a future financial crisis. The committee's final report, presented in 2000, included a proposal for a new arrangement, *public administration*, for dealing with banks in a crisis.[65] Although there

64 For customers of institutions that undertake securities operations there is investment protection with equivalent limits but it is activated only if the investor is unable to recover the securities or money in the event of bankruptcy.

65 See Offentlig administration av banker i kris: Slutbetänkande av Banklagskommittén (Public administration of banks in distress. Final report from the Banking Law Committee) (SOU 2000:66).

had been a long-felt need for new rules, the committee's proposals have not yet led to new legislation. So in principle it is just the general insolvency rules and the deposit guarantee system that regulate how a financial institution is to be resolved.

A recent, conspicuous case is a telling illustration of the deficiencies in the current rules for dealing even with problem institutions that are comparatively small and of negligible systemic importance. Besides adding to the existing doubts about the rules' ability to serve the public interest in financial stability, it provides specific examples of how other interests can suffer.

The Custodia case

Custodia, a credit market company, obtained a licence from Finansinspektionen in 1997 to undertake financing operations. Then, in 2004, the new Bank and Financing Operations Act automatically entitled Custodia to accept deposits from the general public. That autumn the company also introduced saving services with high deposit rates as an inducement.

After finding a series of serious shortcomings in Custodia's routines for internal operations and controls as well as in credit management, on 27 January 2006 Finansinspektionen decided to withdraw the company's licence to undertake financing operations with immediate effect. The company was given six months in which to wind up its operations. Custodia appealed to the county administrative court and also filed for a stay, which meant that the court temporarily suspended the withdrawal. Thus, Custodia ceased to be bound by Finansinspektionen's decision and could carry on as before. The company even took the opportunity of raising its deposit rate, which its website claimed was the highest in Sweden.

It was not until 27 April that the county administrative court announced its ruling, which dismissed Custodia's appeal, and also stated that the stay was terminated. This meant that Custodia was no longer permitted to accept deposits. By now, three months had passed since the decision to withdraw the licence. Custodia applied for a new hearing, this time in the administrative court of appeal; this was granted on 2 June but the application for a stay was dismissed. When the company was finally declared bankrupt on 28 August, this court had not yet announced its ruling.

While the case was going through the courts, the status of the deposits was highly uncertain. Custodia's operations were comparatively small, with about 1300 depositors and total deposits at end 2005 of about SEK 250 million. After Finansinspektionen withdrew the licence, depositors and other creditors requested

repayments totalling about SEK 120 million. The company was not able to cope with this demand and suspended withdrawals instead. With their savings locked up, depositors soon turned to the publicly administered deposit guarantee. However, the rules prevent Insättningsgarantinämnden from taking action before a company has been declared bankrupt and this took seven months from the time of Finansinspektionen's original decision to withdraw the licence. Another two months passed before Insättningsgarantinämnden started the first disbursements of guaranteed compensation on 30 October.

WHY DID THE CUSTODIA BANKRUPTCY DECISION TAKE SO LONG?

The court's stay of Finansinspektionen's decision to withdraw Custodia's licence clearly contributed to the interval before bankruptcy was announced. A relevant question, however, is why the creditors delayed before filing a bankruptcy petition. A couple of creditors did admittedly do this at an early stage. Moreover, at different times a number of depositors applied to the enforcement service in Malmö for an injunction to pay. Those who took these steps received their money from the company with little delay, which temporarily avoided the threat of bankruptcy; thus, no bankruptcy proceedings were initiated. But many depositors were passive even though in many cases it was not clear that their deposits were covered by the guarantee. There are a number of possible reasons for this apparently stoic behaviour.

One important factor was perhaps an awareness that savers in Sweden rarely lose deposits; the massive banking crisis in the early 1990s left depositors virtually unscathed. Many savers probably did not realise that the deposit guarantee is more restrictive than the temporary but general bank guarantee it replaced. Undue trust in the consumer protection which is built into deposits is therefore probably one explanation.

To begin with it was, of course, only the best-informed savers who realised they could turn to the enforcement service and thereby join the head of the queue. It was not until this possibility became clear to a larger number of savers that pressure on the company became so great that its owners had to throw in the towel.

It is also understandable that the owners (who in this case were also the executives) tried to postpone the bankruptcy decision for as long as possible because bankruptcy would very probably render their equity worthless. In the meantime they continued to control the company's resources. Moreover, in a situation where equity is worth close to nothing, shareholders unfortunately have a strong incentive to take unduly large risks with assets or misuse resources in other ways. For them, a desperate bid to save the company has no downside but there is a large risk of it being fatal for creditors. The

auditor Finansinspektionen appointed was in principle the only means for controlling this kind of unsound incentive, which is known in the economic literature as moral hazard.

The deposit guarantee as such probably also tended to give many depositors less of an incentive to petition for bankruptcy. Custodia's strategy for attracting customers included a deposit rate above the market's average rate; the company's rates were 4.25 per cent on sight deposits and up to 8 per cent on time deposits, which must be regarded as high in relation to the currently low inflation. Some depositors may have been tempted to leave deposits in a relatively high-yield Custodia account for as long as possible because a large part of the holding would still be covered by the deposit guarantee. In the case of deposits with relatively long notice, the chance of this period expiring increased with the delay before bankruptcy was a fact. In other words, some depositors may have refrained from filing for bankruptcy in order to increase the chance of a larger share of their holding being covered by the guarantee. In this way, the deposit guarantee as such and its construction probably tended to accentuate the moral hazard dilemma.

Lessons from the Custodia case

THE NEED OF PROMPT AND CREDIBLE INTERVENTION IN DISTRESSED INSTITUTIONS

It has been clear for a long time that prompt and resolute intervention by authorities can be highly important for handling problems in an institution that is systemically important. In that banks have become increasingly involved in a complex and extensive system for handling large payments, there are times when their mutual counterparty exposures are considerable. A loss of confidence in one bank can very quickly lead to substantial problems in the interbank market. In such a situation, it can be extremely difficult to appraise the consequences for the financial system as a whole. In the worst case it can be a matter of hours before a country's payment system is paralyzed if nothing is done to prevent this. A possibility of intervening promptly is therefore crucial for ensuring that the functions of the payment system can be maintained. This applies in the first place to a sizeable, systemically important institution, which Custodia was not.

However, the Custodia case illustrates the desirability of prompt intervention even for a smaller institution. There is, namely, the particular problem that the safety-net provided by the deposit guarantee contributes by itself to accentuate the dilemma of moral hazard. There may therefore be a need to prevent the sequestration or misuse of assets, or to rule out the possibility of the owners/executives being tempted to take undue risks at the expense of creditors, uninsured depositors and the deposit guarantee system. The requisite measures are thus of a different nature from those that

are needed to maintain the payment system's functions. They may, for example, include possibilities of blocking the implementation of a company's decisions or of freezing payments in general or partially. In the case of systemically important institutions, however, measures involving a suspension of payments need to be combined with the possibility of granting exemption.

