



# Contents

■ Foreword	3
■ Summary and conclusions	5
The Riksbank's assessment of stability	5
Articles	7
<b>PART I. SITUATION REPORT</b>	
■ Macroeconomic developments significant to the banks and their borrowers	13
<i>Box: The financial system's dependence on suppliers: the case of WorldCom</i>	18
The corporate sector	20
<i>Box: The significance of large corporations for financial stability</i>	23
The commercial property sector	25
The household sector	29
■ Developments in the banks	31
<i>Box: The major banks' pension costs</i>	32
<i>Box: The banks and the life insurance companies</i>	37
■ Counterparty and foreign exchange settlement exposures in the banking sector	41
<b>PART II. ARTICLES</b>	
■ Central counterparty clearing for the securities market	47
<i>Box: Coming changes in VPC's settlement system</i>	55
■ Credit expansion as an indicator of financial instability	59
<i>Box: What does the literature have to say about lending as an indicator of financial instability?</i>	60
<i>Box: Regression analysis of credit demand</i>	65
■ Swedish banks' international expansion	69
■ Articles in previous stability reports	82





# Foreword

One of the Riksbank's main objectives is to promote a safe and efficient payment system. The Riksbank's analysis of financial stability concentrates on developments in the four major Swedish banks, as their size means they have crucial significance for the stability of the payment system.

The starting point for the assessment is external factors – both with regard to developments in the real economy and events in the financial markets – that can affect the risks in the financial system. The report therefore begins with a chapter discussing how the environment in which the banks operate has developed since the Riksbank's previous stability report was published. There is also a review of the effects on the banks' borrowers and whether these could create problems for the banks.

The banks' own actions can also affect the stability of the payment system, and Chapter Two therefore contains a closer analysis of developments in the four banking groups. Profitability trends can indicate whether the banks are exposed to strategic risks. The quality of their assets is assessed as an indication of how credit risks might develop, while the banks' funding capacity can provide a picture of the liquidity risks that could arise.

If problems in an individual banking group were to spread to other market participants through exposures between the banks, this could have immediate effects on the payment system. Chapter Three therefore contains an analysis of the banks' counterparty and settlement exposures.

Financial stability in Sweden is affected increasingly by a continuing process of globalisation and integration of the financial markets, with growing business opportunities but also ensuring greater vulnerability. New and partially unknown risk elements arise as Swedish banks, like other banks around the world, become multinational at an accelerating rate and transactions occur electronically in real time. This type of development provides a challenge for supervisory authorities and central banks. They are forced to find methods adapted to what is a partly new reality to enable them to detect and fend off new threats to financial stability, while taking advantage of the efficiency gains entailed in increased globalisation.



This development also has direct bearing on the articles that conclude the report. The first of these discusses the function of a system using central counterparty clearing (CCP), as well as the considerations with regard to efficiency and risk. The second describes the underlying factors behind a credit expansion and whether such an expansion could threaten financial stability. Finally, the third one studies the Swedish banks' international expansion from different perspectives.

This report has been discussed at the Riksbank's Executive Board meetings on 7 and 20 November 2002.

*Stockholm, November 2002*

Urban Bäckström  
Governor of Sveriges Riksbank



# Summary and conclusions

## The Riksbank's assessment of stability

The starting point for the Riksbank's previous Financial Stability Report (2002:1), which was published in May, was that the economic slowdown had passed its lowest point and that a tentative recovery was probable. Behind this assessment lay developments in the late autumn 2001, when the global economy began to show signs of a recovery despite serious disturbances of a one-off nature.

Since then a number of storm clouds have been brewing. The long downturn on stock markets around the world has continued and the financial markets are characterised by uncertainty. The focus now is on the future prospects for the US economy as well as increasing concern over international conflicts and weak economic developments in Europe.

The growth forecasts for both the USA and Sweden have been revised downwards. The Riksbank's assessment at its monetary meeting on 14 November was that some recovery in the global economy would occur next year. At the same time, the risk of a more negative course of events has increased. This applies in particular if the current decline in the financial markets proves to have greater real economic effects than has so far been considered probable.

The Riksbank follows the development of lending in the Swedish banking system, half of which consists of loans to non-financial companies. The corporate sector's borrowing from the banks has slackened as the development in economic activity has weakened and borrowing from mortgage institutions and other sources has declined. Corporate borrowing in both the Swedish and international bond markets has decreased. The borrowing ratio, the corporate sector's borrowing in relation to GDP, has thus fallen somewhat. At the same time, profit developments in the corporate sector weakened considerably during 2001 and the interim reports for Q3 this year indicate a weak development this year too.

Statistics on bankruptcy also show a slightly worse development up to the end of September this year. The number of employees in companies facing bankruptcy has also continued to increase somewhat and indicates that larger companies have suffered bankruptcy to a greater extent than before. However, the Riksbank's assessment is that the bankruptcies have not yet reached an extent that could lead to any significant increase in loan losses within the banking sector.

Approximately 16 per cent of the Swedish major banks' lending is to *the commercial property sector*. In addition, a large part of the banking groups' lending is against collateral in property. Imbalances in



the property sector could therefore have an effect on financial stability in Sweden. Market prices for commercial premises have gone down, breaking the trend of a continuous rise since the mid-1990s. This applies in particular to the metropolitan regions, primarily Stockholm. The price fall is due to lower rent levels in newly-signed contracts and to increasing vacancy rates. The new supply of office premises is at a relatively high level and there is thus a risk of increasing imbalances between supply and demand pushing prices down even further.

Developments in the market are also reflected in the profitability of the property companies. Operating profit is increasing at a much slower rate this year than last year. The situation on the property market has thus become more uncertain. In the light of the prevailing price levels and the property companies' relatively low degree of indebtedness, it is not considered an immediate threat to financial stability.

Indebtedness in the *household sector* has continued to increase, albeit at a slightly slower rate than previously. Higher disposable incomes, rising house prices and relatively low nominal interest rates contribute to upholding the demand for credit. However, the recent decline in confidence with regard to future economic developments has had a subduing effect on the rate of increase. The risk that households will face payment problems has increased slightly, but these are not assessed to be sufficient to cause a marked increase in loan losses for the banks.

The profitability of *the major Swedish banks* has continued to decline over the past twelve-month period. In addition to weaker earnings, profitability has been under pressure from higher loan losses, larger pension allocations and depreciation in the value of financial fixed assets. Underlying earnings in the major Swedish banks, measured as profit before loan losses, was 8 per cent lower in September than at the same time last year and 14 per cent lower than the high level attained in 2000. Just over one half of the total decline is attributable to lower income, while the rest is explained by higher costs. The development of the past two years, with a high growth in net interest income and marked falls in other income items has continued. Net interest income now accounts for almost 65 per cent of the total income, while net commission income has now stabilised around a figure just below 30 per cent. Pension costs account for a large part of the cost increases, which in turn is because the drastic decline in the stock market has undermined surplus values in the banks' pension foundations.

Despite the slowdown in economic activity over the past year, the asset quality in the banks' loan portfolios has not changed to any significant degree, although loan losses have risen slightly. However, if economic activity does not recover at the rate that has been expected, loan losses will probably increase, which is primarily due to the corporate sector's weakness in coping with a protracted period of slow growth.

All major Swedish banking groups include *life insurance companies*, which together account for approximately 30 per cent of the total assets held by Swedish life insurance companies. This means that



the banks could risk being affected by problems arising this sector. The majority of the life insurance companies are, however, mutual companies, i.e. the insurance policyholders bear the financial risk in the company and “own” the equity. The Riksbank’s assessment is that the situation in the life insurance sector does not constitute any threat to the stability of the Swedish banks even if it might affect banks’ profitability in different ways.

To summarise, it can be concluded that profitability in the banking sector has continued to deteriorate since the spring report. The assessment then was that profits would not improve until economic activity improved. As it has become more uncertain when the upturn will take place, the expectations are that a more tangible improvement in the banks’ profits has been postponed.

The major Swedish banks’ *counterparty and foreign exchange settlement exposures* remained for the first six months of this year at the same level as last year. The risk of a sudden failure causing contagion effects between the Swedish banks with such serious consequences that financial stability would be endangered is thus still assessed to be slight. However, an important uncertainty factor in this context is that the banks’ day-to-day operations in the risk areas concerned probably create much greater exposures on more numerous occasions than are actually reflected in their quarterly reports.


*The Riksbank’s total assessment of stability* is that it cannot be ruled out that recent developments entail a build-up of risk in various parts of the economy, which may increase the pressure on the banks. There are a number of negative signals, albeit weakly so, developments in the property sector, the level of household indebtedness, profitability in the corporate sector and a decline in the growth rate and profitability of the banks. Developments in individual areas do not constitute any threat to financial stability, but when these areas are seen as a whole, there appears cause for watchfulness. The banking system is still strong, but not as resilient as it has been in recent years.

## Articles

### CENTRAL COUNTERPARTY CLEARING FOR THE SECURITIES MARKET

Central counterparty clearing can be used for clearing transactions in one or more financial products in one or more national markets. Traditionally, central counterparties have only been found in the derivatives market, as the need for efficient risk reduction is particularly evident in this market. In recent times, however, interest in central counterparty clearing has been extended to also cover the repo and spot markets.

Central counterparty clearing makes it possible for the market to realise efficiency gains from multilateral net settlement without increasing settlement risks. The Swedish financial system should find the idea of creating such a function for the repo and spot markets interesting, not least because it could increase the market’s attractiveness to foreign participants.



CREDIT EXPANSION AS AN INDICATOR  
OF FINANCIAL INSTABILITY

The regular sections of the Financial Stability Report deal with the risks connected with lending to households and companies. The emphasis in the stability analysis is not on the lending in itself, but on the borrowers' financial position and ability to repay. This article illustrates a different aspect of lending, namely whether lending growth in itself may constitute a threat to the stability of the banking system and if so, how the growth in lending can be analysed.

Several studies have been made to investigate the possibility of finding a systematic connection between a few common factors and the probability of a bank crisis arising. The results of these studies have been mixed, not least with regard to the value of lending as an indicator of potential bank failure.

Although there is no unequivocal link between a large expansion in credit and the occurrence of bank crises, several crises have been preceded by a credit boom. At the same time, there are many cases of a high growth in lending that has not caused any problems in the banking sector.

Credit growth is thus not very usable as an indicator in itself. It is necessary to obtain a more fundamental understanding of why lending is growing in a particular case to be able to form an understanding of whether this growth may constitute a threat to the stability of the banking system. This article deals with this problem through a discussion of which supply and demand relations may affect a growth in credit. Firstly, based on interviews with the four major Swedish banks, it discusses the banks' credit granting process with the aim of understanding how the supply arises and the demand is handled. Finally, there is a discussion of the factors that can affect demand for credit from households and companies.

The conclusion from these discussions is that there is normally no supply restriction; the supply is entirely dictated by the demand for credit.

SWEDISH BANKS' INTERNATIONAL EXPANSION

This article illustrates the Swedish banks' international expansion over the past decades, with a focus on the driving forces behind the expansion and the risks it entails.

A natural consequence of the Swedish banks' expansion is that the foreign assets become much larger, both in absolute figures and in relation to the Swedish economy. In June this year these assets amounted to more than 50 per cent of the banks' total assets. The Nordic countries and other industrial nations still account for the largest exposures, although it is the Baltic states' and Russia's shares that are growing the fastest. The increased international element in their assets affects the risk level in the Swedish banks in two different ways. By spreading risk across several industries and countries, they achieve diversification, which contributes to a lower risk level. At the same time an expansion outside of the banks' home market means that the banks reduced special market knowledge, which can lead to higher risk in individual credit transactions.

Banks' increased complexity with operations in different coun-





tries makes it more difficult for both external analysts and the financial supervisory authorities to adequately assess their risk levels. Today, supervision in most countries is designed to safeguard their own national banking system and is mainly aimed at legal entities, such as individual bank subsidiaries' charters or a licence to conduct securities business. However, in large banking groups consisting of many legal entities in different countries, operations are not organised according to the legal structure but by global business areas.

In the same way that the changed conditions have forced the banks to develop and reconsider their strategies, the supervisory authorities and central banks need to adapt their working methods and objectives to ensure that the development of a safe and efficient global financial market can continue with maintained stability in the domestic financial system.



# PART I. SITUATION REPORT



# Macroeconomic developments significant to the banks and their borrowers

*The persistent fall on stock markets in Sweden and abroad has dominated the discussion of economic developments during the autumn. The recovery in the global economy is taking longer than was previously expected and the world's financial markets are characterised by great uncertainty and unease. Developments in the Swedish economy are also difficult to predict at present. So far, the banks' borrowers appear to be managing the slow economic growth relatively well. There has been no marked increase in bankruptcies in the corporate sector, households are showing continued good ability to pay and the property sector appears capable of handling the uncertainty in the commercial property market well. The threats in the current situation thus consist mainly of borrowers facing greater difficulty handling a situation where developments in the real economy are much worse than expected.*

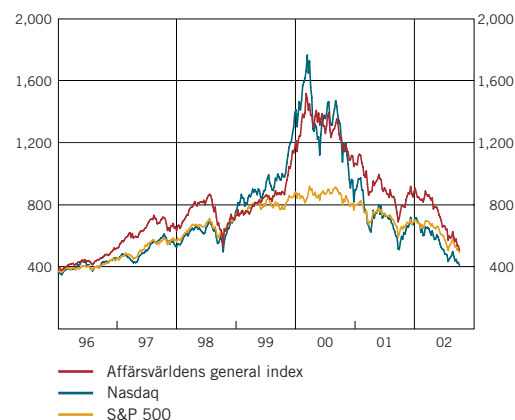
When the previous Riksbank Financial Stability Report was published six months ago, the analysis was characterised by some relief that the effects on the financial markets and the global economy of the terrorist attacks on 11 September had been limited. Prospects for Swedish and international economic activity appeared brighter once again.

The continued uncertainty means that the recovery in the global economy and the Swedish economy appears to be more long drawn-out than was anticipated in the previous Financial Stability Report. The growth forecasts for both the USA, Europe and Sweden have been revised downwards. However, according to the press release following the monetary policy meeting on 14 November, the Riksbank's assessment is that there will be some recovery in the global economy this year. At the same time, the downside risks have been assessed as relatively large, particularly if the negative developments in the financial markets continue and prove to have a greater effect on the real economy than was considered probable.<sup>1</sup>

## RECORD FALL ON THE STOCK MARKET

Bubbles on the stock market usually lead to great uncertainty when they burst. Since the top price quote in March 2000, share prices on Stockholm Stock Exchange have fallen by more than 60 per cent. During the same period, the S&P 500 in the USA declined by nearly 50 per cent and Nasdaq by approximately 75 per cent (see Figure 1). The large decline mainly stems from the price fall on IT and telecom shares, which is illustrated by the curve for the technology-heavy Nasdaq exchange, while S&P 500, which is a broader and

**Figure 1. Share price developments in Sweden and the USA.**  
Index: 1980=100, SEK or USD respectively



Source: Ecowin.