In the Custodia case the authorities were precluded from resorting to effective intervention. This was partly because the county administrative court suspended the implementation of Finansinspektionen's decision. The court's reason for allowing a stay was clearly to protect the interests of Custodia and its owners in the event that the final hearing led to the finding that Finansinspectionen's decision was faulty. At the same time, the possibility of legal stay gives rise to great uncertainty. Expectations that Finansinspektionen's intervention may not have an effect can lead to the notion that deficiencies in the Swedish rules can be exploited. There are no doubts about the deposit guarantee system being capable of coping with some relatively small distressed institutions. But if there were to be many similar cases, the institutions that contribute premia to the deposit guarantee system may tend to feel unfairly treated, particularly if moral hazard leads to an erosion of the system's funded resources and thereby to higher premia.[66]

The public interest in prompt and effective intervention by authorities when an institution has serious problems must, of course, be weighed against the legal security of the owners of financial companies. The law courts have a central role here. It goes without saying that law courts must be able to consider whether an authority abides by the formal framework for financial rules. It must also be possible to hold an authority accountable for its decisions if a court subsequently finds that the authority reached a conclusion that is materially wrong or taken a measure that caused the institution improper harm. It must be possible, in other words, to compensate the company's owners for any damages arising out of improper intervention. But in order to avoid urgent intervention being blocked or delayed in the future through legal procedures, the authorities' powers to implement measures against distressed institutions need to be improved. A natural solution would be to place the institution under public administration for the duration of the court proceedings. Another possibility that could be considered is a curtailment of the courts' powers to stay a supervisory authority's decision, possibly together with a review of the rules for sovereign responsibility for damages. However, the Custodia case shows that not even such a curtailment would necessarily suffice.

66 This problem would be partly resolved, but not eliminated, by the new model for fees proposed in the report from the Deposit Guarantee Inquiry (SOU 2005:16). Today, the deposit guarantee is funded with an annual premium from the institutions that is based on an institution's deposits the preceding year. With the proposed model, which is based on cost pricing, the guarantee premia would mirror the expected costs of replacing the guaranteed deposits in the event of an institution being declared bankrupt. An institution's guarantee premium would then be calculated on the basis of an assessment of its risk of bankruptcy. Some abuses of the system might possibly be averted if an institution that uses high deposit rates as bait could be charged higher premia if the risks are judged to be higher.

This is because of the problem that appropriate forms are lacking for what should happen once an institution's licence has been revoked. Even if Finansinspektionen's decision had not been suspended in this case, there would probably still have been many moral hazard dilemmas. Under the existing arrangements an institution can be instructed, as Custodia was, to wind up its operations on its own before a certain date. An absence of public control gives the company's owners/executives a great deal of scope to take undue risks or misuse resources in other ways. What is needed instead is a special arrangement that is activated if there are grounds for revoking a licence or if problems arise with solvency. How and by whom the closure is managed could vary with the type of institution. The handling of systemically important institutions and the measures employed differ somewhat from what is appropriate for other institutions. But in the case of every institution to which the deposit guarantee or the investment protection applies, it is essential that the process of closure can be arranged in controllable forms.

THE NEED TO ACTIVATE THE DEPOSIT GUARANTEE WITHOUT DELAY

The Custodia case shows that the disbursement of guaranteed compensation to depositors can take a considerable time. In this case the first disbursements from the deposit guarantee were made more than nine months after Finansinspektionen's decision to withdraw the company's licence. In the case of a larger financial enterprise, the great inconvenience for the savers would not be the only consequence of such a tardy process. It is not hard to imagine what would happen if hundreds of thousands of depositors were cut off from their savings. Just a few days' delay in the guaranteed replacements could suffice to restrict liquidity to an extent that would have appreciable repercussions throughout the economy.

One problem with the present system is that the decision to pay under the guarantee is tied to the bankruptcy decision. If a major bank is in distress, the bankruptcy procedure would probably not be implemented, at least not in the initial stage of a crisis. Even so, there can be situations that oblige a bank to freeze accounts for the time being. It must therefore be possible to activate the disbursement of guarantee funds independently of a bankruptcy decision.

The present construction of the deposit guarantee protects wealth rather than liquidity. With a more appropriate design, the deposit guarantee could provide better consumer protection and also function more effectively as a systemic stabiliser. If depositors are assured of immediate access to their money, there will be less risk of a bank run, which is otherwise liable to occur when a bank's solvency is in doubt.

Another problem with the present guarantee system is that the amount to be paid out is calculated in terms of the balance

on account on the day of bankruptcy. This can cause difficulties if the defaulting institution's documentation is so out of order that determining account balances exactly takes time.[67] There is therefore reason to consider the possibility of basing guarantee payments on preliminary calculations.

THE NEED OF OVERALL LEGISLATION

The problems the Riksbank has observed in the Custodia case are symptoms of more fundamental deficiencies in the rules. The basic problem is the lack of an overall approach.

When a limited company has problems with solvency, it is in principle bankruptcy practice that caters for the interest of creditors. The primary function of the receiver is to sell the assets in the insolvent estate and distribute the proceeds among the creditors in proportion to their shares of the total amount of debt. Rules on preferential rights give certain creditors priority, for example concerning wages and secured claims. Shareholders are debarred from the proceeds of bankruptcy. In the event of a surplus, however, the bankruptcy administration changes into a liquidation procedure that aims to provide a distribution to shareholders.

In the case of a financial institution, however, a number of additional, often conflicting, interests are involved. Besides the interests of creditors, there is generally an overall public interest in financial stability. Moreover, depositors want adequate consumer protection, while the premium-paying institutions – and ultimately taxpayers as well – are concerned to minimise the costs of the deposit guarantee system, and owners and other interested parties naturally expect legal security as protection against improper intervention by authorities. Then there is, for example, the public interest in an effective administration of justice in the field of economic crime. In many instances there are specific rules and authority functions to cater for these interests. The interests may conflict, so that different authorities, such as Finansinspektionen, the Deposit Guarantee Board, receivers, law courts and others are sometimes obliged to work for different goals.

When problems arise, however, it is important that conflicting goals and interests do not obstruct an effective procedure. The rules must therefore make it possible in general terms to sort out the various interests' relative importance for society.

67 This was exactly what happened recently in another distressed Swedish institution, CTA Lind.

Financial stability should be an overriding public interest, considering the potential social and economic costs if stability is threatened. Other interests should wait until this threat has been dealt with. For the community, the interests of consumers probably have precedence over those of other creditors. At the same time it is important to contain the costs of the deposit guarantee system. Public responsibility for consumer protection should not be perceived as unlimited and individuals cannot be absolved of their responsibility for assessing risks in the institutions in which they choose to place their money.

The interests of other creditors clearly have to be properly protected in ways that ensure fairness. As in the general insolvency procedure, the interests of owners should come last. Moreover, credible sanctions on owners are needed to counter moral hazard. Owners, no less than other interested parties, should of course be able to have an authority's decision tested by a higher instance, with the possibility of compensation if the decision is faulty. But this should not occur until afterwards.