<sup>1</sup> The Riksbank's Inflation Report 2002:3.

more diversified stock market index, shows a more even development. The Stockholm Stock Exchange is also comparatively technology-heavy, particularly thanks to Ericsson.

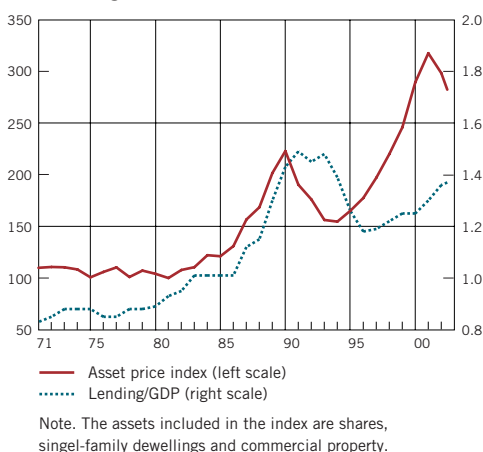
Asset prices have fallen over the past two years (see Figure 2). An important difference as compared with the situation at the beginning of the 1990s was that at that time the fall was in property prices, which fell after having risen very sharply, at the same time as the increase was heightened by a large rise in indebtedness. As the assets then mainly consisted of heavily mortgaged properties, the fall contributed to triggering the 1990s banking crisis. Now it is mainly share prices that have fallen and as shares are not used as collateral to the same extent, there is much less risk of this causing problems for the banking sector.

One consequence of the sharp fall on the stock market is that life insurance companies both in Sweden and abroad have been hit by considerable losses in their investment portfolios. However, these are largely mutual companies and this means the risk is borne by the insurance policyholders themselves. Losses in the investment portfolio can thus hardly threaten financial stability.

As many banks own life insurance companies, problems in these companies will affect the banks although the risk of this causing any serious weakening of the banking system is limited, in the judgement of the Riksbank (see the box in Chapter Two of this report). Another possible effect of the fact that savings in life insurance do not appear to provide as good a return as expected is that households may in the future choose more short-term and secure forms of saving than before. The life insurance companies themselves and other institutional investors could also reposition. Such a change could contribute to poorer supply of risk capital and marginally higher financing costs in the economy as a whole over a long period of time. It can also affect the fixed income market through an increased demand for bonds. The Swedish life insurance companies appear to have reduced the holdings of shares in their portfolio less than might have been expected, at least up to the end of June 2002. During the autumn information has come in that indicates larger sales.

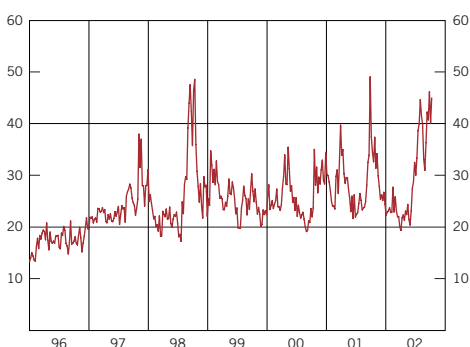
One measure of the uncertainty in the financial markets is *implicit volatility*. This is calculated on the basis of listed option prices and reflects market participants' expectations of volatility, i.e. the spread around the average expected share price one month ahead. The implicit volatility for S&P 100 for the period January 1996 to October 2002 is shown in Figure 3. Since June 2002 implicit volatility has remained at a high, largely unchanged level. It is unusual for volatility to remain at such a high level over such a long period of time, which further reinforces the picture of uncertainty in the financial markets.

**Figure 2. Lending as a percentage of GDP and real asset prices.**  
Percentage of GDP and index: 1980=100



Sources: BIS, SCB and the Riksbank.

**Figure 3. Implicit volatility index, VIX, based on S&P 100.**  
Index



Sources: EcoWin and Chicago Board of Options Exchange.

2 The interest rate spread describes the difference between the interest rate on a corporate bond and the interest rate on a treasury bond with the corresponding duration.

## INCREASED RISK PREMIUMS IN THE BOND MARKET

Another effect of the uncertainty and unease on the international stock markets is that an increasing number of investors have moved to the bond market. This has meant a significant fall in bond rates. At the same time, interest rate spreads<sup>2</sup> for corporate bonds have increased considerably, with an increase of approximately 50 basis points (see Figure 4) for both companies with high ratings and companies with low ratings. This reflects the increased risk premium in the corporate sector as a whole. Together with the weak development on the stock market, the increased interest rate spreads lead to a more difficult financing situation for many companies, which should have a restraining influence on the economy.

## CONTINUED STABLE HOUSE PRICES

In Sweden as in the USA, the negative effects on the economy of the unrest and falls on the stock markets have been counteracted by property prices continuing to rise. The real annual rate of increase for prices of single-family dwellings in Sweden, the UK and the USA has been positive during the entire latter part of the 1990s (see Figure 5). For Sweden and the USA price developments do not appear dramatic at present, with annual increases of around 5 per cent, while British prices stand out with a current rate of increase of 17 per cent. This development should also be seen in the light of all of the countries having falling real prices during the first half of the 1990s, with a significant fall in Sweden and the UK in particular. Developments in house prices have underpinned the level of economic activity. At the same time, this has created unease over a possible “price bubble” on the market for single-family dwellings. If this is a bubble and it should burst, it could have effects on households’ consumption and there is a risk that US households’ consumption as driving force behind the global economy would thus disappear.

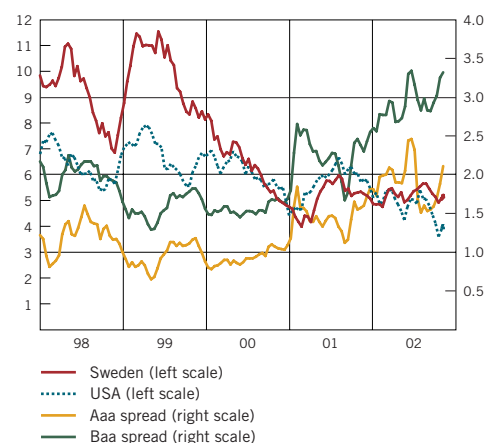
An important observation is that both real and nominal interest rates in all three countries are at historically low levels. In the USA and the UK in particular the heavily falling interest rates are probably a strongly contributory factor behind the price increases. There is little indication that house prices in Sweden are based on over-optimistic expectations. Price developments for single-family dwellings in Sweden over the past year have reflected low interest rates, positive expectations regarding households’ own private economies, increased disposable incomes and a low level of unemployment in the Swedish economy (see also the section on the household sector in this chapter).<sup>3</sup>

On the market for commercial property, prices are still in international terms, with a few exceptions, below the levels recorded at the end of the 1980s and beginning of the 1990s.<sup>4</sup> In Sweden, pric-

<sup>3</sup> See also the Riksbank’s Inflation Report 2002:3.

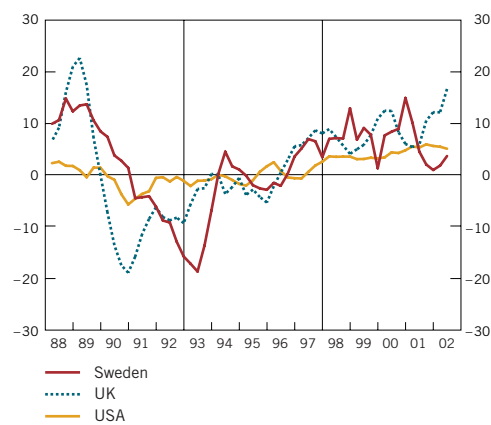
<sup>4</sup> See also Zhu, H “The case of the missing real estate cycle”, *BIS Quarterly Review*, September 2002.

**Figure 4. Ten-year government bond rates in Sweden and the USA and credit spreads for the companies with high and low credit ratings in the USA.**  
Per cent and percentage points



Sources: Ecowin and the Riksbank.

**Figure 5. Annual price changes for single-family dwellings in Sweden, the UK and the USA (real terms).**  
Per cent



Sources: Statistics Sweden, Nationwide and OFHEO.

es of commercial property, unlike single-family dwelling prices, have been falling since 2000 (see also the section on the commercial property sector).

#### DEVELOPMENTS IN THE OTHER NORDIC COUNTRIES AND GERMANY

The Swedish banks have substantial operations in other Nordic countries and in Germany. With regard to the Nordic countries, developments are not expected to deviate to any extent from developments in Sweden during 2002 and 2003. All of the countries are undergoing a period of subdued economic growth where the lowest point appears to have been passed. No dramatic deterioration of borrowers' ability to pay have been highlighted in any of the other Nordic countries' stability reports. However, the weak developments in Germany are estimated to constitute a worrying factor, where structural problems in the economy appear to be delaying economic recovery. The German banking industry also have problems. The risk of contagion into the Swedish banks is limited (see also Chapter 3 in this report).

#### INTERNATIONAL DEVELOPMENTS

##### GDP growth, annual percentage change

Country	2000	2001	2002*	2003*	2004*
Denmark	3.0	1.0	1.6	2.2	2.2
Finland	6.1	0.7	1.6	3.1	3.3
Norway	1.9	1.3	1.5	1.7	2.7
Sweden	3.6	1.2	1.7	2.3	2.1
Germany	2.9	0.6	0.5	1.9	2.0
EURO 12	3.5	1.5	1.0	2.3	2.5
Japan	2.2	-0.3	-0.7	1.2	1.7
USA	3.8	0.3	2.5	2.9	3.5

\* Forecast

Source: Sveriges Riksbank's Inflation Report, 2002:3.

#### EFFECTS ON FINANCIAL STABILITY

In addition to developments in the real economy and uncertainty in the financial markets, certain other events have attracted considerable attention in the international discussion on financial stability. The direct influence on the financial markets of WorldCom's suspension of payments was relatively slight. On the other hand, this event demonstrated a vulnerability in the financial infrastructure that had not previously been noted. This concerns the importance individual service providers may have for the financial sector and the fact that it is necessary for certain providers to be able to continue to supply services, even if the company suffers financial problems. This aspect of WorldCom's fall is discussed in the adjacent box.

Another important source of increasing concern is international conflicts, particularly the tension between the USA and Iraq. The uncertainty regarding an imminent war between the USA and Iraq has repercussions on the markets for shares, foreign exchange, bonds and oil. In addition, a number of Latin American countries other



than Argentina are facing financial unrest. Uruguay's banking sector is experiencing a crisis and Brazil's capacity to pay its foreign debt has been questioned by the market. The Swedish banks' direct exposures to these markets are limited, but they can on the other hand influence international economic activity and thereby have an indirect effect on the banks.

Currently, uncertainty on the financial markets is great and this uncertainty may endure over the coming months. National security questions and financial problems in certain countries are examples of threats that risk delaying the recovery in the economy or causing partial disturbances in the financial system. The consequences of negative surprises risk being worse than if the situation were less uncertain. Given this, the report mainly focuses on the risk of a long drawn-out economic downturn and how the banks and their borrowers could handle such a development, if it were to occur.

To obtain further indications of changes in the total risk of loan losses, there is an analysis in the following section of both indebtedness and ability to pay among the banks' borrowers. From a credit granting point of view, the non-financial companies and households are the most important borrowers for the banks. There is also a separate analysis of the development of the commercial property market, as property companies are the largest individual industry in the banks' corporate lending and property is also used to a large extent as collateral for loans to companies in other industries.

## THE FINANCIAL SYSTEM'S DEPENDENCE ON SUPPLIERS: THE CASE OF WORLDCOM

Today the vast majority of all financial trading occurs electronically, with communication between participants, stock markets and other financial institutions taking place with the aid of advanced telecommunications and computer network services. Stock markets now consist in practice of large computer centres to manage the numerous transactions flowing in. The institutions responsible for clearing and settling these transactions are completely dependent on computers, particularly as the securities traded generally only exist in electronic form. The dependence on telecommunications and computer network services and the technical infrastructure that supports these is therefore great. This means in turn that there is considerable dependence on the companies providing these services.

It is a well-known fact that information technology is sensitive to disturbances of a technical nature.

On the other hand, it is not always clear how problems ensuing from a supplier experiencing financial difficulties should be handled. Telecommunications and computer network services are often produced within a complicated network of different suppliers and in the event of a failure it is not always easy to rapidly replace one supplier with another. Sometimes the access to a particular company's services can be particularly critical, which is illustrated by the case of WorldCom.

WorldCom is one of the world's largest suppliers of telephony, computer networks and Internet services, and is responsible for the telecommunications capacity of several stock markets around the world, as well as for a considerable part of the communications between the market participants, stock markets and other financial institutions. In May this year it was revealed that there were severe improprieties in the company's accounts. This led to a serious confidence crisis among the company's financiers and to the company eventually filing a petition for reorganisation under Chapter 11 of the US Bankruptcy Code. If the problems had caused WorldCom to close down its operations at short notice, this could have entailed major problems for the functioning of the financial sector. In Sweden WorldCom is a main supplier of telecommunications and data network services to a number of the largest financial companies, but it leases delivery capacity from other operators. WorldCom's suspension of payments affected the company's capacity to pay leas-

ing costs to other suppliers in the Swedish network, which entailed a risk that they would stop supplying to WorldCom. This would have endangered the supply of telephone lines, mobile telephone traffic and a number of other services, with incalculable effects on WorldCom's customer. Fortunately, the crisis at WorldCom did not take such a dramatic course and Swedish customers have so far remained unaffected.