The conclusion from this is that Sweden lacks a set of resolution rules that is appropriate for banks. So what have other countries done? Many have chosen to treat banks differently from other, non-financial companies. Countries, such as the United States, that have experienced a large number of bank bankruptcies seem to have made most progress towards an overall approach in regulations that govern the handling of distressed institutions. There, as in Italy and Canada, there are separate rules for handling distressed banks. These are implemented by the supervisory authority or the deposit guarantee authority. In large parts of Europe, on the other hand, the usual arrangement is still for the liquidation of a bank to be based on the general bankruptcy rules, though in many cases together with a set of supplementary rules. The procedure is still administered as a rule by a bankruptcy court but the supervisory authority often has a specific role. The ways in which distressed institutions are handled in a number of countries are briefly outlined in the box.

The main features of the Banking Law Committee's proposals concerning specific arrangements for handling distressed banks are presented in the next section.

International practice [68]

In most countries, including *Sweden*, there are a number of possible ways of intervening *before* a bank becomes insolvent. The authorities usually have a series of measures that can be intensified as the situation in the institution deteriorates. The measures can take the form of an injunction to take specific action, censure, warning, appointment of auditors and, as a final resort, withdrawal of the charter. In many countries, though not in Sweden, it is also possible to take more far-reaching measures, without going so far as to withdraw the charter, even before a bank becomes insolvent.

Possibilities of intervening before a solvency crisis becomes acute

Canada, for instance, has a system whereby the Office of the Superintendent of Financial Institutions (OSFI) can assume control of both a bank's own assets and the assets it manages. In cases where this is done, the Superintendent is in a position to take all steps that are necessary to protect the interests of depositors and other creditors.

In the *United States* the Federal Deposit Insurance Corporation (FDIC), which besides administering the deposit insurance system supervises many banks, has far-reaching possibilities, in certain cases an obligation, to intervene against a bank. The rules are arranged in steps, each of which requires the FDIC to intervene in a prescribed manner. For example, a bank that is judged to be "critically undercapitalized" (capital cover below two per cent) has to be taken into receivership by the FDIC within a stipulated time (before the bank becomes technically insolvent).

In *The Netherlands*, De Nederlandsche Bank in its capacity as the supervisory authority is entitled to appoint an administrator whose approval is required for all decisions by the bank's executives, board and shareholders' meeting. The *Belgian* supervisory authority, Commission Bancaire et Financière, can under certain circumstances appoint an inspector whose written approval is required for every measure taken by a bank's decision-making bodies, including the shareholders' meeting. The inspector's appointment and the list of measures and decisions that are submitted for the inspector's approval have to be made public. The inspector cannot initiate measures but is able to propose them and veto decisions by the bank's executives. In *Spain*, Banco de España in its capacity as the supervisory authority can place a distressed bank under the control of a specifically appointed civil servant. Any decisions that lack the approval of this official are invalid. In *Switzerland*, an investigator can be specifically appointed to inquire into and supervise a bank and under certain circumstances the federal supervisor, Eidgenössische Bankenkommission, can act in the place of the bank's executives. The *Austrian* supervisor, Finanzmarktaufsicht (FMA), can appoint a lawyer or auditor to supervise a particular bank, with a right to block transactions that are judged to be potentially harmful to creditors' interests.

Handling banks with acute solvency problems

When a situation has become so serious that insolvency is imminent or already a fact, the need arises both to ward off the threat to financial stability without delay and to immediately protect the interests of depositors and other creditors. The latter task often calls for a suspension of payments but as a general suspension can directly conflict with the goal of financial stability, it may be clearly unsuitable. For this reason many countries have a special set of rules for handling insolvent banks. This either replaces or works alongside the general bankruptcy rules. For example, by placing the bank under temporary administration – so that the supervisory authority or some other crisis manager assumes control of the bank, with the possibility of issuing exemptions from the payment freeze – a moratorium can be

68 See also Hüpkes (2003), "Insolvency – why a special regime for banks?", Current Developments in Monetary and Financial Law, Vol. 3, International Monetary Fund, 2003.

combined with the exercise of control over the bank, thereby warding off a systemic threat.

The forms for such temporary administration vary from country to country. In *France*, for instance, the supervisor, Commission Bancaire, can appoint an administrator with the power to manage, direct and represent the bank, including the possibility of filing a bankruptcy petition. *Banco de España* is similarly entitled to replace the executives and appoint a temporary administrator (administradores provisionales). *Banco de Portugal* has much the same powers and can also declare a moratorium. The *German* supervisor, Bundesanstalt für Finanzdienstleistungsaufsicht (BAFin), can likewise combine control of a bank's management with a moratorium. *Banca d'Italia* can take over a bank's management temporarily in urgent cases (gestione provisoria); in the event of grave breaches of the banking rules, the central bank can request the finance ministry to place the bank under extraordinary administration (amministrazione straordinaria).

Norway also has a separate set of rules[69] for banks and other financial institutions that replaces the general bankruptcy rules. Here the government can decide that a bank is to be placed under public administration. When this is done, the bank's earlier decision-making bodies cease to function and their powers are taken over by an administrative board made up of at least three members appointed by the Norwegian supervisor, Kredittilsynet. Moreover, a moratorium comes into force automatically.

Closure/liquidation of distressed banks

When the acute phase of a crisis in an institution has been managed and any threat to stability has been warded off, the future fate of the institution can be determined. If the financial situation is such that operations can be continued in some form – for instance a merger with or acquisition by another bank or the takeover by another bank of parts of the assets and/or liabilities – this may be the preferred alternative. The other alternative is a closure in orderly forms.

Canada and the *United States* both have specific rules for placing a bank under administration. The procedure involves the appointment of a receiver to wind up the bank. In its capacity as receiver, the FDIC has considerable discretion in choosing the forms for a wind-up. As an alternative to liquidation, the whole or parts of a bank can be put up for sale, for example. Another possibility is to arrange for another bank to take over just those deposits that are covered by the guarantee and pay the bank accordingly. The FDIC can also create a "bridge bank" so that operations can be continued while potential buyers form a picture of the value of the bank's assets; the authority sets up a new state-owned bank that temporarily takes over and runs the failed bank's business.

If all economically justifiable alternatives have been exhausted, a more conclusive wind-up, for example bankruptcy or liquidation, is all that remains. The procedure for this varies. *Luxemburg*, the *Netherlands* and *Austria*, for example, have a separate bankruptcy procedure in their banking laws. In other countries, for example *France*, the *United Kingdom* and *Germany*, the starting point is the general insolvency laws. In *Italy*, it is up to the supervisory authority to appoint a liquidator to wind up banks it supervises.

Activating deposit guarantees

The criteria for activating a deposit guarantee differ. In the *United States* it is the FDIC that decides to activate guarantee disbursements. In the *EU*, the right to compensation tends to be tied to depositors not having access to their deposits. The procedure for deciding this varies; the assessment is made by the supervisor in some countries, while others require a decision by a law court. In certain countries, for example

69 Loven (1996:75) om sikringsordningar for banker og offentlig administrasjon m.v. av finansinstitusjoner.

France, *The Netherlands*, *Portugal*, *Spain* and the *United Kingdom*, the guarantee can be activated as soon as payments have been suspended.