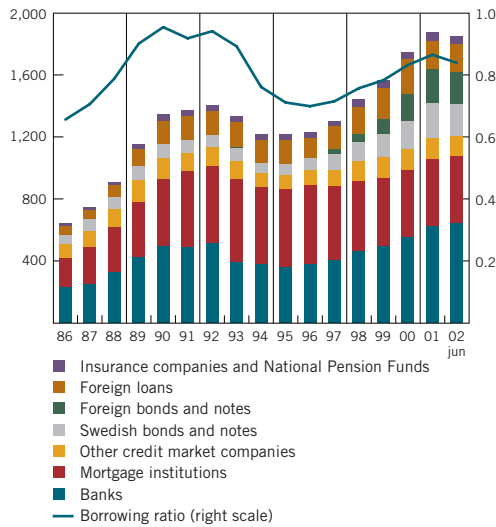
Another situation, which could have entailed serious consequences in a similar manner for the financial system was when the telecommunications services company Global Crossing took over operations of the computer networks for SWIFT. It is a bank-owned organisation that runs a world-wide network for exchange of financial messages, for instance, instructions to transfer money via a payment system.<sup>5</sup> A few months after the takeover, Global Crossing went bankrupt and SWIFT had to take over operation once again at short notice. Excessive dependence on an individual software supplier can also constitute a risk, as illustrated by the computer problems faced by Nordea at the year-end 2000/2001.<sup>6</sup>

Although there was no extensive systemic crisis as a result of these events, these cases make us think seriously about the financial sector's vulnerability to the failure of a supplier of important telecommunications and computer network services. There is every reason to take this vulnerability seriously. For some companies the solution might be to have double suppliers for critical services. In other cases it may be more beneficial to have one supplier, for instance if this single supplier can guarantee that the main communications cable and reserve are physically separate. The question of how to limit the effects of potential disturbances on individual companies as well as the financial system is not a simple one and requires further deliberation and discussion. One reflection is that banks and clearing institutions are exposed to regulations and are placed under supervision because problems they experience could threaten the stability of the financial system. If the financial system were also to be dependent on other companies, it may be necessary for the authorities to find ways of managing situations where they suffer such problems that they cannot supply their services. How this can be achieved is a very open question. As in many other contexts, it is a matter of weighing the cost of safeguarding the functioning of the system against the cost to society if the system were put out of action.

5 SWIFT stands for Society for Worldwide Interbank Financial Telecommunication.

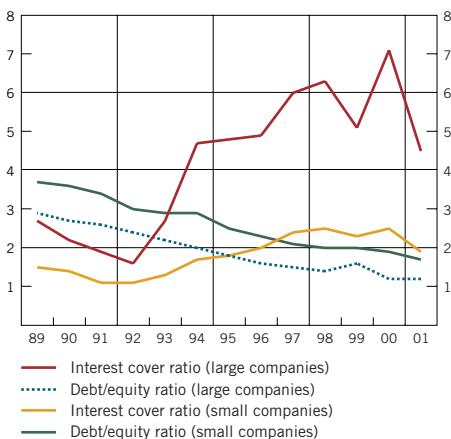
6 This event was commented on in the Financial Stability Report 2001:1, p. 71 onwards.

**Figure 6. Corporate borrowing and borrowing ratio. SEK billion and per cent**



Source: The Riksbank.

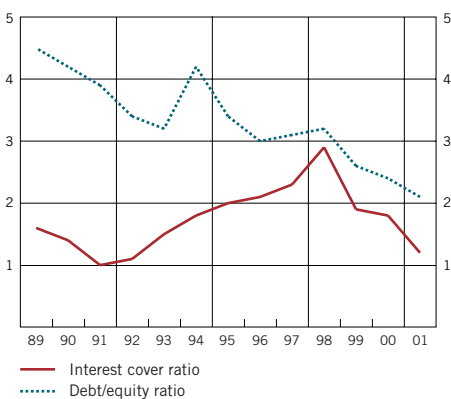
**Figure 7. Interest cover ratio and debt/equity ratio in small and large companies. Ratio**



Note. The interest cover ratio is defined as operating profit/loss plus financial income divided by financial costs. The debt/equity ratio is defined as debt divided by equity.

Source: UC AB.

**Figure 8. Interest cover ratio and debt/equity ratio among newly started companies. Ratio**



Source: UC AB.

## The corporate sector

Approximately one half of the Swedish banking system's lending to the Swedish general public constitutes loans to non-financial companies. Historically, the corporate sector has also been responsible for the major part of the banks' loan losses. To gain some idea of whether the risk of loan losses has increased, it is useful to study the corporate sector's indebtedness and ability to pay, as well as how the banks' lending to the sector has developed.

If corporate sector borrowing is broken down into the different sources of financing in the credit market, it is possible to obtain a picture of the extent to which credit risks are concentrated to the banking sector. For the first time since 1995, companies are this year reducing their total borrowing, i.e. the total financing from financial institutions and borrowing in the market. During the first half of the year, the corporate sector's total borrowing has declined by around 2 per cent on an annual rate, which can be compared with a rate of increase of approximately 7 per cent a year during the past 16 years. The economic slowdown and a weaker profit development in the corporate sector since the second half of 2001 have reduced the demand for loans. As a result of the decline in borrowing, the corporate sector borrowing ratio – expressed as total lending in relation to GDP – is falling, although it is still at a relatively high level (see Figure 6). It is mainly borrowing in the Swedish and foreign bond markets that is declining, while borrowing in the Swedish banking sector is still increasing, albeit at a weaker rate.

Companies' borrowing in the banking sector has increased by an average of 6 per cent during the first half of 2002, which can be compared with an average rate of increase of approximately 12 per cent per year during the past six years. On the other hand, companies' borrowing via mortgage institutions and other credit market companies has fallen so far this year. Similarly, companies' borrowing in the bond market has declined so far this year; down 10 per cent on the Swedish bond market and 7 per cent on the international bond market.

A critical factor in whether there has been any build-up of risk in the banks' lending is companies' capacity to service their debts. Data from financial statements for 2001, divided into small, large and newly-started non-financial companies, shows a weaker financial position for all categories.<sup>7</sup> During 2001 profit developments deteriorated considerably in the corporate sector and this has contributed to a decline in the companies' interest cover ratio. At the same time, the debt/equity ratio has levelled off for large companies and fallen for small and new companies (see Figures 7–8).<sup>8</sup>

7 Small companies refers to companies with a turnover of less than SEK 5 million, large companies refers to companies with a turnover of more than SEK 5 million and new companies are companies less than two years old.

8 The interest cover ratio is defined as operating profit/loss plus financial income divided by financial costs. The debt/equity ratio is defined as debts divided by equity.

However, the interest cover ratio appears to be falling more rapidly than the debt/equity ratio and indicates that the corporate sector's capacity to bear its debts has weakened to a relatively large degree during 2001. Interim reports for the third quarter of this year indicate that profit developments in the corporate sector have weakened further.<sup>9</sup> Calculated implicit volatilities for options with OMX-index as underlying asset are relatively high and indicate that investors in the Swedish market expect profits to be weak for Swedish companies for the coming three month period.

The default frequency in the corporate sector provides a rough estimate of the credit risks in the banks. During the period from the beginning of January to the end of September this year, the number of company defaults rose by 8 per cent on average, which can be compared with 6.5 per cent during the corresponding period in the previous year (see Figure 10). The number of employees in defaulting companies has continued to increase somewhat so far this year and indicates that larger companies are suffering bankruptcy to a slightly greater extent. However, it is still the case that more than 95 per cent of defaults occur in companies with fewer than 20 employees.

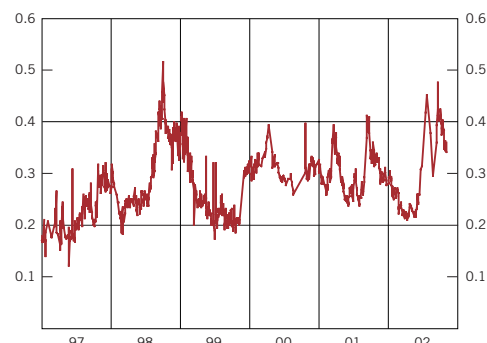
The expected default frequencies for Swedish listed non-financial companies, calculated on the basis of stock market information and data from financial statements, shows that the aggregated default risk in the corporate sector one year ahead has increased since November 2001 (see Figure 11).<sup>10</sup> Market participants expect that the probability of companies' assets failing to cover their liabilities will increase one year ahead.

The previous Financial Stability Report highlighted ABB's financing problems as an example of how credit volumes can move from the bond market to the banks in periods when credit risk is increasing. Since then the company has experienced continued profitability problems and renegotiated the conditions for its borrowing, albeit mainly with foreign banks. In addition to the example of ABB, the telecom sector and in particular Ericsson were highlighted in the previous report. The problems in the telecom sector warrant a special monitoring of the banks' exposures to this sector. The first time the banks' telecom exposures were emphasized (in the Financial Stability Report 2001:1), the banks' lending to operators and manufacturers in the telecom sector amounted to two per cent of their total lending. These relatively modest exposures were not assessed to constitute any threat to the stability of the banks. Since then the banks have reduced their exposures to the telecom sector.

<sup>9</sup> The data is based on interim reports from 241 listed companies for the third quarter of 2002. Source: SIX.

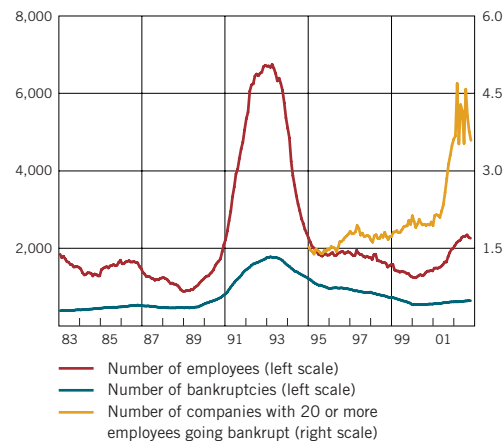
<sup>10</sup> KMV Corporation calculates the probability of bankruptcy in limited companies within a given time horizon, the Expected Default Frequency (EDF), on the basis of share prices and data from financial statements. By calculating the probability of the market value of a company's assets falling below the size of its debts at the time of maturity of the debts, the EDF shows the risk of a listed company being unable to meet its payments. The market value of the company's assets is in turn derived from the company's market value, using option pricing methods.

**Figure 9. Implicit volatilities for options with a three-month maturity and with the OMX index as underlying asset.**  
Index



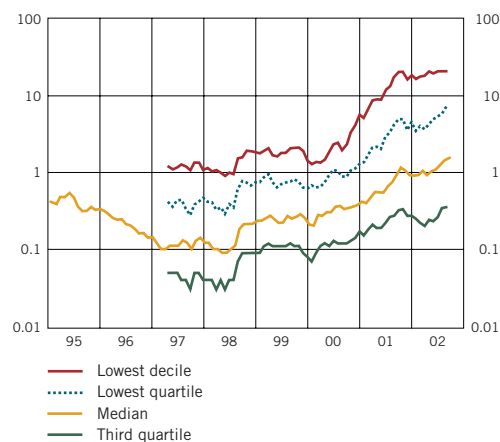
Sources: Datastream and the Riksbank

**Figure 10. Number of company bankruptcies, number of employees in companies going bankrupt and percentage of companies with 20 or more employees going bankrupt.**  
12-month moving average and per cent



Source: Statistics Sweden.

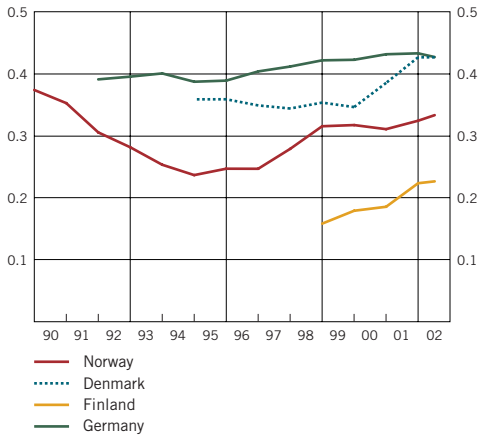
**Figure 11. Expected default frequency (EDF) for non-financial listed companies.**  
Per cent (logarithmic scale)



Note. The lowest decile are the ten per cent least creditworthy companies. The lowest quartile are the 25 per cent least creditworthy companies.

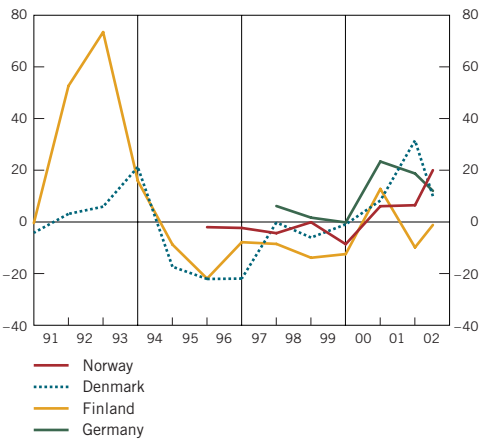
Source: KMV Corporation.

**Figure 12. Borrowing ratio for non-financial companies in the Nordic countries and Germany, percentage of GDP. Ratio**



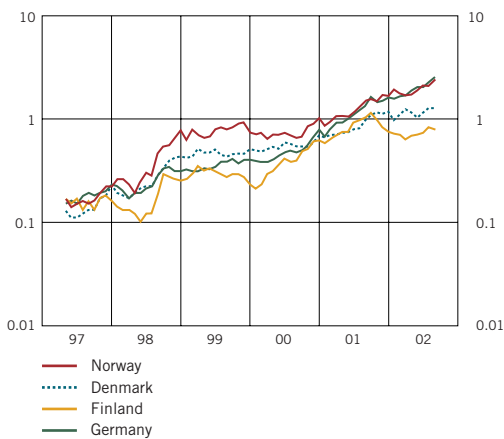
Sources: The Nordic central banks and the Bundesbank.

**Figure 13. Company bankruptcies in the Nordic countries and Germany. Percentage change**



Sources: The Nordic central banks, the Bundesbank and UC AB.

**Figure 14. Expected default frequency (EDF) for non-financial companies in the Nordic countries and Germany. Per cent (logarithmic scale)**



Source: KMV Corporation.

Most of the Swedish banks' borrowers abroad are in Germany and the other Nordic countries. A subdued demand for credit has contributed to a levelling off of corporate sector borrowing as a percentage of GDP in all of these countries (see Figure 12). Bankruptcy statistics show that the number of company bankruptcies is increasing relatively strongly in Norway, while the rate of increase for the number of bankruptcies remains at a relatively high level in Germany. The estimated default frequency confirms that the risk of bankruptcy has increased in both of these countries. In Norway, the bankruptcy risk has increased over the past six months, while in Germany it has increased at a steady rate over the past three years (see Figures 13 and 14). The total picture of lending and bankruptcy statistics indicates that the risks in credit granting to German and Norwegian companies have increased slightly.

SUMMARY COMMENTS

Lending by banks and other credit institutions to the corporate sector has slackened during the first half of 2002. The lending ratio defined as the corporate sector's total borrowing in the credit market divided by GDP, has declined for the first time since 1995. According to data from annual reports for 2001, companies' financial positions have weakened. In addition, a slight increase can be noted in the number of company defaults during the first nine months of the year, although the defaults mainly take place within small companies. Nevertheless, the expected default frequency, based on market information, shows an increased risk of bankruptcy in the Swedish corporate sector one year ahead. However, this is not a question of any dramatic increase in the number of bankruptcies over the coming year. It is when the economy shows a negative growth rate that the number of bankruptcies can reach such levels that it could lead to any significant loan losses in the banking sector.

## THE SIGNIFICANCE OF LARGE CORPORATIONS FOR FINANCIAL STABILITY

Sweden's corporate structure is strongly concentrated and it often appears as though the economy is heavily dependent on individual companies. It could thus be imagined that the problems faced by individual companies over the past year might constitute a threat to the banks if the problems were to further worsen. This box shows, on the basis of developments at Ericsson and ABB, that the effects on the banks have nevertheless been limited.

- There is always a risk of *loan losses* on loans to the companies concerned. The banks set limits for the size of loans to individual companies, as there is a clear risk that individual companies can suspend payments and the banks must be able to manage this. Legislation on large exposures also sets limits for the size of individual exposures. The banks' ability to manage individual company failures is illustrated by the fact that the suspension of payments by Enron and WorldCom did not cause loan losses sufficient to threaten any bank's financial position. Bank borrowing by Ericsson and ABB is not very large (see Table on the next page). This borrowing is also spread over several different banks.
- There is a risk that the banks' exposures to companies under threat will increase. Today, large corporations borrow extensively on the bond market. When a company's credit rating falls, this borrowing often becomes too expensive and new loans are taken from the banks instead. The banks may find it difficult to refuse loans, even if the risk level in the company has increased significantly, as the company would then risk facing acute liquidity problems. The banks would then risk losing money on loans granted earlier. During the spring, ABB took up large new loans from a group of banks, all of them foreign banks.
- The individual companies can also affect the banks in that they directly influence *general economic developments*. It is not possible to point directly to the respective company's contribution to GDP. However, estimates show that Ericsson's contribution to Sweden's GDP may be in the region of 1.6 per cent, while the company employs 0.8 per cent of the number of employed persons in Sweden. Problems in Ericsson are thus serious, but not crucial to the development of

the Swedish economy as a whole. It should be emphasised that problems for the companies often lead to cutbacks and sales of operations, that is to say, the company does not disappear completely; some production and jobs remain in one form or another.

- It is much more difficult to assess the *indirect effects* of an individual company's problems. Sub-contractors do not receive the same business as before. Trade and service in regions where companies have closed down have fewer customers remaining. These effects can be as large as the direct effects.
- *Falls in the price of the company's shares* also affect households' wealth, which could affect both their ability to pay and their willingness to consume. As households' holdings of the Ericsson and ABB shares are so small (see Table below), further falls in price should have no great effect on households' balance sheets. Households' consumption and ability to pay are not usually affected to a large extent by fluctuations in the stock market.

#### FACTS ON ERICSSON AND ABB

		Ericsson	ABB
Borrowing from credit institutions (Year 2001):	Utilised	SEK 21 billion	SEK 69 billion
	Unutilised	SEK 28 billion	
Rating history:	Top listing	A1 (2000)	Aa2 (2002)
	Current rating	Ba2	Baa
Percentage of total stock market value:	Top listing	37 %	2.5 %
	Current value	6.5 %	0.14 %
Percentage of households' financial assets:	Top listing	14 %	1.6 %
	Current value	2 %	<1 %
Percentage of those employed in Sweden:		0.8 %	0.35 %
Contribution to GDP:		1.6 %	0.7 %

Note. Both the percentage of households' financial assets and the contribution to GDP consist of internal estimates made by the Riksbank. ABB's borrowing consists of debt and operating lease obligations as reported in their annual report 2001.

To summarise, the effects of problems in individual companies should not in themselves entail a major threat to the stability of the banking system. If problems deteriorate at the same time as vulnerability in the banks is increasing for other reasons, for instance in connection with a recession, the consequences could of course be more serious.



## The commercial property sector

Developments in the commercial property sector<sup>11</sup> are in many ways linked to developments in the financial sector. The most important direct link derives from the property companies being large borrowers from the banks. In June 2002 the banks' lending to the property sector constituted approximately 16 per cent of their total lending.<sup>12</sup> In addition, a large part of bank lending is with property as collateral. In June this year 35 per cent of the banks' total lending was comprised of loans with property as collateral.

The links between the two sectors mean that imbalances in the property sector can lead to vulnerability and possibly even to losses and to crises in the banks. The development of the property sector, combined with a strong growth in credit, has also been a contributing factor in several financial crises around the world. As we know, this sector also played an important role in the Swedish bank crisis in the 1990s.

As a result, developments in the property sector are an important factor in the Riksbank's assessment of stability in the financial system. This section studies the development of prices and rents in the commercial property sector and developments in the property companies. Trends in prices and rents are important to the development in value of the property as collateral and to the property companies' earnings. The market for commercial premises and the market for apartment blocks are dealt with separately as they differ from one another in several aspects.

### THE MARKET FOR COMMERCIAL PREMISES

Prices for commercial premises have fallen by approximately 28 per cent in central parts of Stockholm since the peak figures in the year 2000. The greater part of this decline has taken place during the current year. In Gothenburg prices have fallen by a moderate 2 per cent over the course of this year, but fell by 12 per cent in 2001. In Malmö, which had its peak year in 2001, prices have fallen by 7 per cent. The fall during 2001 and 2002 broke an upward trend from the mid-1990s (see Figure 16).

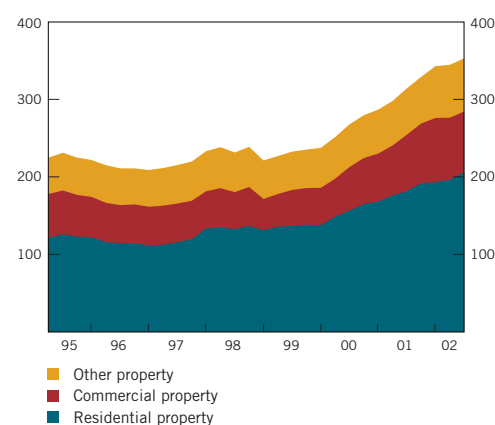
Under ordinary circumstances it is possible to calculate the market value of commercial property by means of the cash flow method. According to this, the price is connected to the present cash flow – which for property companies largely comprises rental income – investors' yield requirements on investment and discounted values of future cash flows. A decline in the property price can thus be caused by lower cash flows now, an increase in the yield requirement on investment or expectations of lower future cash flows.

However, there are no indications in the market that the yield requirement has changed, nor is there reason to believe that it has changed significantly during the relatively short period since the price fall began. The following analysis focuses therefore on changes in rent levels and expectations of future rent levels.

<sup>11</sup> This section deals with the commercial property sector, which is defined as property rented out as accommodation and offices. In the text the term commercial premises refers to offices.

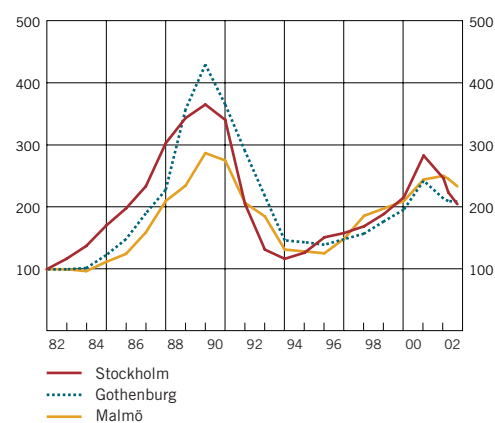
<sup>12</sup> Refers to the four major banks.

Figure 15. The banks' lending with collateral in property. SEK billion



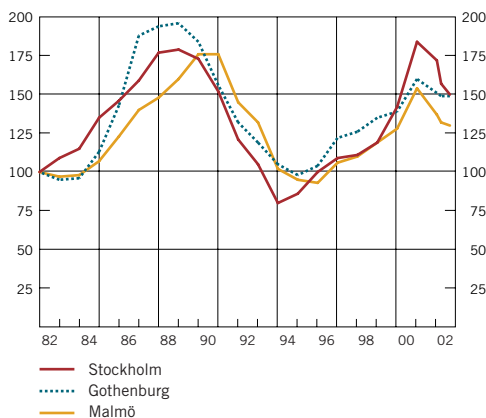
Source: The Swedish Financial Supervisory Authority.

Figure 16. Developments in real prices of commercial property in Stockholm, Gothenburg and Malmö. Index 1981=100



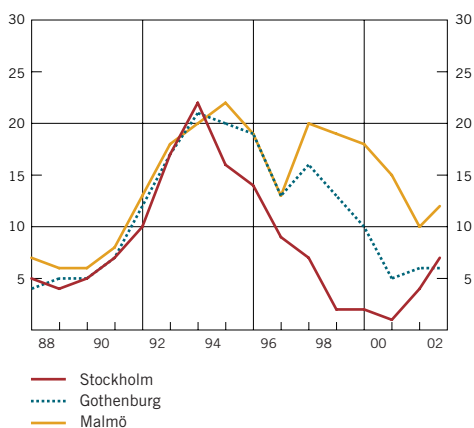
Sources: NewSec AB and the Riksbank.

**Figure 17. Developments in real rents for commercial property in Stockholm, Gothenburg and Malmö. Index 1981=100**



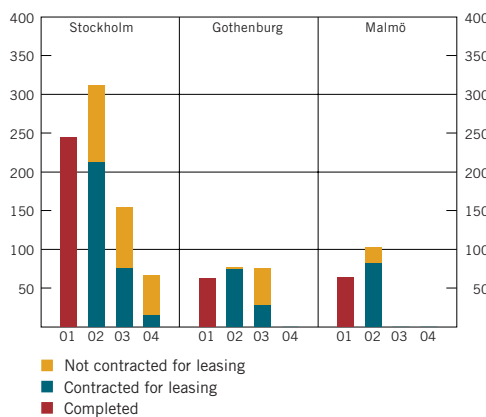
Sources: NewSec AB och the Riksbank.

**Figure 18. Vacancy rates for commercial property in metropolitan areas. Per cent**



Source: NewSec AB.

**Figure 19. Supply of premises, completed and estimated. 1,000 square metres**



Note. There is no forecast for Malmö for 2003.

Source: Jones Lang Lasalle.

The rental market for commercial property has continued to slacken during 2002 (see Figure 17). Rent levels on newly-signed contracts in Stockholm's central business district have fallen from approximately SEK 6,000 per square meter at the end of 2000 to approximately SEK 4,000 per square meter during Q3 2002. Over the course of this year, rents have fallen by around 10-15 per cent in Stockholm, but by a modest 3-5 per cent in Gothenburg and Malmö. The decline in rent levels is probably mainly caused by the slowdown in economic activity. In Stockholm, which has been exposed to a greater extent to the problems in the IT and finance sectors, this has been reflected in larger reductions in rents.

The lower rents are partly explained by higher vacancy rates (see Figure 18). The percentage of the property stock which has not been leased and reflects imbalances in demand and supply on the property market. The vacancy rates have increased in Stockholm city, from 1 per cent in 2000 to 6.5 per cent for Q3 2002. In Gothenburg the vacancy rates remain unchanged, which means that for the first time since the previous crisis this city has lower vacancy rates than Stockholm. In Malmö the vacancy rates have begun to rise but are still lower than in 2000. As with rent trends, the change in vacancy rates has been greater in Stockholm than in Gothenburg and Malmö.

If one takes into account developments in rents, vacancies and the general economic slowdown, the price formation for commercial premises appears to be motivated by fundamentals. The economic slowdown has led to a lower demand pressure in the market, which has entailed higher vacancy rates and lower rents. This development is well reflected in falling prices for commercial premises, as prices are largely connected with rent trends.

To obtain an idea of future trends in rents and prices, it is necessary to make an assessment of how supply and demand for these premises may develop.

Forecasts for construction are useful in estimating the future supply of premises. According to forecasts for projects for commercial office premises that are planned or have been started, just over 310 000 square metres of office space will be completed in the Stockholm region during the year 2002. This entails an increase in new production compared with 2001 (see Figure 19). In 2003 construction of offices in Stockholm and Gothenburg is expected to decline. Office space that is built without being contracted for leasing provides an indication of the speculation element in construction. In Stockholm, 32 per cent of the planned office space has not yet been leased at the end of 2002, while the corresponding figure for Gothenburg is only 4 per cent. The figure for Malmö is 20 per cent.

Several variables affect the demand side. One is the number of white collar employees<sup>13</sup>, which comprises approximately one third of the total number of persons employed in Stockholm, one quar-

13 White collar employees are here defined as those employed in banks and other credit institutions, insurance companies, service companies for financial operations, property companies and property management companies, computer consultants and computer services offices, R&D institutions, other company service firms, civil authorities and professional organisations.

ter in Gothenburg and just over one fifth in Malmö. The total number of white collar employees increased by 2.2 per cent on an annual basis during Q3 2002. This is the smallest increase since Q2 1998 (see Figure 20). During the same period the total number of employees remained unchanged. In Stockholm the number of office employees declined by 0.3 per cent, while the figures for Gothenburg and Malmö increased by 2.9 per cent and 7.1 per cent respectively. According to the Riksbank's assessments<sup>14</sup>, employment in the corporate sector is expected to decline slightly during 2002, but increase modestly in 2003.

A further indicator of demand on the local rental market is the number of workplaces with at least five employees in office-intensive industries. Between May 2001 and May 2002 there was a slight decline in this figure in Stockholm and Malmö and a slight rise in Gothenburg. Finally, Statistics Sweden's bankruptcy statistics indicate an increase in the number of bankruptcies in office-intensive industries, which could in the longer term lead to lower demand for office space.

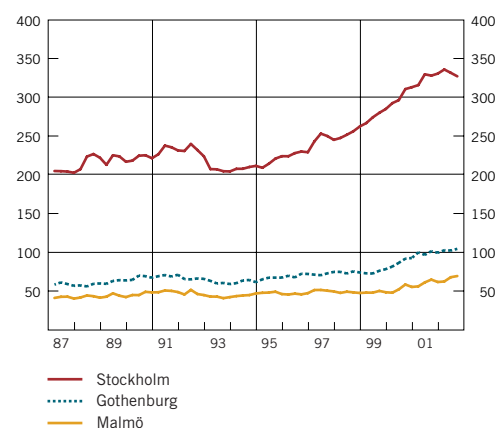
To summarise, the observed price changes since the year 2000 appear to be well-motivated on the basis of fundamentals such as trends in rents and vacancy rates. Imbalances in the form of an increased supply of office space during the year 2002, combined with a continued slackening in demand may thus lead to further reductions in rents and prices.

#### THE MARKET FOR APARTMENT BLOCKS

The pricing of apartment blocks is primarily governed by regulations such as those concerning utility value and the system for central rent negotiations. Both of these factors influence cash flows and thereby the value of the property. Previously, the conversion of rental property to tenant-owner apartments and thereby prices for tenant-owned apartments have also governed the prices for apartment blocks. This has led to large price increases since the mid-1990s (see Figure 21). Now the price increases appear to be on the wane. Contributory factors here include the fact that the rate of conversion has slowed, down partly as a result of political decisions and the number of transactions on the market has fallen. At the same time, there is a tendency for the apartment block market to attract investors in times of economic uncertainty, because of its stable return and to a lesser extent for conversion into tenant-owned apartments.