In *Finland* the disbursement procedure can be activated if the supervisor (Rahoitustarkastus) considers that the institution in question has payment or other financial difficulties that are not temporary, so that the institution has been obliged to default on claims that are due and indisputable (e.g. deposits), and in certain cases if the charter has been withdrawn. In *Norway* the guarantee can be activated if Kredittilsynet considers the institution is and will be incapable of paying out deposits covered by the guarantee, as well as if it is taken into public administration.

In *Denmark* the guarantee can be activated in the event of either a suspension of payments or bankruptcy.

The Banking Law Committee's proposal[70]

The Banking Law Committee focused on systemic threats. Its work started from the lack of ways of dealing with systemically important banks that have financial problems. The perception that in the first place it is banks that have this systemically critical role led the Committee to restrict its proposal to banking companies. The main items were a separate arrangement, *public administration*, for the reconstruction and winding-up of banks and the establishment of a separate *Crisis Management Authority* with the primary but not the only task of dealing with banks under public administration.

The Committee proposed that a bank can be put under public administration either if it is or can be expected to become unable to meet its commitments in a timely manner (and this inability is not judged to be temporary) or if there are grounds for revoking its charter. Decisions on public administration would be made by the Stockholm City Court in response to a petition from the Crisis Management Authority, which would first consult the Riksbank and Finansinspektionen. Finansinspektionen in turn would consult the Crisis Management Authority before revoking a bank's charter.

Furthermore, the Crisis Management Authority would assume control of the bank's operations when the bank is placed in public administration. The formal ownership, on the other hand, would not be transferred. An important task would be to make suitable appointments as board members and senior executives. Unlike the case in bankruptcy, the ordinary corporate governing bodies would continue to function in accordance with company law. But the Authority would temporarily take over the voting rights of shareholders and therefore be in a position to control the bank's general meeting and board. In this way, the bank's operations could be carried on while it is under administration. If it was found that the problems could be solved so that the bank can be reconstructed and survive, administration would permit a smooth return to normal operations. Otherwise the bank could be wound up in bankruptcy. It is envisaged that this would be arranged in the normal way once the Crisis Management Authority had found that this would not have adverse consequences for financial system stability.

The proposal envisages that the new authority would also have an active role as coordinator of the negotiations that can be expected to take place prior to a petition for public administration. The risk of future bankruptcy is a threat that would reduce the likelihood of negotiations being protracted and facilitate agreements with a bank's owners concerning a possible reconstruction and recapitalisation. During the banking crisis in Sweden, the banks that applied for assistance from the Bank Support Authority had hardly perceived bankruptcy as a credible threat. A new set of rules can therefore be expected to influence the behaviour of banks in normal times. The

70 For a fuller account of the proposal, see Viotti, S. (2000), "Dealing with banking crises – proposal for a new regulatory framework", Economic Review, 3, Sveriges Riksbank.

fact that shareholders would not be able to count on getting as much in a crisis and that lenders may incur losses should, all else equal, lead to better risk management and lower risk exposures in the banks.

The Crisis Management Authority would permit such payments as it considers are necessary to avert the risk of the bank causing serious disturbances in the financial system. A general suspension of payments would not be used until it is judged to be possible in a systemic context. Creditors could then be compensated for any (further) losses arising out of the delayed suspension of payments.

The Committee's proposal also means that in connection with a suspension of payments for a bank in public administration and subject to government consent, the Crisis Management Committee could issue a government guarantee. In order to limit the moral hazard dilemma, this guarantee would only apply to claims arising after its issue.

In normal circumstances it is envisaged that only the board of the authority would be functional, possibly with a limited staff at its disposal. In the event of a crisis, consultants may have to be retained and personnel employed to handle drafting, analyses and administration.

Conclusions

The Custodia case clearly illustrates deficiencies in the rules for dealing with institutions in trouble. By far the most serious defect is that the current rules make it more difficult for Swedish authorities to manage acute problems that pose systemic threats. There is a risk of problems occurring in institutions that are considerably more systemically important than Custodia. With the present rules, a more sizeable banking crisis would in practice oblige government to improvise extraordinary measures. During the banking crisis in the early 1990s it was possible to arrive at political unanimity about the necessary measures; one cannot be sure that this would be the case next time there is a crisis or that the outcome would be as favourable. It would therefore be hazardous to rely on again being able to improvise the management of a systemic crisis at short notice.

The next point to consider is the construction of a new set of rules. An overall approach is important. Problems in an institution bring to the fore a variety of interests that tend to conflict and it is important that they are sorted out in relation to their importance for society. That is a basic condition for arriving at an appropriate allocation of roles to different functions of the authorities when dealing with a distressed institution.

The Custodia events have clearly demonstrated that the present arrangements are poorly suited to handling problems in relatively small institutions. This suggests that a new order should apply beyond systemically important banks, even if the underlying reason is not then primarily stability. Given that there is a safety-net, in the form

of a deposit guarantee and investor compensation, that also covers customers of non-bank credit institutions and investment companies, it is important that the net functions properly. That calls for effective arrangements for resolving these institutions and companies as well. This is important so that the guarantee system provides the intended consumer protection and in order to minimise the system's costs. Limiting the dilemma of moral hazard is also important. Otherwise there is a risk of confidence in the financial system being eroded.

Different degrees of systemic threat clearly call for different government responses. The possibility of general guarantees, for example, is hardly needed for institutions that are not systemically important. The most far-reaching measures should be reserved for the institutions that are systemically important, in order to limit moral hazard. A new order therefore needs to be sufficiently flexible for distressed institutions to be handled in different ways, depending on an assessment of the systemic risks in each case. It is also reasonable for the emphasis in supervisory inputs to be on the systemically important institutions. It should be noted, however, that in practice, a distinction between institutions that are and are not systemically important can be difficult, if not impossible, to make in advance because it is fluid and varies over time. Foreseeing how a crisis will develop when it has just begun is also difficult. Even a small institution's business may have ramifications that no one had an idea of initially. The longer the interval before a distressed institution is wound up, the greater the risk of the crisis growing into a systemic threat. This is another argument for making a new order applicable to other institutions besides banking companies. Whether or not institutions that are or are not systemically important are regulated in the same law is of secondary importance. What matters is that the rules are robust with respect to structural changes in the financial sector and that crisis management is not impeded because some institutions do not match the existing categories. For competition it is also important that the new rules do not unduly favour or discriminate against a particular type of institution.

It will soon be fifteen years since Sweden last experienced a more serious banking crisis. In the meanwhile, much has happened in the field of crisis management: analytical units and crisis organisations have been set up; joint agreements between authorities – memoranda of understanding – have been made; crisis exercises have been performed; and so on. Sweden has taken many initiatives in the European and international arenas for the improvement of rules and arrangements for dealing with financial crises. In these ways it can be said that today we are more prepared in many respects to deal with a financial crisis than was the case in the early 1990s. But a crucial piece of the puzzle is still lacking: an effective order for resolving distressed institutions. That has come as a surprise not least to many foreign observers who otherwise have had a high opinion of Swedish efforts for crisis management.