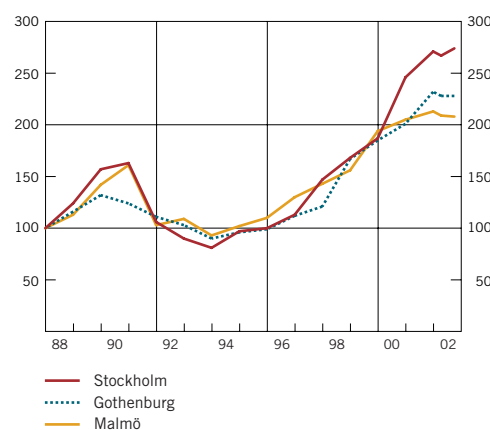
Developments in both rents and vacancy rates with regard to apartment blocks are very stable. However, developments in rents in a system with central rent negotiations can be affected by drastic changes in conditions in the form of a large increase in new production or if demand were to fall radically. Such a scenario does not appear likely, despite the fact that the number of people moving into the Stockholm region is not as great. During the first half of 2002, the net immigration into Stockholm was just over 2 500 persons, which can be compared with 15 000 persons in the year

**Figure 20. Number of white collar employees in local labour markets in Stockholm, Gothenburg and Malmö. Thousands**



Source: AKU; Statistics Sweden.

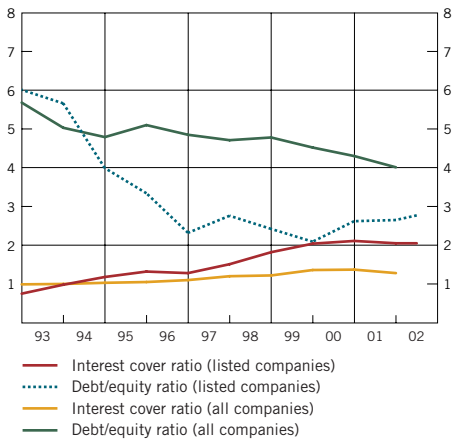
**Figure 21. Developments in real prices of apartment blocks in central locations. Index 1987=100**



Sources: NewSec AB och the Riksbank.

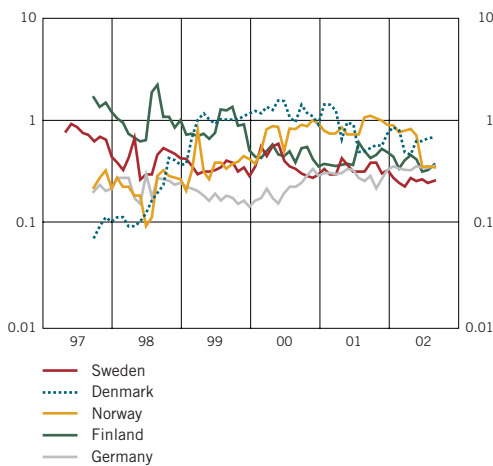
<sup>14</sup> The Riksbank's Inflation Report 2002:3.

**Figure 22. Interest cover ratio and debt/equity ratio in property companies. Ratio**



Source: UC AB (all companies) and financial statements (listed companies).

**Figure 23. Expected default frequency (EDF) for listed property companies. Per cent (logarithmic scale)**



Note. See the section on the corporate sector for a description of calculations.

Source: KMV Corporation.

1999. The corresponding net figures for people moving to Västra Götaland and Skåne were just over 3 000 and just under 4 000 respectively, which is on a par with the figures for 1999. In addition, supply changes at a slow rate as construction of new rental apartments requires long-term planning and construction processes.

#### THE PROFITABILITY AND INDEBTEDNESS OF THE PROPERTY COMPANIES

The lower rent levels and subdued demand that have characterised the period are noticeable in the individual property companies. The increase in profitability in the property companies, which was relatively high in 2001, appears to have slackened. For the first half of 2002 the operating profit in the Riksbank's sample of property companies<sup>15</sup> increased by 4 per cent compared with the same period last year. For the whole year 2001 the corresponding figure was 15 per cent. One explanation as to why the operating profit is still increasing, despite the lower rents, is that rental contracts are being signed for longer periods of time and new contracts are still being signed at higher rent levels than the existing contracts. The occupancy levels have declined somewhat among the property companies, from 95.3 per cent in Q2 2001 to 93.9 per cent in Q2 2002. This picture is confirmed by Figure 22, which shows that increases in profitability measured as interest cover ratio have ceased, while the debt/equity ratio has increased slightly for listed property companies<sup>16</sup>.

During this period the market's assessment of the property companies has also changed. Between January and the end of May this year the share prices of property companies listed on the stock market rose by 14 per cent, while the general index fell by 16 per cent. Since June and up to Mid-November, however, these share prices have fallen by 10 per cent. This was still less than the general index, which fell by 18 per cent during the same period. An additional picture of the financial position of the property companies listed on the stock market is provided by KMV's calculations of the estimated default frequency within a year. Since the Riksbank's previous Financial Stability Report, these figures have risen slightly as a result of developments in the stock market (see Figure 23). However, compared with other Nordic countries and Germany, the probability of a bankruptcy is still slightly lower in Sweden.

#### SUMMARY COMMENTS

The prices of commercial premises have continued to fall since the Riksbank's previous Financial Stability Report. However, developments in the three metropolitan regions differ and the change is most evident in Stockholm. Weaker demand has led to lower rent levels and higher vacancy rates. The construction of office premises remains at a relatively high level and there is a risk that prices will

<sup>15</sup> The sample consists of property companies listed on the stock market and covers approximately 26 million square metres, which corresponds to almost SEK 200 billion in book value assets. In Stockholm, Gothenburg and Malmö there are around 15 million square metres.

<sup>16</sup> For a definition of the interest cover ratio and the debt/equity ratio, see the section on the corporate sector.

continue to be lowered if the prevailing imbalances between demand and supply remain.

Developments in the property market is reflected in the profitability of the property companies. The operating profit increased by only 4 per cent during the first six months of this year, compared with 15 per cent last year. One contributing factor here is a decline in the degree of leasing. Despite a slackening in the increase in profitability, indebtedness in the property sector is relatively low and we see no serious threat to the financial position of the property companies at the present time and thus no threat arising from the banks' exposure to this industry. Profitability in the property sector will probably be critical for the banks if the interest cover ratio reaches quotient 1 (see Figure 22 above). At this quotient the property companies can just cover their commitments to the credit institutions. A very simplified calculation indicates that rent income for the listed property companies must decline by just over 50 per cent from the current levels if the interest cover ratio is to fall to this critical level.

## The household sector

### HOUSEHOLDS' INDEBTEDNESS AND ABILITY TO PAY

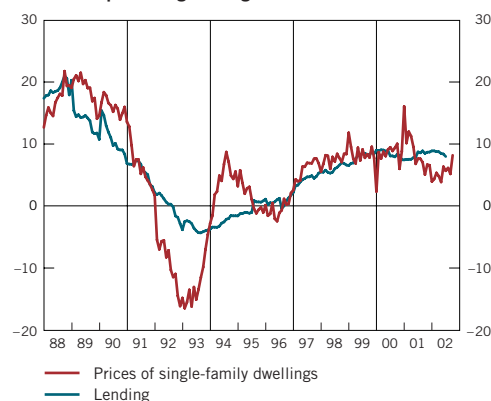
Households' expectations regarding both their own private economies and the Swedish economy have been subdued recently and have probably contributed to a decline in households' willingness to become further indebted. The credit institutions' total lending to households, which increased by just over 8 per cent on an annual basis in August this year, which can be compared with almost 9 per cent in August 2001 (see Figure 24). The fact that the rate of increase is still at a relatively high level should be attributed to the facts that unemployment is still low, disposable incomes are rising and the real interest rate is relatively low. Activity in the single-family dwelling market has remained high and prices have continued to rise.<sup>17</sup>

Since August 2001, households' choice of credit institution for borrowing has changed somewhat. The rate of increase in borrowing from mortgage institutions and banks is currently roughly the same as one year ago, while borrowing from other credit market companies has declined (see Figure 25). This may reflect a change in the reasons for household borrowing but can also be a result of the different types of loans offered by the banks.

At End-June this year, households' debts in relations to disposable income, amounted to approximately 115 per cent (see Figure 26). This debt ratio has increased steadily since 1996 and is beginning to approach the same level as prior to the crisis in the early 1990s. The Riksbank anticipates that this ratio will continue to rise somewhat over the coming year. Households' increased pessimism and a lower increase in disposable income indicate a lower rate of increase, while the low interest rates and a continuing high turnover in the property market indicate the contrary.

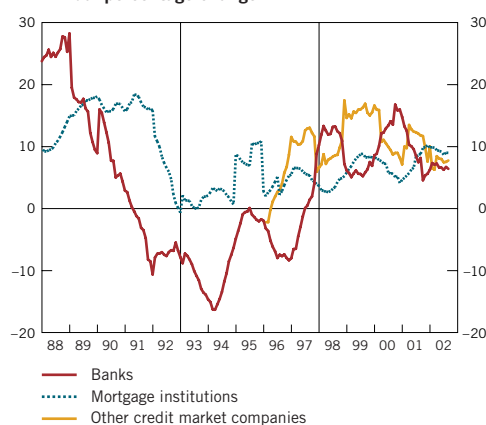
17 See also the introduction for an international comparison.

**Figure 24. Rate of change in the credit institutions' lending to households and prices of single-family dwellings. Annual percentage change.**



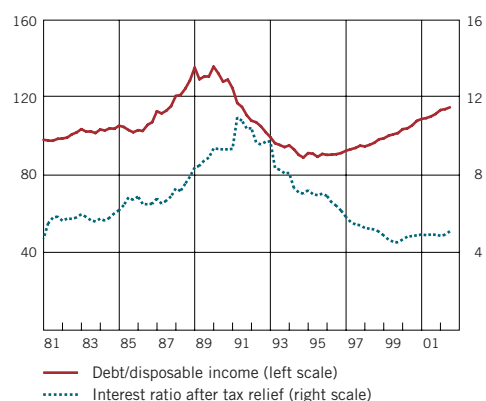
Source: Statistics Sweden and the Riksbank.

**Figure 25. Households' borrowing divided between different institutes. Annual percentage change**



Source: The Riksbank.

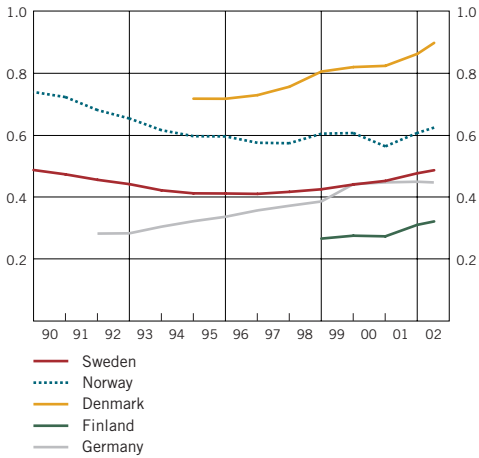
**Figure 26. Households' debts in relation to disposable income and households' interest ratio. Per cent**



Note. The interest ratio is defined as interest expenditure after tax relief divided by disposable income.

Sources: Statistics Sweden and the Riksbank.

**Figure 27. Households' borrowing ratio in the Nordic countries and Germany, percentage of GDP. Ratio**



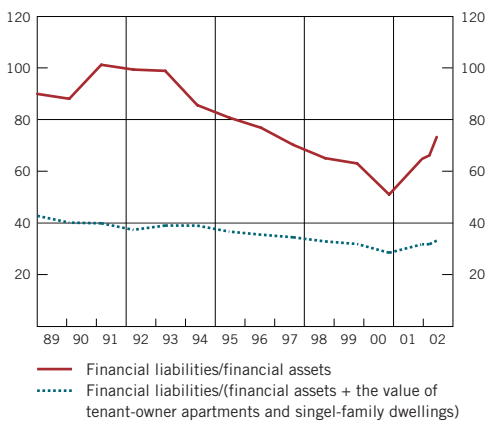
Sources: The Nordic central banks and the Bundesbank.

**Figure 28. Households' holdings of financial assets and tenant-owner apartments and single-family dwellings. SEK billion**



Sources: Statistics Sweden and the Ministry of Finance.

**Figure 29. Households' debts in relation to their assets. Per cent**



Sources: Statistics Sweden and the Ministry of Finance.

The interest ratio – interest expenditure after tax relief in relation to disposable income – has remained at a relatively constant level in recent years and is still at a historically low level. If households' disposable incomes grow by 3 per cent in nominal terms during 2003 and the increase in borrowing continues at the same rate, general interest rates would need to rise by almost 4 percentage points for the interest ratio to reach the same level in one year's time as prevailed during the bank crisis at the beginning of the 1990s.

In the Nordic countries and Germany the borrowing ratio – lending to households as a percentage of GDP – indicates that households' indebtedness is rising, but that it is still relatively low in these countries (see Figure 27).

HOUSEHOLDS' WEALTH

If payment problems were to arise, households could realise their savings in order to meet interest and mortgage payments. One indicator of households' ability to repay in the short term is their debts in relation to financial assets, as these assets are relatively easily realised. The financial assets – which consist of approximately 30 per cent share-related assets – continued to decline in value during Q2 and Q3 this year (see Figure 28).

An indicator of households' ability to pay in the long term is their debts in relation to total assets, including the value of single-family dwellings and tenant-owner apartments. In the event of increasing interest expenditure, a household has the possibility of reducing its loan costs in the longer term by choosing cheaper housing. This indicator has also weakened during Q2 2002. Prices for single-family dwellings rose during Q1 and Q2 2002, but this was not sufficient to counteract the fall in value of households' financial assets and the increased indebtedness (see Figure 29).

SUMMARY COMMENTS

Given lower growth in disposable incomes, continued financial uncertainty and a slower development in prices of single-family dwellings, the rate of increase in households' indebtedness is expected to subside over the coming year. However, indebtedness is expected to increase at a more rapid rate than disposable incomes, which will lead to an increase in the interest ratio. As yet this is at a historically low level, which means that it should not lead to any payment difficulties for households. Although it is not possible to disregard the risk of a more long drawn-out economic cycle with increasing uncertainty in the financial markets, the Riksbank anticipates that households' ability to pay will remain relatively unchanged over the coming year. This means that it should not cause any significant loan losses for the banks next year.