Trading activity in credit derivatives and implications for financial stability

The tremendous increase in credit derivatives trading has given rise to an international debate on possible risks for the financial system. This article describes the development of the credit derivatives market and the implications for financial stability. An increased use of credit derivatives should, in principle, render the global financial system more resilient and at present the risks for financial stability appear to be slight. Today, Swedish banks trade in credit derivatives to only a limited extent but there is much in favour of greater use in the future.

Background

Since the late 1990s, when credit derivatives and other credit-related instruments began to be traded on a growing scale, credit risk trading has undergone tremendous developments. Credit derivatives are attracting rapidly rising international interest; since 1999 the notional amount outstanding globally has expanded from about USD 180 billion to over USD 12,000 billion today.[71] Credit derivatives are still a relatively small segment of the total derivatives market but the rapid increase in trading has raised questions about possible effects on financial system stability.[72]

Credit derivatives have made trading in credit risk simple and cheap, thereby contributing to a growing interest among institutional investors such as insurance companies, hedge funds and pension managers. One purpose of this article is to describe the role of credit derivatives in the global financial market in general terms. Another purpose is to assess the risks associated with trade in credit derivatives. First the article explains how credit derivatives function. This is followed by a picture of developments in the international market in recent years and the internationally active participants in this trade. The major Swedish bank's activity and trading in credit derivatives are also considered in this context. The article concludes with a discussion of the potential risks for stability in the global financial system.

What is a credit derivative?

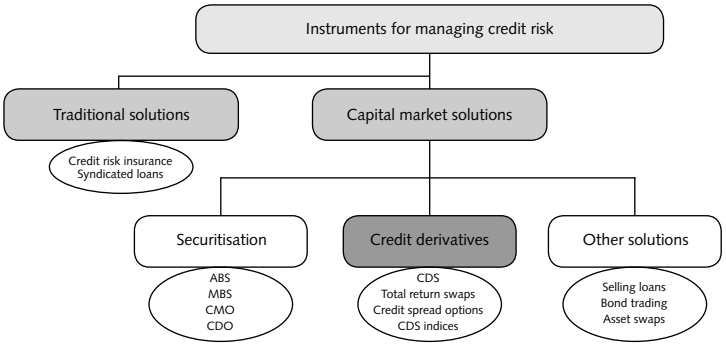
In the 1980s, credit risk trading was dominated by traditional solutions. The most common forms were credit insurance, where loan repayment is guaranteed by a third party, and syndicated loans, where a number of banks jointly fund a sizeable credit. The emergence of a widespread market for corporate bonds in the United

71 Fitch Ratings (2006), "Global Credit Derivatives Survey", September.

72 The implications of credit derivatives for how the global financial system functions have been thoroughly analysed and debated in recent years in a number of international fora, from a market as well as a supervisory perspective. See, for example, ECB (2004), "Credit Risk Transfer by EU Banks: Activities, Risks and Risk Management", May; The Joint Forum (2005), "Credit Risk Transfer", BIS Report, March; CRMPG II (2005), "Toward Greater Financial Stability: A Private Sector Perspective", July; CGFS (2005), "The Role of Ratings in Structured Finance: Issues and Implications", BIS Report, January; IMF (2006), "The Influence of Credit Derivative and Structured Credit Markets on Financial Stability", Global Financial Stability Report, April.

States paved the way for new, standardised credit instruments that had the advantage of being tradable in capital markets. The most important were various kinds of securitised products and credit derivatives, see Figure 1.[73] In simple terms, securitisation involves transferring a number of loans to a separate company that is then funded by issuing bonds; in this way, illiquid credits are converted into liquid bonds.[74] Structured products are a specific form of securitisation whereby the issued bonds are divided (structured) into different risk classes. Structured products for real estate loans (collateralised mortgage obligations, CMOs), and corporate credits (collateralised debt obligations, CDOs) have been successively established and are now standard instruments in the international credit market.

Chart 1. Overview of the market for managing credit risk



A credit derivative is tied to the credit risk in underlying assets, which are mainly corporate bonds. For the buyer of credit protection, a credit derivative functions in much the same way as conventional insurance. The seller of credit protection undertakes to compensate the buyer if the underlying bond suffers a credit event during the lifetime of the contract. In return, the buyer pays a regular premium that is set in relation to the asset's credit risk. The contract defines what qualifies as a credit event; this includes bankruptcy and default on outstanding debt.

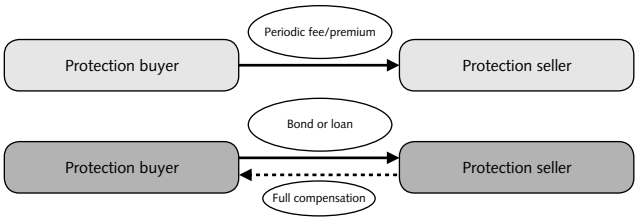
The most common instrument in the family of credit derivatives is a credit default swap (CDS) and most of the other credit derivatives

73 A number of products overlap the definitions in Figure 1. One example is synthetic structured products, which are based on credit derivatives.

74 An early example is asset-backed securities (ABS), which were introduced in the United States in the late 1980s.

are based on this. The cash flows in a typical CDS contract are illustrated in Figure 2. The credit protection buyer (the buyer of a CDS contract) pays a periodic premium to the seller (the upper part of Figure 2). If a credit event occurs, the contract leads to the transfer to the seller of the bond's nominal amount even though the credit event may have resulted in the bond being worthless (the lower part of Figure 2).[75]

Chart 2. Cash flows in a CDS contract



The premium for a CDS contract follows the spread between the underlying corporate bond rate and the risk-free bond rate for the same maturity because both mirror market perceptions of the underlying risk of default. The market value of a CDS contract accordingly varies – just like the interest rate spread – with market estimates of the probability of various credit events.

The credit risk buyers in the credit derivatives market are mainly large institutional investors such as insurance companies and pension managers. They tend to aim for a certain amount of credit risk in their portfolios because the possibility of a higher yield is then combined with a portfolio that is more diversified and has a lower total risk. The major net sellers are banks, mortgage institutions and other credit institutions that need to dispose of credit risk, for example to meet statutory capital requirements or simply to use capital more efficiently. Trading is administered mainly by a small number of globally active banks. The ten largest primary dealers handle around 85 per cent of the total turnover. They include large investment banks such as Morgan Stanley, Goldman Sachs and UBS. Hedge funds are also sizeable participants; survey-based estimates indicate that at present around 25 per cent of the largest primary dealers' trading is with hedge funds. In the CDO market, hedge funds tend to dominate the segments with most risk.

75 Settlement can also be arranged in cash, which is done by auction and the credit protection seller compensates the buyer when the bond's recovery value has been decided.

Index products and synthetic CDOs

While single-name CDS contracts are the most common type of credit derivative, growth is strongest for other types, such as index-related products and synthetic CDOs. A CDS index represents the development of a portfolio of CDS contracts – a portfolio of the credit risks associated with different companies – but the principles on which it functions are the same as for single-name CDS contracts. For example, iTRAXX Europe is made up of the 125 most liquid corporate names (investment grade) on the CDS market in Europe. The 125 CDS contracts are weighted equally in the index, which means that a buyer of credit protection for the equivalent of SEK 125 million in iTRAXX has one million kronor's worth of protection against each of the companies in the index. If a credit event occurs in one of the companies, the CDS contract in that company name is settled (physically or in cash) and the periodic index premia are reduced. The indices have fixed maturities, typically 5 or 10 years.[76] The advantage of index products is the opportunities they provide of diversifying credit market investment. Indices are characterised by high liquidity, with standardised contracts.

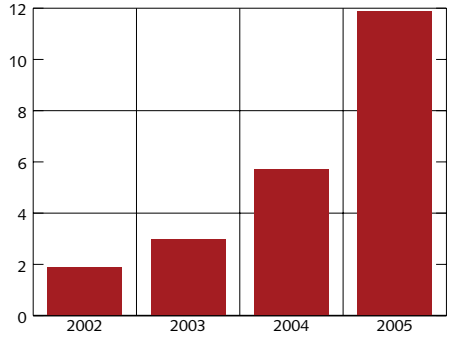
The portfolio underlying a synthetic CDO likewise consists of CDS contracts but here they are subdivided into tranches that represent different degrees of credit risk. The buyer of a tranche receives periodic payments of a premium that is proportional to the credit risk in that particular tranche. Like index products, one advantage of synthetic CDOs is diversification of investment; in addition, however, they enable the investor to choose the level of risk.

76 A new index is released twice a year but the earlier indices continue to be traded to maturity. Trading in an index decreases as it moves towards maturity (off-the-run indices). The corresponding index in the American market, CDX, functions on the same principles.

Credit derivatives are advantageous for trading in credit risk. For one thing, they make it possible to trade in credit risk without having to buy or sell the underlying securities. For buyers, such as insurance companies and pension managers, not being obliged to purchase the underlying bonds means that investment in a particular credit risk ties up appreciably less capital. Investment in a given amount of credit risk accordingly involves smaller capital costs as well as lower transaction costs. In the same way, sellers of credit risk (primarily banks and other providers of credit) benefit from the lower costs, besides being able to retain the underlying loans or bonds on their balance sheets. That is an advantage for customer relationships, for example when it comes to prolonging or renegotiating loans. Sellers can also benefit from being able to dispose of the credit risk in the underlying bonds while retaining the interest rate risk.

For another thing, credit derivatives, like other derivatives, provide possibilities of going short in the underlying securities (selling the credit risk in bonds one does not own). This and the limited capital requirement make the market interesting for other participants than those directly involved in disposing of or investing in credit risk. Hedge funds and other financial institutions aim to profit from what they perceive to be market mispricing. This in turn gives a more liquid market and better price formation. As a result, the pricing of corporate risk (the spread from a risk-free bond or the premium for the credit derivative) has in many cases been transferred from the bond market to the credit derivatives market.

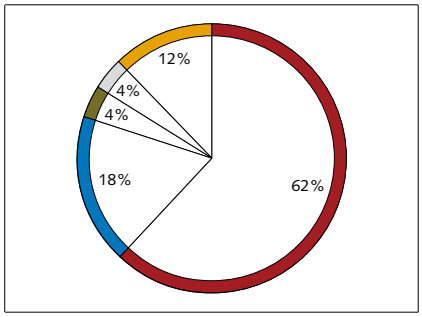
Figure 1. Global notional amount outstanding on the credit derivatives market
Period-end amount of sold contracts, USD trillion



Note. The instruments included here are single-name CDSs, index products, portfolio products (e.g. synthetic CDOs), and other instruments.

Source: Fitch Ratings.

Figure 2. Underlying reference assets in CDS (2005)



Corporates
Financials
Other assets
Asset-backed securities
Sovereigns

Source: Fitch Ratings

International market developments

Trading in credit derivatives has, as mentioned, grown dramatically in recent years; at end 2005, notional amounts outstanding totalled about USD 12,000 billion (see Chart 1).[77] Amount outstanding refers here to the total amount of the underlying assets on which the contracts are based and includes all the various instruments in the credit derivatives family. Note, however, that data on market size and turnover vary from source to source. The available statistics on the credit derivatives market are therefore described briefly in a box, together with an explanation of definitions and the selection of sources.

The underlying assets in the credit derivatives market continue to be dominated by corporate bonds but also include traditional bank loans and various forms of sovereign debt (where this entails credit risk). It will be seen from Chart 2 that in 2005 about 80 per cent of all outstanding derivative contracts were based on corporate bonds. Credit derivatives are traded in about 2500 corporate names but trading is still concentrated to a smaller number. The number of actively traded names has risen from around 200 at the beginning of 2002 to about 700 at present. Some of the most traded sectors are the automobile industry, finance and telecommunications. The credit quality of the underlying bonds is generally very strong but market trends are pointing to a growing interest in high-yield bonds with more risk. Since 2002 the share of the credit derivatives market devoted to underlying assets with a credit rating below investment grade[78] has grown from about 10 per cent to over 30 per cent. The dominant maturities for credit derivatives are in the interval 1–5 years but longer maturities, around 10 years, are becoming increasingly common.

77 It is not just trading in credit derivatives that has grown. The total amount outstanding for interest rate-related derivatives (excluding credit derivatives) in the OTC market rose from about USD 77,000 billion at end 2001 to USD 215,000 billion at end 2005. The amount outstanding for foreign exchange derivatives rose in this period from about USD 17,000 to 32,000 billion. So trade in credit derivatives is still small compared with interest rate and foreign exchange derivatives.

78 Investment grade represents corporations with credit rating Baa or higher (in Moody's scale).

Statistical information on the credit derivatives market

There are a number of sources of information about developments in the credit derivatives market and they differ in the frequency with which the statistics are published as well as in the credit derivatives that are included. The presentation of the statistics also varies. Three of the main sources of the data on which analysis of the credit derivatives market is based are discussed below with reference to documented differences and mutual consistency.

Credit derivatives are traded in OTC markets, which are trader networks outside an organised exchange. One important consequence of this is that details of the trading are not published. Statistics therefore have to be derived from surveys and participants on a voluntary basis, which leads to considerable variations in the statistical base. Moreover, to preserve anonymity, the survey data are presented only at an aggregated level. This prevents the identification of individual positions and the tracking of specific risk exposures.

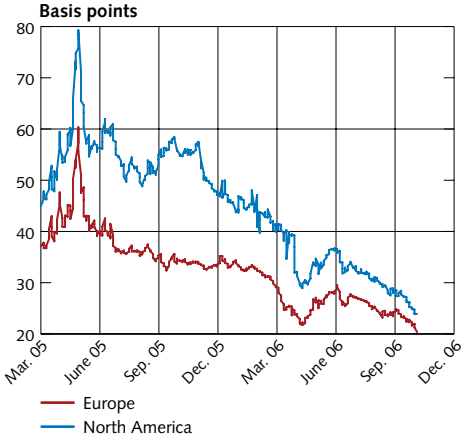
The International Swaps and Derivatives Association (ISDA) publishes its Market Survey twice a year and presents the total notional amount outstanding in CDS contracts in the international market. According to this source, in the first half of 2006, CDS exposures totalled approximately USD 26,000 billion. However, this figure includes both bought and sold contracts, which means that many positions occur twice in the statistics.