# Developments in the banks

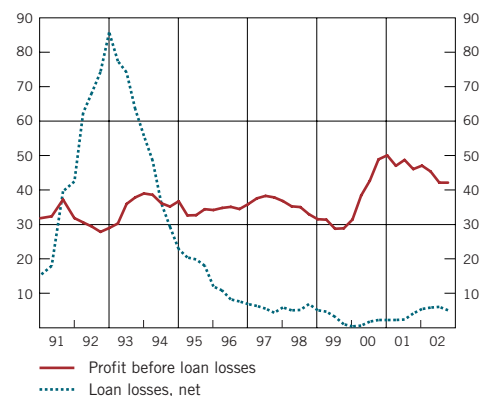
## Profitability – strategic risk

The underlying earnings of the major Swedish banks, measured as profit before loan losses, was more than eight per cent lower in September 2002 than in the same period last year (see Figure 30). During the same period, loan losses have increased by 20 per cent. The difference between underlying earnings and loan losses was highest during Q4 2000 and has since then deteriorated gradually. While earnings since then have declined by 14 per cent as a result of both lower income and higher costs, loan losses have more than doubled.

Profitability, measured as return on equity after tax, amounted to 11 per cent during the most recent reporting period. This is more than 3 percentage points lower than for the corresponding period in 2001 (see Figure 31).<sup>18</sup> In addition to the weaker earnings and higher loan losses, profitability has been under pressure from large pension allocations and depreciation in the value of financial fixed assets. This means that losses on financial assets (pension foundations and securities) have been a greater problem during the slow-down in economic activity over the past two years than losses on lending. A closer look at income also shows that the banks' core income, net interest income and net commission income, have declined only marginally over the past year, even adjusted for loan losses (see Figure 32). On the other hand, income from trading, insurance business (including pension foundations) and associated companies has declined by more than one half. Thus, the decline in the banks' profitability is rather due to the weak stock market than the downturn in the real economy.

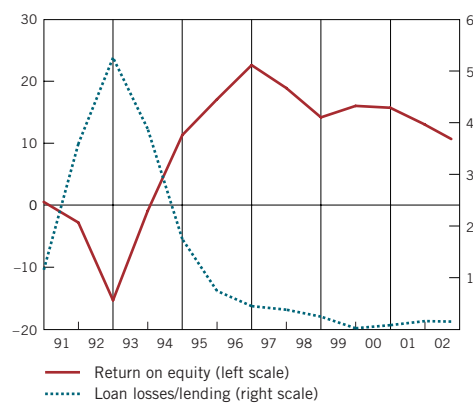
<sup>18</sup> The reporting period comprises the most recent four quarters until the end of March 2002. All comparisons are with the four previous quarters, unless otherwise stated.

**Figure 30. Profit before loan losses and loan losses, net, in the major banks, aggregate over four quarters. SEK billion, 2002 prices**



Sources: The banks' reports and the Riksbank.

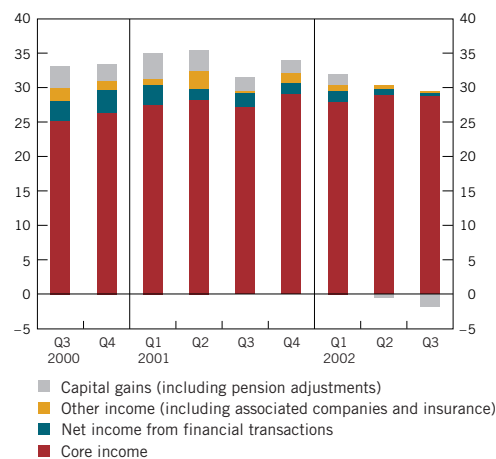
**Figure 31. Return on equity after tax and loan losses as a percentage of lending in the major banks. Per cent**



Note. The data for 2002 refer to the most recent report period (the four most recent quarters).

Sources: The banks' reports and the Riksbank.

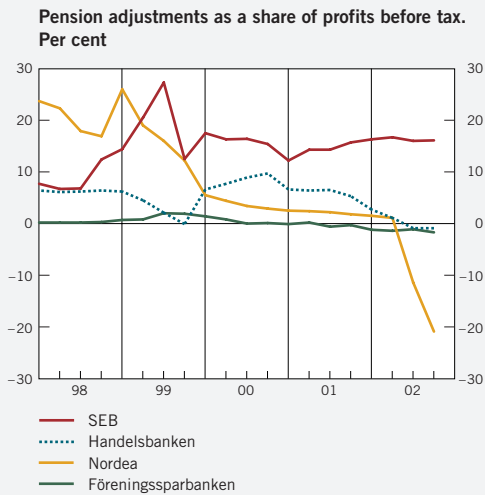
**Figure 32. Core income and financial transactions, other income and capital gains in the major banks. SEK billion**



Sources: The banks' reports and the Riksbank.

## THE MAJOR BANKS' PENSION COSTS

With the exception of Förenings sparbanken, the major banks have for many years had large pension foundations with considerable surplus values – the difference between the foundations' total assets and future pension commitments. As a result of the considerable size of the surplus values – which grew significantly during the stock market rise in the 1990s – the banks have been able to utilise the foundations' wealth to safeguard future pension commitments. This has meant that they could avoid charging their operating profits with allocations for future pensions. The effect of this on their results has sometimes been tangible (see Figure). However, during recent quarters the persistently negative development on the stock market has led to a sharp decline in these surplus values and in Nordea's case they have been completely erased. Nordea was forced to charge its result with SEK 2.5 billion during Q2 and Q3 to cover the deficit in its Swedish pension foundation. Handelsbanken has in principle stopped using its remaining surplus value, while SEB is still letting its surplus value contribute by approximately 15 per cent of the profit before tax.





## INCOME

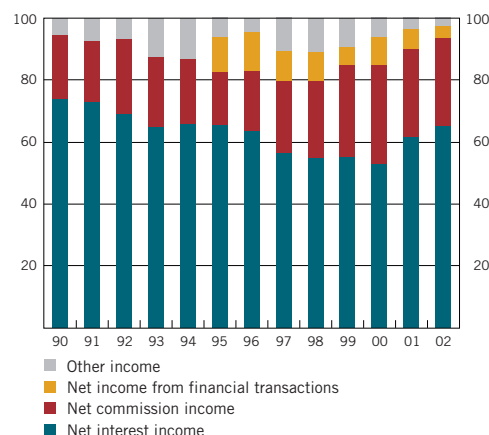
The major banks' income declined by just under 3 per cent during the most recent reporting period. The developments of recent quarters, which have been characterised by a high growth in net interest income and pronounced falls in other income items, continued during this period. Net interest income now accounts for almost 65 per cent of income, while net commission income appears to have stabilised, albeit only temporarily, around a level of just below 30 per cent. The largest decline has been in net income from financial transactions and other income, the total percentage of which has been more than halved since 2000 and now comprises less than 7 per cent of total income (see Figure 33).

Net interest income increased by 8 per cent as a result of growth in lending and deposits. However, the slowdown in lending growth noted since the start of the year has meant that net interest income has remained more or less unchanged over the past two quarters. Given a low and stable interest rate situation and continued pressure on profit margins, the increase in net income during 2001 was mainly brought about by a growth in volume. However, developments in the banks are far from uniform. At Handelsbanken in particular, but also at SEB, whose net interest income has increased by 25 per cent and 10 per cent respectively, lending has grown more rapidly and margins have developed more positively than for Förenings-sparbanken and Nordea, which have shown a much more modest development in net interest income of 6 per cent and 0 per cent respectively.

Net commission income declined by almost 4 per cent, which is entirely due to the decline on the stock market. The Nordic stock markets as a whole had declined by over 30 per cent up to September 2002, compared to a year earlier, while the stock markets in Stockholm and Helsinki fell by almost 50 per cent. The fall in share prices was accompanied by a very weak market for IPOs, mergers and acquisitions. From this perspective, a reduction of 15 per cent in the securities-related commissions does not appear remarkable. On a quarterly basis the securities commissions during Q3 2002 were on a level with the corresponding period in 2001 (see Figure 34). The reason why net commission as a whole did not decline further is that half of the commissions stem from relatively stable sources such as mediation of payments, deposits-taking and lending.

The net income from financial transactions has fallen by more than 50 per cent during the past reporting period (see Figure 35). This large decline is mainly attributable to losses in foreign exchange trading, but income from share trading has also been weak. The weak share result is largely due to falling markets and high volatility. On the other hand, there is no clear reason for the foreign exchange losses. The banks refer to low customer activity, but it is difficult to see how this could explain the very negative foreign exchange results during Q2 and Q3 in certain banks.

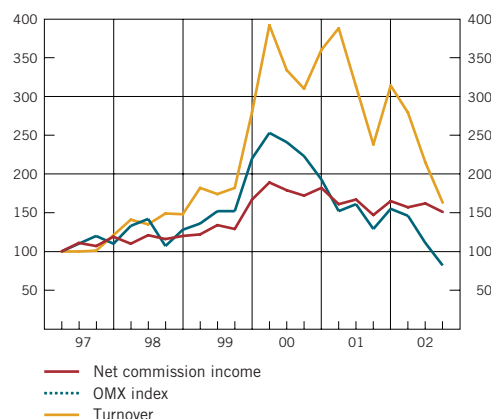
Figure 33. Breakdown of income in the major banks. Per cent



Note. The data for 2002 refer to the most recent report period (the four most recent quarters).

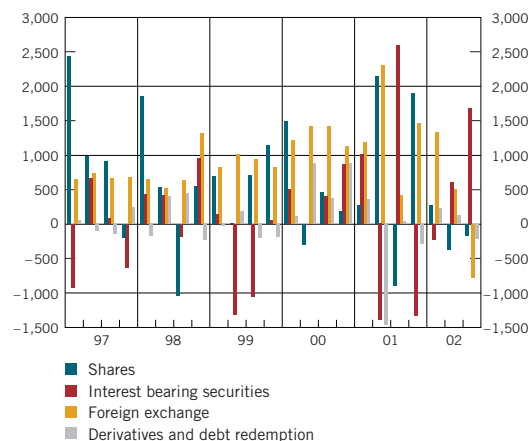
Sources: The banks' reports and the Riksbank.

Figure 34. Net commission income in the major banks plus share prices and turnover on the Stockholm Stock Exchange. Index: 1997 = 100



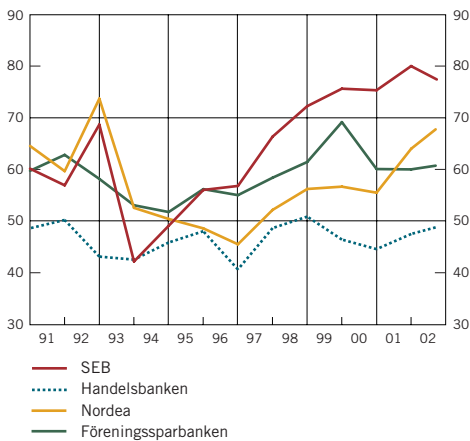
Sources: The banks' reports, the Stockholm Stock Exchange and the Riksbank.

Figure 35. Net income from financial transactions in the major banks. SEK million



Sources: The banks' reports and the Riksbank.

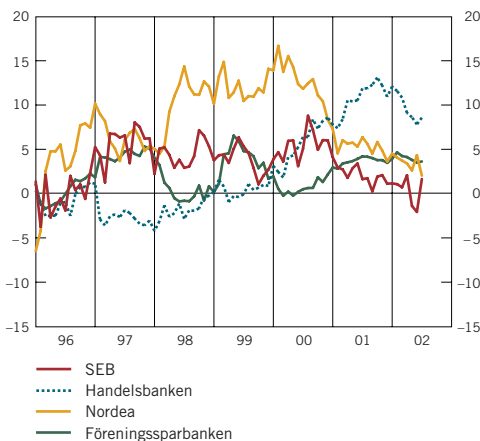
**Figure 36. Costs before loan losses as a percentage of income (C/I ratio). Per cent**



Note. The data for 2002 refer to the most recent report period (the four most recent quarters).

Sources: The banks' reports and the Riksbank.

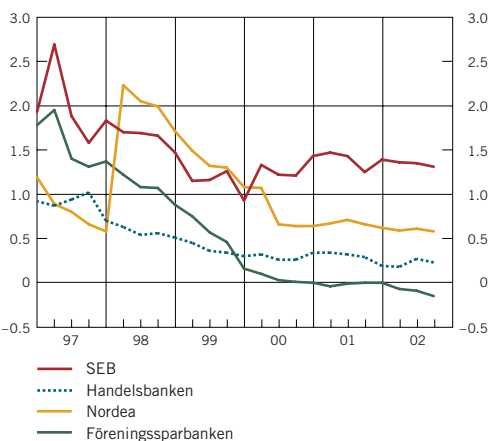
**Figure 37. Lending to the Swedish general public in the major banks. Annual percentage change**



Note. The data refer to lending in banks and mortgage institutions adjusted for securitisation.

Source: The Riksbank.

**Figure 38. Problem loans. Per cent of lending to the general public**



Sources: The banks' reports and the Riksbank.

## COSTS

Costs remained largely unchanged during the most recent reporting period. However, the aggregated development hides large differences between the banks. Föreningssparbanken and SEB are implementing aggressive cost-cutting programmes and have reduced their costs by 9 per cent and 6 per cent respectively. Handelsbanken and Nordea have continued to increase their costs, by 9 per cent and 8 per cent respectively, partly due to expansion. It can be noted that the two banks that have focussed the most on cutting costs have also had the weakest growth in income during the period. This development is clearly reflected in the C/I ratios, which have remained unchanged or declined at Föreningssparbanken and SEB, and increased slightly at Handelsbanken and Nordea (see Figure 36).

## Assets – credit risk

The major banks' assets amounted to almost SEK 5,700 billion in September, which is marginally higher than the figure one year ago. The zero growth of recent quarters stands in clear contrast to the two-digit growth during 2001. The slowdown is explained by a large reduction in lending growth and declining interbank claims and insurance assets.

## LENDING

Historically, credit problems in the banking sector have often been preceded by a rapid expansion in lending. Accelerating lending growth is therefore often used as an indicator of whether the banks are taking greater risks (see the article on credit growth in this report). The major banks' lending to the general public has grown by an average of just over 6 per cent during 2002, which corresponds to the rate of increase in 2001 (see Figure 37). Since the start of the year, however, the growth rate in lending by the major banks to the corporate sector has declined somewhat, while lending to households shows an almost unchanged rate of increase. Growth in lending at company group level was almost 3 per cent on an annual basis, which means that there has been a greater slowdown in the major banks' international operations than in the Swedish banking operations.

## ASSET QUALITY

The percentage of problem loans and loan losses with respect to total lending are indicative measures of the credit quality in a bank.<sup>19</sup> Both of these measures refer to a deterioration in credit quality that has already occurred and thus contain no information on the probability of further losses. On the other hand, the measures can be used to illustrate the historical impact of changes in the macroeconomy and therefore provide an indication of how credit quality in the banks could develop.