For two years now the Bank for International Settlements (BIS) has also presented statistics on notional amounts outstanding in CDS contracts, against both single-name and portfolio contracts. This is done in the framework of the Bank's Semiannual OTC Derivatives Statistics. Unlike ISDA, BIS separates the amounts of bought and sold contracts; moreover, the material is decomposed by type of institution. If allowance is made for methodological differences, the aggregated statistics from the BIS and ISDA can be said to agree comparatively well.

The statistics in this article are largely based on Fitch Ratings' annual Credit Derivatives Survey, which is here considered to be the most detailed source of information on credit market derivatives. The statistics on amounts outstanding are based on sold contracts and make it possible, for example, to identify net sellers in different institutional categories. Besides a more complete picture of the total credit derivatives market, the Fitch Survey contains a wealth of qualitative information that is provided in connection with the quantitative data. The sample of participants ensures good coverage and the quality of the responses is considered to be reliable.[79]

79 For an account of the content of the Survey, see Fitch Ratings (2006), "Global Credit Derivatives Survey: Indices Dominate Growth as Banks' Risk Position Shifts", Special Report, September.

Figure 3. Premia in CDS indices
Basis points



Note. Indices for Europe and North America are represented by iTRAXX and CDX, respectively, for 5-year maturities.

Source: Bloomberg.

CDS contracts currently make up over half of the total credit derivatives market. At end 2005 the notional amount outstanding in sold contracts was about USD 6000 billion. This figure can be seen in relation to the corporate bond stock in the international market, which totals somewhere between USD 5000 and 7000 billion. In other words, the amount of CDS contracts more or less matches the total stock of corporate bonds. The amounts related to specific assets are several times larger than the corresponding bond stocks. This is because the same underlying bond can give rise to a large number of outstanding CDS contracts and the statistics show the gross amount outstanding.

For assessments of credit derivatives' inherent risk, the notional amount outstanding can be misleading. The credit protection sellers are very unlikely to have to pay out the total amount outstanding since that presupposes default by all the underlying companies as well as zero recovery. A more nuanced picture of credit derivative risk is provided by the market value at a given time. This shows the contract's value subject to market assessments of the probabilities of credit events. According to BIS, at end 2005 the gross market value of all open CDS contracts was about USD 350 billion, which was equivalent to about 6 per cent of the global notional amount of contracts.

The growth of CDS trading has shown signs of slackening, while markets for synthetic CDOs and index-related products have developed strongly in the past two years. At end 2005 the latter two types of instrument made up around 40 per cent of the total credit derivatives market (10 per cent for synthetic CDOs and over 30 per cent for index products).

The premium for CDS contracts has decreased in the past year, in keeping with the narrowing spreads in the market for corporate bonds. Chart 3 shows how the premia for two broad CDS indices developed between March 2005 and November 2006.

Swedish banks' credit derivatives trading

Interviews with the four major Swedish banks indicate that their credit derivatives trading is slight. The number of transactions has grown in recent years but total exposures are generally small. Dealing is done primarily on behalf of large institutional investors.

The main explanation for the limited use is the small size of the corporate bond market in Sweden. This affects credit derivative trading because the underlying assets are almost exclusively corporate bonds. With the sparse supply of corporate bonds and low customer demand, Swedish banks have not been motivated to develop a market for credit derivatives in Swedish kronor.

The core operations of the major Swedish banks are largely based on long-term customer relationships and focus mainly on small- and medium-sized firms with local ties. Their exposures to customers whose bonds are involved in the credit derivatives market are of minor importance. The situation is different for large international banks, which have become central participants in the credit derivatives market, for example in their capacity as primary dealers. Their business strategy has partly shifted from traditional credit management to attracting borrowers and then transferring the loans, a process in which credit derivatives play a leading role.

However, the interviews suggest that in time, credit derivatives will become more important for the major Swedish banks. To a large extent this has to do with the new capital adequacy rules that accompany the new EU directive, which is based on Basel II. The current Basel rules (Basel I) permit just a limited capital reduction for exposures hedged with credit derivatives and then only if another credit institution sold the credit protection. Under the new rules, capital requirements will be more in line with the measured level of risk and credit derivatives will be a more efficient instrument for managing risk. Moreover, the credit derivatives market may move towards the inclusion of traditional loans, which would increase the opportunities for Swedish banks to sell credit risk via securitisation or clearly structured loan portfolios.

Potential risks in credit derivatives trading

As the credit derivatives market has expanded, market participants, central banks and supervisors have increasingly debated the potential risks for the global financial system. The concern about the growth of credit derivatives does not primarily refer to the trading activity, which is still small compared with that of other derivatives. It has more to do with this being a new and relatively untested market: the possibility of "teething troubles" in the form of institutional shortcomings and untested risk control systems cannot be ruled out. The risks discussed in this section are mainly those that have featured in the debate: legal risks, counterparty and concentration risks, liquidity risks and mispricing risks.

LEGAL RISKS

A problem that affected the credit derivatives market initially was a lack of distinct market conventions. Credit events were not defined uniformly and contracts were not clearly structured. This led to uncertainty and contracts were liable to be disputed. These drawbacks have been largely overcome in recent years, for instance through the efforts of the International Swaps and Derivatives Association (ISDA). Standardised contracts have been introduced and are now used in the market to a large extent. A standard for the re-sale of derivatives contracts (Novation Protocol) was drafted in 2005 with the aim of making potential counterparty risks more transparent and in September 2006 ISDA launched a new standard for cash settlement of credit derivatives contracts. However, the feasibility of completely standardised solutions is limited by the large variety of credit derivatives and in the opinion of market participants, the legal risks in credit derivatives trading have by no means been entirely eliminated.[80]

Routines and handling processes have not been able to keep up with the rapid increase in the number of contracts. To begin with, the intermediaries' back-office functions lacked the capacity to verify all transactions on a timely basis and this heightened the risk of problems being caused by a sudden credit event. However, primary dealers have made major efforts to reduce the backlog of contracts awaiting confirmation. In consultation with the relevant authorities, systems have been installed for automated confirmation and now handle about 80 per cent of all credit derivatives contracts.

Moreover, the large number of open contracts means that the settlement process is vulnerable. If numerous contracts have to be settled simultaneously, for instance because of a credit event in a company with a large outstanding amount in credit derivatives, the process could be disrupted. The credit risk in a bond may have been sold on through a series of CDS contracts and such cases can well give rise to problems, particularly if they require physical delivery of the underlying bonds.

80 Fitch Ratings (2006), "Global Credit Derivatives Survey", September.

COUNTERPARTY AND CONCENTRATION RISKS

A bank that buys credit protection in the form of a credit derivative disposes of the credit risk but is exposed instead to counterparty risk, which is the risk that the credit protection seller is unable to meet commitments in case of a credit event. Counterparty risk is a feature of most financial contracts but the credit derivatives market calls for particular attention on account of its novelty and rapid growth. In an ECB survey, the respondent banks are not convinced that all institutions which sell credit protection are properly aware of their commitments in connection with a credit event.