<sup>19</sup> Problem loans are the total bad debts after provisions and reduced interest rate claims. Loan losses, net, entail the sum of provisions for incurred and probable losses less recoveries/reversals from earlier provisions.

The percentage of problem loans in the major banks' lending has remained largely unchanged over the past two years (see Figure 38). While there are large differences between the banks, these do not necessarily reflect differences in the quality of the credit portfolios, but are also the result of differences in how the banks choose to define a doubtful debt.

Provisions for incurred and probable loan losses increased during the same period by 20 per cent (see Figure 39). However, the largest increase took place during Q3 and Q4 last year. Since then provisions have once again declined on a quarterly basis to the low level prevailing over the past three-year period.

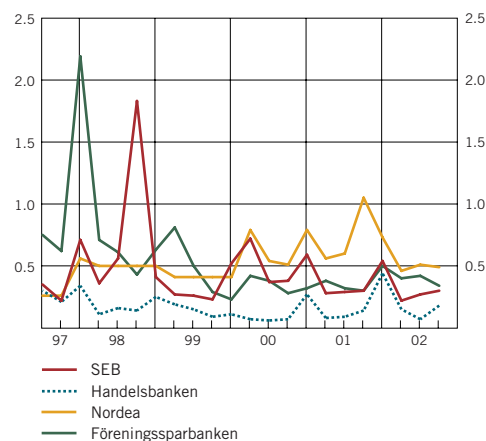
The lack of a rise in loan losses may appear surprising, given that most indicators show that credit risk in the Nordic economies has increased, although not dramatically, in recent quarters. A pessimistically-inclined explanation could be that this is only due to the fact that loan losses appear in accounts with a time lag and that it is therefore only a question of time before they appear. Another, rather more optimistic explanation is that the low levels are sustainable in the long term. Factors that would indicate this to be the case are firstly that the Swedish banks learned their lesson with regard to credit risk during the bank crisis and have since been very conservative in their credit granting and secondly that the Swedish banks' loan portfolios contain a large percentage of household and mortgage loans and relatively limited exposures to high risk sectors. However, it is difficult to comment on the correctness of these two hypotheses while the Nordic economies are developing relatively well. Of course, there are some tendencies in the current situation towards increased credit risk, but an economic slowdown or fall on the stock market would not necessarily lead to increased loan losses. The relationship between growth and loan losses is not a linear one. Loan losses are usually determined primarily by individual credit events and it is only in an economic downturn (negative growth) that a cyclical increase is visible. Credit problems on a broad scale would only arise in the case of serious profitability problems in the corporate sector and a high degree of bank financing in the industries affected. As long as these conditions do not prevail, it is not likely that the major Swedish banks would suffer any serious problems with loan losses.

Should the business cycle not recover at the, so far, expected rate, there is a high probability that loan losses will increase, in particular since the corporate sector likely will have substantially larger difficulties in weathering a protracted period of slow growth than a temporary lull.

## Funding – liquidity risk and capital

From a stability perspective, it is important to monitor the banks' funding to be able to identify potential funding problems at an early stage. In all banking the assets (long-term lending) are mostly illiquid, while the liabilities (short-term deposits and borrowing) are liquid. The international interbank market can be assumed to be the

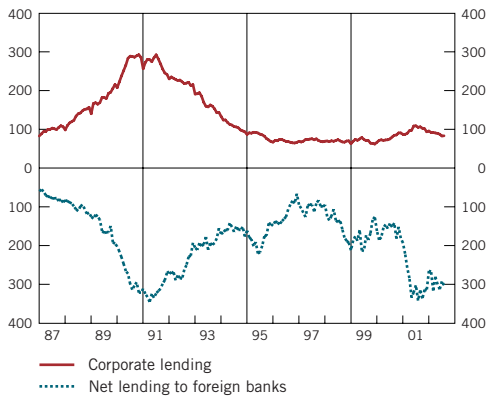
**Figure 39. Provision for incurred and probable loan losses. Per cent of lending to the general public**



Note. For Nordea 1997–1999 the data refer to results for the whole year.

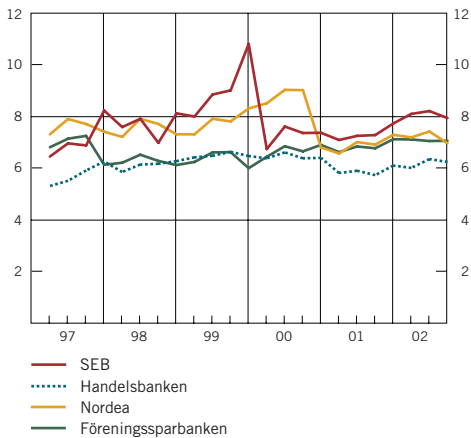
Sources: The banks' reports and the Riksbank.

**Figure 40. Lending to companies and net lending to foreign banks in foreign currency. SEK billion**



Source: The Riksbank.

**Figure 41. Tier 1 capital ratio. Per cent**



Sources: The banks' reports and the Riksbank.

most liquid source of financing for the Swedish banks. Financing on this market is by short maturities and the participants are sensitive to changes in credit ratings and confidence. If a bank's solvency should be questioned for some reason, this would probably be the first source of funding to disappear. The major Swedish banks have for a long time been net borrowers on the international inter-bank market (see Figure 40). In recent years, there has also been increasing borrowing through certificates and bonds denominated in foreign currencies. We refer to the previous Financial Stability Report for a detailed discussion of these issues.

EQUITY

Capital adequacy in the major banks amounted to 9.8 per cent in September 2002, which corresponds to the levels of the past two years. The Tier 1 capital ratio was also at a level in September that corresponded to those of the past two years (see Figure 41). At the end of the 1990s the degree of capitalisation was on occasion much higher, but this is primarily explained by the structural deals implemented then. Given the present economic prospects and the level of the banks' earnings and loan losses, the Riksbank considers the major banks' capital strength to be satisfactory.

Summary assessment

Profitability in the banking sector has continued to decline since the previous Financial Stability Report. The assessment then was that profits would not improve until the turnaround in economic activity had taken place. As the economic upturn anticipated for the second half of 2002 according to the main scenario of the previous report now appears slightly more uncertain, a potential improvement in profits has also been postponed. The banks have so far shown themselves to be relatively resistant to problems; income from core business is stable and loan losses are low. The problems that have nevertheless arisen have concerned losses on securities holdings and under-capitalised life assurance operations. Declining profitability implies a reduced capacity to absorb unexpected losses. Nonetheless, the Riksbank's assessment remains to be that the major banks are adequately capitalised to withstand a potential further economic decline. The banks' primary challenge is to retain profitability following the stock market decline without increasing risk.

## THE BANKS AND THE LIFE INSURANCE COMPANIES

*All of the four major Swedish banks own life insurance companies. Do the banks risk being affected by problems that have arisen in the life insurance sector? This box discusses four possible channels for contagion. The Riksbank's assessment is that the major banks do not face acute problems, although their long-term profits may suffer from negative developments within their affiliated life insurance companies.*

Taken altogether, the major Swedish banks' life insurance companies manage approximately 30 per cent of the total assets managed by life insurance companies in Sweden. They are run according to mutual company principles, i.e. they are non-dividend companies. Exceptions here are SHB Liv and Nordea Liv II, which together manage approximately two per cent of the assets and are dividend paying companies. In a mutual company the insurance policyholders bear the financial risk and "own" the equity. The equity is comprised of share capital and dividends. Any profits are put into the equity capital, to be distributed in the future to policy holders or to cover any losses. The banks make money from these companies through sales of the company's products and management of the company's investment assets. They may also extend their customer base through the insurance operations.

### THE LIFE ASSURANCE COMPANIES AS AT 30 SEPTEMBER 2002

Group	Company	Field	Assets (SEK billion)	Percentage of sector's assets
	Alecta	OLA	271	22%
Skandia group	Skandia Liv	TLA	215	17%
	Skandia Link	ULA	34	3%
SEB group	SEB Trygg Liv Gamla	TLA	151	12%
	SEB Trygg Liv Nya	TLA	9	1%
	SEB Trygg Liv Fondförsäkring	ULA	37	3%
	AMF-pension	TLA/ULA	175	14%
SHB group	SHB Liv	TLA/ULA	31	2%
	SPP Liv	TLA	75	6%
	SPP Liv Fond	ULA	7	1%
Länsförsäkringar	Länsförsäkringar Liv	TLA	80	6%
	Länsförsäkringar Fondliv	ULA	13	1%
Folksam	Folksam Liv	TLA	49	4%
	FolksamFond	ULA	3	0%
	Folksam LO	ULA	3	0%
FSB group	Robur Försäkring	ULA	31	2%
Nordea group	Nordea Liv I	TLA	14	1%
	Nordea Liv II	TLA/ULA	0.4	0%
	Others		46	4%
<b>Total</b>			<b>1 244</b>	<b>100%</b>

OLA: occupational life insurance, TLA: traditional life insurance, ULA: unit-linked insurance;  
Source: The Swedish Insurance Federation.

The banks could be affected by problems in the life insurance companies by means of four channels. *Firstly*, the banks may need to contribute funds to the companies' capital bases to maintain their solvency. This could be achieved through an infusion of capital or through a subordinated loan amounting to no more than one half of the capital base. Infusions of capital to mutual companies cannot be withdrawn. *Secondly*, the banks' earnings can deteriorate, both if the value of the life insurance company's investment assets declines, as the banks receive commission in proportion to the assets under management, and if the income from the sale of insurance policies declines. *Thirdly*, the results are affected if the banks choose, or are forced, to write down the value of their investments in life insurance companies. *Finally*, the banks' reputations risk being damaged if life insurance companies owned and run by them suffer problems.

On 20 November 2002, the Financial Supervisory Authority decided to reduce the highest interest rate by 0.25 percentage points for insurance contracts concluded in 2003 and later. The decision does not affect the companies' solvency nor the analyses shown in this document.

A survey carried out by Finansinspektionen (the Swedish Financial Supervisory Authority) during the summer showed that six of the thirteen largest companies indicated weak solvency.<sup>20</sup> When these six companies were examined again at the end of August, they all still met the statutory solvency requirement, but were vulnerable to, for instance, continued stock market falls or a reduction in the statutory discount rate, what is known as the *highest interest rate*. Four of these six companies belonged to one or other of the major banks' groups. If there were a hypothetical lowering of the highest interest rate by a half a percentage point, from 3.5 to 3.0 per cent, the bank-owned life insurance companies would together need to reinforce their capital base through subordinated loans and infusions of capital amounting in total to somewhere around SEK 7-10 billion, in order to meet the solvency requirement. This is on top of the almost SEK 2.5 billion the banks have already allocated to the companies over the year. These calculations are based on figures from August. Since then the companies have reduced their exposure to the stock market. The capital infusion and possible future allocations do not directly affect the banks' profits; they are merely offset against capital. The banks have good opportunities for increasing their own capital base through, for instance, subordinated loans. The contributions to the life insurance companies that might be required would not, therefore, pose any threat to the banks' own levels of capital adequacy. In the long term, howev-

<sup>20</sup> The collective consolidation of the companies constitutes a completely different issue. This issue is primarily a question of the companies' allocation of net earnings between the policyholders. The question of solvency, on the other hand, concerns the companies' ability to meet their commitments according to the life insurance contracts.

er, their profits will be affected if income from the life insurance companies does not correspond to the cost of the capital tied up in the companies.

Life insurance companies make a very minor contribution to the banks' profits. The effect that does arise is in the accounting item *net commission income* through commission on capital managed. Net commission income as a whole comprises just over one quarter of the Swedish banks' earnings. Hence, even if the earnings from life assurance operations would decline significantly, this would not comprise a serious threat to the banks' profitability. In those banks, which own dividend paying companies the *net trading income* would also be affected by developments in the life assurance companies, but these companies are small, both in relation to the other companies and to the banks.

There is also a risk that the banks' results would be affected by possible *depreciation* in the value of the investments in the balance sheet. These values can be found in different places in the banks' balance sheets; financial assets, assets in insurance operations and goodwill. In addition to depreciation according to plan, there should be write-downs where the depreciation in value is assumed to be permanent.

It would probably be negative for the banks' *credibility* and thereby for their business if they were to allow one of their life insurance companies to fall below the lowest solvency level permitted by Finansinspektionen. On the other hand, an infusion of capital to the non-dividend companies could constitute a transfer of funds, which were ultimately owned by the bank's shareholders, to the insurance policyholders. It is not clear what position would result from weighing up these options.

#### WHAT HAPPENS IF A LIFE INSURANCE COMPANY CANNOT FULFIL THE SOLVENCY REQUIREMENT?

If a life insurance company were to fall below the statutory solvency requirement, this would not necessarily mean that the insurance policyholders' money were lost, even if the bank chooses not to transfer new capital. In general, the insurance policyholders can usually count on receiving the promised insurance amount.

The Insurance Business Act stipulates that a company unable to fulfil the statutory solvency requirement must present a plan to restore its solvency level. The Act does not stipulate any precise time period in which the level shall be restored, but in principle the company would probably be given a few months to a year. If the company fails to achieve the proper solvency level it may be put into

compulsory liquidation. Liquidation of a life insurance company can usually be done under organised forms and over a long period of time, which means that the consequences for the policyholders should be limited. It is probable that the company would be placed in “run off” in connection with the liquidation, i.e. it would cease to sign new insurance policies, but would manage the existing portfolios until all of the policies had matured.

Even if a life insurance company were to be wound up, the policyholders could receive the entire insurance amount promised, which is connected with the structure of the balance sheet. The asset side is in principle market valued and thus fluctuates according to rises and falls in market prices. On the other hand, the value of the actuarial allocations, which comprises the largest item on the liabilities side, is calculated according to actuarial principles. These apply very cautious assumptions to ensure that the debts are not undervalued. If a company that does not fulfil the solvency requirement were to be wound up, the assets would most probably be sufficient to meet future commitments.

A further contributing factor to the life insurance companies' capacity to meet their commitments is the fact that these companies cannot in principle suffer liquidity problems. The majority of the payments to be made lie many years ahead. In addition, life insurance companies, unlike banks, do not risk a withdrawal run. This is because it would be unprofitable and in some cases impossible to redeem the insurance policy prematurely. The companies are thus not forced to dump their assets in order to meet requirements from the policyholders.

*All in all*, the situation in the life insurance sector does not entail any threat to the stability of the Swedish banks. However, the banks do run a risk of tying up capital for a long time at a low return. Even if they were to choose not to provide a capital infusion to their life insurance companies, the policyholders would scarcely run a risk of not receiving the promised insurance capital. This applies even if one of the insurance companies were unable to fulfil the solvency requirement.