Risk monitoring in the banking system has, however, undergone considerable developments since the mid 1990s. Banks which trade credit derivatives normally have routines for scrutinising and assessing counterparties, besides generally requiring cash backing for transactions, as they do for other derivatives. Moreover, many of the credit derivative sellers are insurance companies and pension funds, which have a great deal of capital for coping with any loan losses.

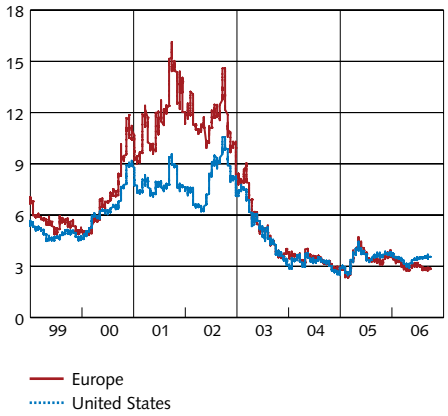
Under the current Basel accord (Basel I), credit exposures hedged with credit derivatives do not generally qualify as an item that reduces capital requirements for the bank that buys credit protection. The banks therefore tend to regard credit derivatives as additional rather than adequate loan collateral. So the failure of a credit derivatives transaction would not necessarily be a serious problem for a bank.

A central issue connected with counterparty risk is the concentration of risks. The extensive trade in credit derivatives could possibly result in concentrations of risk whereby groups of participants – for instance the primary dealers that dominate the market – become very vulnerable to market disturbances. With the inadequate statistics on the OTC market, assessing this risk is difficult. However, primary dealers seldom hold large net positions; as a rule their exposures are neutral. They also possess large, liquid balance sheets and thereby a large capacity for absorbing losses.

LIQUIDITY RISKS

More active capital market trading of credit risk, with more participants involved, makes it easier, as mentioned, to diversify the underlying risks. But problems can arise if the participants take their positions on the assumption that the market is invariably liquid. External events can lead to there suddenly being sellers in the market but no buyers. That happened, for instance, during the Russian debt crisis and it led to problems for, among others, the hedge fund LTCM. Such situations do not last long as a rule because falling prices always ultimately attract buyers. But they may persist for so long that repayment falls due on the loans with which many market participants are financing their positions. If assets cannot be realised on a sufficient scale, the only alternative is default. A crisis of this kind is liable to spread rapidly to other markets and perhaps even threaten the creditor banks.

Figure 4. Credit spreads for high-yield corporate bond issues in Europe and the United States
Percentage points



Source: Reuters EcoWin

The consequences of a liquidity crisis can therefore be grave and the possibility that inexperienced investors in credit derivatives might decide to sell simultaneously gives cause for concern. It should be borne in mind, however, that the credit derivatives market is closely interlinked with the market for the underlying bonds, so that a fall in the price of a credit derivative implies that the price of the underlying bond is also falling, which gives an increased yield. Provided nothing essential has happened to affect the creditworthiness of the company that issued the bonds, sooner or latter it will become profitable to buy either these bonds or the credit derivative. A number of sizeable credit events in recent years also suggest that the credit derivatives market is able to absorb major shocks. The 2005 credit downrating of Ford and GM, as well as a number of extensive bankruptcies, are clear instances of problems of some gravity that could be handled without a serious loss of market liquidity.

MISPRICING RISKS

A risk which is related to liquidity risk is that of mispricing. In the period with the strongest growth of credit derivatives trading, markets have been characterised by successively falling interest rates and rapidly expanding credit. The unusually low incidence of corporate defaults has resulted in a narrowing of credit spreads, that is, the difference between corporate and government bond yields (see Chart 4). Prices for credit derivatives have fallen correspondingly and compensation for risk has decreased to a level below the historical average.

This raises the question of what will happen when the business cycle levels off or turns downwards and defaults become more frequent again. If investors in general have underestimated credit risks, there could be a marked correction of risk premia and a corresponding fall in the price of corporate bonds and credit derivatives. Individual participants with large net credit risk exposures could then incur considerable losses. However, rising risk premia would affect most financial markets and there is nothing to suggest that the impact on the credit derivatives market would be greater than elsewhere.

Concluding remarks

Credit derivatives have turned out to perform a number of functions that are socially valuable. They have made it easier to redistribute credit risk from banks to other financial agents, which presumably helps to make the financial system more resilient to shocks. They have contributed to improved pricing of credit and thereby enhanced credit market efficiency. They have also enabled a wider circle of institutional investors to manage the credit risk in their portfolios in a simple, cost-effective manner. That in turn has made it possible for them to increase the yield for a given risk or reduce the risk of a given yield.

At the same time, the dramatic growth of credit derivatives trading has led to an international debate on the associated risks. There are no adequate statistics for identifying where or in which institution the credit risks are located. There is concern that the new participants may have underestimated the risks in the derivatives they have acquired. Today's credit risk premia are low – unduly low according to some observers – and there is a risk of prices being corrected abruptly when the business cycle turns. Moreover, whether or not the international investment banks that dominate the market would be able to maintain liquidity in such a situation has not been tested in practice and problems with liquidity can spread rapidly to other market participants. A feature which the LTCM episode in 1998 and the settlement problems in the aftermath of 9/11 had in common was that problems with liquidity arose, not in a single, systemically important institution but in the entire market.

As credit derivatives trading is still a very minor component of the Swedish banks' operations, the risk for the financial system is in the first place an external issue. For Swedish banks, the direct impact of credit derivatives on risk positions is slight at present. However, these banks will probably become more engaged in the credit derivatives market, both to meet customer demand and to manage balance-sheet risks. This may be driven, not least, by the new capital adequacy requirements (Basel II). In this context it is important that the banks present their credit derivatives dealing in such a way that both the trading as such and the aggregated credit risk are clearly visible. The future will show whether this will call for extended reporting to the authorities.

Articles in previous stability reports

2006:1

Using external information to measure credit risk

A model for measuring and assessing the banking system's resilience has been developed by the Riksbank, using a readily-available portfolio model and information from banks' annual reports. The article presents this model, which can be used for stress testing and analysis of various scenarios.

Hedge funds and the financial system

The rapid growth of hedge funds in recent years has led to an international debate on potential threats to the financial system and a possible need of regulation. The article describes the development of hedge funds, in Sweden as well as internationally, and their possible consequences for the financial system.

2005:2

The road towards an internal market for financial services

With a view to improving the cross-border market for financial services, some years ago the EU launched the Financial Services Action Plan (FSAP); furthermore, a new legislative model – the Lamfalussy process – has been developed to meet the need for more flexible regulations. Much of the FSAP has now been implemented and the application of the Lamfalussy process has begun in a number of fields but it still has some shortcomings that must be rectified.

House price developments in Sweden and abroad

House prices have risen rapidly in recent decades in many countries, including Sweden. The article describes the Riksbank's investigation into the extent to which various factors have contributed to the development of house prices in Sweden. The models show that the main explanatory factors have been low interest rates, rising disposable income and low residential construction.

These articles, as well as those in earlier issues of the Financial Stability Report, are accessible on the Riksbank's website: www.riksbank.se