# Counterparty and foreign exchange settlement exposures in the banking sector

*Counterparty and foreign exchange settlement exposures in the Swedish banking sector remained at the same levels as last year during the first half of 2002. The Riksbank's assessment is therefore that the risk of contagion in the banking system remain moderate. Greater transparency in the Swedish banks' management of counterparty and settlement risks could reduce uncertainty and prevent potential confidence crises in the event of a future bank crisis.*

Counterparty and settlement risks arise in many areas of financial trading.<sup>21</sup> From a stability perspective, this type of risk is of particular interest in the cases where the counterparties are banks or other financial institutions. The risk of a default is lower than for households and companies, but if it were to occur would have serious consequences for the stability of the system, because of the large exposures involved. If one Swedish bank experiences problems, there is a risk these will spread to one or more of the other major Swedish banks. One of the starting points for the Riksbank is that the major Swedish banks ought to be able to manage the sudden default of one of their most important Swedish or foreign counterparties, without experiencing such large losses that the bank's own survival were threatened.

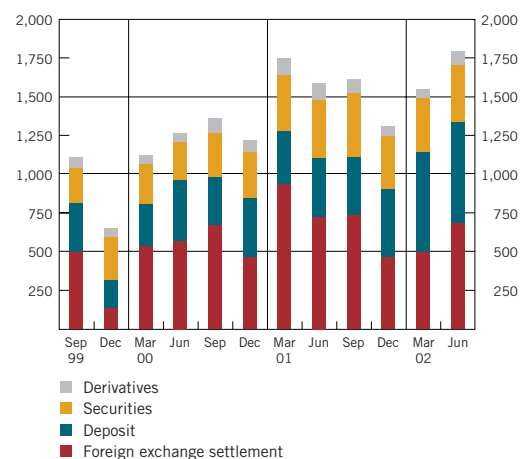
With effect from June 1999, the Riksbank has regularly gathered information from the four major banks regarding their fifteen largest individual exposures involving unsecured loans. These include derivative exposures, holdings of securities issued by private issuers, deposits and settlement exposures in foreign exchange trading. The exposures in the first three areas are added to achieve a total exposure per counterparty, and the fifteen largest are then listed. In addition, the banks' total exposures in the respective field are stated. The fifteen largest exposures to settlement in foreign exchange trading have also been reported separately, with a specification of which currency pair is involved in each case.

## The Swedish banks' counterparty exposures

Counterparty and settlement exposures in the four major Swedish banks have remained at roughly the same levels during the first half of 2002 as in 2001 (see Figure 42).

21 For a more detailed survey of the Riksbank's work on counterparty and settlement exposures, see also "Inter-bank Exposures and Systemic Risk", Sveriges Riksbank Economic Review 2002:2.

**Figure 42. Counterparty and foreign exchange settlement exposures.**  
SEK billion



Source: The Riksbank.

Exposures in foreign exchange settlement have so far this year been lower than in 2001 and are almost back to the same levels observed in 2000. The currency pair distribution in the exposures remains largely unchanged from last year.

With regard to securities, exposures have remained at approximately the same level during 2002 as last year, i.e. around SEK 350 billion. Derivatives exposures comprise only a small percentage of total exposures, but continue to be the category that varies the most. The Swedish banks' exposures through deposits have increased from an earlier stable level of between SEK 300 billion and SEK 400 billion to a new level of around SEK 650 billion in 2002.

HIGH CREDIT RATINGS REDUCE COUNTERPARTY RISKS

At a given volume of exposures, the banks' foremost means of reducing their counterparty risks is to have exposures on counterparties with high credit standing. Regular assessments of credit standing are made by Moody's and Standard & Poor's.

The credit standing of the counterparties to which the major Swedish banks are exposed is high, according to the Riksbank's data. At the turn of the year, the counterparties had an average credit rating of A1/A+, which roughly corresponds to the major Swedish banks' credit ratings (see Table below and Figure 43).

The counterparties not included among the fifteen largest should on average have a lower credit rating, but on the other hand these exposures are small in terms of amounts. During the first half of 2002, none of the banks had an individual exposure greater than SEK 1.35 billion towards the counterparties ranked fifteen or lower.

THE MAJOR SWEDISH BANKS' CREDIT RATINGS

	Moody's	Standard&Poor's
Föreningssparbanken	Aa3	A
Nordea (all banks in the group)	Aa3	A+
S E B	A2	A-
Handelsbanken	Aa2	A+

Sources: Moody's and Standard&Poor's.

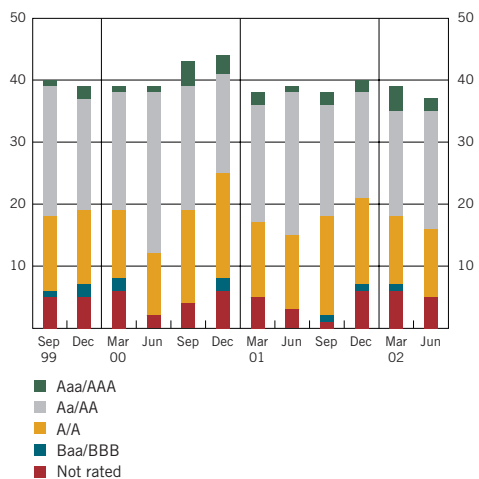
THE SWEDISH BANKS' COUNTERPARTIES

The banks can also reduce risk by limiting their counterparty exposures. The largest concentration of exposures exists between the Swedish institutions. The data show that there are clear differences in the size of the exposures the banks allow themselves against one another. The risks of contagion effects therefore vary, depending on which of the four major Swedish banks were to experience problems. If the banks chose foreign counterparties, the direct exposures between the Swedish banks would decline and thereby also the concentration of exposures within the domestic banking system.

A particular problem arises if the Swedish banks use the same counterparties to an excessive degree. The banks then run the risk of being affected both directly and indirectly by problems experienced by the common counterparty. Indirect problems arise in that other counterparties are affected by losses from the common counterparty, which can spread back to this bank. The banks are not aware of their competitors' choice of counterparties and thereby which counterparties could potentially pose a threat to the stability of the Swedish banking system.

Given that the Riksbank receives data on the 15 largest counterparties for each respective major bank, the total here must be at most 60 and at least 15 counterparties for all four banks. The actual number has varied between 37 and 44 (see Figure 43).

Figure 43. The major Swedish banks' counterparties. Number and credit rating



Sources: Moody's, Standard & Poor's and the Riksbank.

The difference between the maximum number of counterparties and the number of counterparties contained in Figure 41 comprises counterparties to which more than one Swedish bank was exposed at the time of the survey. The number can vary from one to all four of the Swedish banks being exposed to the same counterparty at any one survey point.

Since the first quarter of 2000, all the four major banks have only been exposed to one common counterparty at the same time (see Figure 44). However, the large number of counterparties shared by three of the Swedish banks gives some cause for concern, particularly as this category normally contains two or three of the other Swedish banks. In addition to the Swedish banks, the common counterparties include foreign banks and a number of large, non-financial companies.

### The risk of contagion effects between the banks

If one of the Swedish banks' larger counterparties were to default, there is some risk of a sequence default occurring. A sequence default could occur if one or more Swedish banks suffered such large losses that the size of their capital was reduced below the statutory levels.<sup>22</sup>

In the event of one of the Swedish banks losing the entire exposure to its largest counterparty, this would probably cause solvency problems for the bank. If one assumes instead that the banks recover 65 per cent of their exposures as in the example above, none of the banks would at any point have a Tier 1 capital ratio below 4 per cent. Figure 45 shows the Tier 1 capital ratio in the Swedish banks if they had lost 75 per cent of their exposure to their largest counterparty. In 11 of 48 cases observed, such an event would reduce Tier 1 capital below the statutory requirement of four per cent.

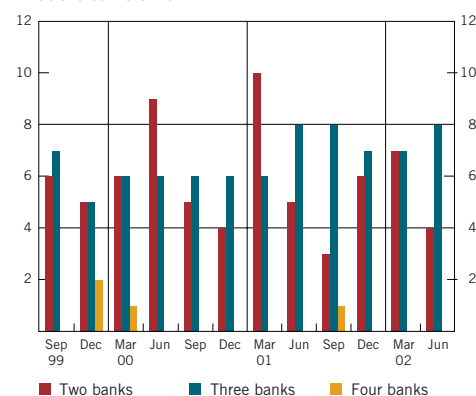
The banks' largest exposures often include settlement exposures from foreign exchange trading. During 2003 large parts of foreign exchange settlement will disappear through the introduction of foreign exchange settlement in Swedish kronor through *payment-versus-payment* (PvP) in CLS bank.<sup>23</sup> The Riksbank estimates that the total foreign exchange settlement exposures will be reduced by at least 50 per cent when the krona can be settled through PvP.

There is a risk of contagion effects between the four major Swedish banks, although this must be regarded as modest. Only a few of the reported exposures would lead to losses that reduced the exposed bank's Tier 1 capital below four per cent in the event of a default, where recovery was assumed to be 25 per cent (see Figure 46). It can be noted that the Tier 1 capital in the Swedish banks declined during 2001 and this, combined with larger exposures than before, leads to potentially lower Tier 1 capital ratios if a larger counterparty defaults.

<sup>22</sup> The assumption is that the banks' Tier 1 capital ratio must be below 4 per cent in order for contagion to actually take place from one bank to another.

<sup>23</sup> For a more detailed description of CLS Bank – improved risk management in the foreign exchange market", Financial Stability Report 2:2001.

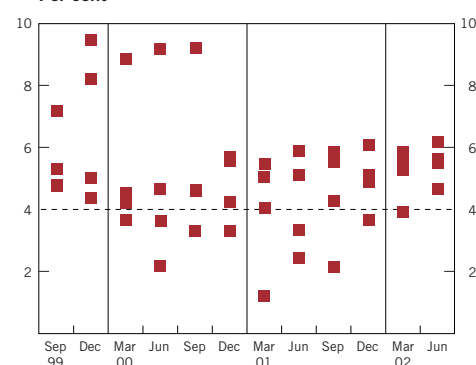
**Figure 44.** The number of counterparties that two, three or four major Swedish banks are exposed to at the same time.



Note. As an example, in December 1999 there were two counterparties to which all four major Swedish banks were exposed. In March 2000 there was only one counterparty to which all four banks were exposed.

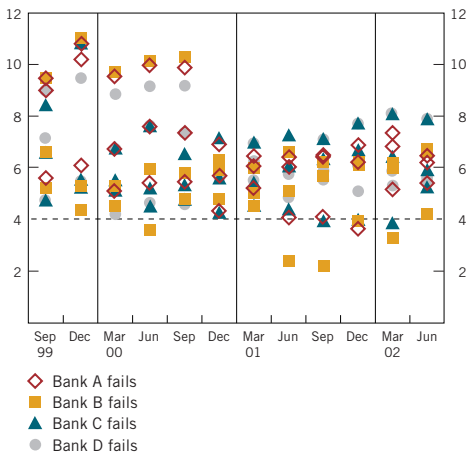
Source: The Riksbank.

**Figure 45.** Tier 1 capital ratio in the four major Swedish banks after their largest counterparty defaults. Recovery 25 per cent. Per cent



Source: The Riksbank

**Figure 46. Tier 1 capital ratio in the four major Swedish banks after one Swedish bank defaults. Recovery 25 per cent. Per cent**



Explanation. Given that Bank A fails, the Tier 1 capital ratio is calculated for banks B, C and D at the end of each quarter. Thus, it is possible to observe the Tier 1 capital ratio of the three surviving banks in each period after a specific bank has defaulted.

Source: The Riksbank

An important restriction when interpreting the calculations above is that the risk of contagion effects between the banks is most likely greater between quarter ends, when exposures are probably larger than those reported in the quarterly accounts.

The relatively good credit standing of the banks' counterparties indicates a low probability of a sudden default among one of them. In the event of a failure, only large losses with a low percentage of recovery would lead to contagion from one Swedish bank to another. The risk of contagion effects between banks is thus relatively small.

#### NEED FOR GREATER TRANSPARENCY

International interest in monitoring banks' interbank exposures has increased over the past year and an increasing number of central banks and supervisory authorities have begun to collect data or are considering doing so. Transparency regarding the banks' exposures on the interbank market and the way the related risks are managed is essential when assessing the vulnerability of a banking system. Greater insight into the banks' counterparty and settlement exposures could lead to a reduction in uncertainty on the markets as to whether the risk of problems in one bank might spread to others. Better disclosure of risks would consequently reduce uncertainty and possibly prevent confidence crises in the event of future bank crisis. It would be possible to provide an account of the banks' exposures and risks on the interbank market without revealing individual counterparties, e.g. along the lines of the current reporting of market risks and credit risks.

## PART II. ARTICLES



# Central counterparty clearing for the securities market

*Central counterparties (CCPs) have long been active in the clearing of derivative transactions, but they are a new element in the clearing of other securities. Interest in central counterparty clearing for the securities market has increased in recent years, both in Sweden and the rest of Europe. The advantages and disadvantages of this type of system are currently being discussed by both market participants and public authorities.*

Central counterparties take care of the actual clearing process between trading and settlement of securities transactions. Each transaction is replaced by two new contracts, where the central counterparty is seller to all buyers and buyer to all sellers. As a result, the original parties have a claim or a debt against the clearing house instead of each other. Clearing is carried out on a multilateral net basis<sup>24</sup> and the settlement risks the parties would have had against one another are redistributed to the central counterparty. If one party in a securities transaction defaults, two types of counterparty risk arise: full credit risk and replacement cost risk<sup>25</sup>. In Sweden, as in most of the large securities markets, the principle of “Delivery versus Payment” (DVP)<sup>26</sup> is applied in settlement. This means that full credit risk disappears from securities settlement. The remaining counterparty risk for the central counterparty to manage is the replacement cost risk.<sup>27</sup>

A central counterparty does not only redistribute risks but also reduces them. A central counterparty does not take any positions of its own and therefore does not expose itself to market risk, only to replacement cost risk towards its counterparties. A central counterparty manages this risk by several means. One is to set high membership requirements and require a high credit rating for all members. In addition, there is a requirement for collateral which with a probability of 90–95 per cent will cover the expected future exposures. Moreover, the central counterparty recalculates the value of the exposure at least once a day and demands additional collateral

Choosing a method for settlement for the securities market, implies weighing efficiency against risks. The two most common methods are *gross settlement* and *multilateral net settlement*.

In gross settlement each transaction is settled separately as it occurs. All the securities and the full payment must be transferred for each transaction. This settlement method results in low settlement risks but requires, on the other hand, more liquidity.

In multilateral net settlement all parties' claims are cleared against one another on a net basis. Hence, this method reduces the need for liquidity but results in higher risks, since the whole settlement process will be halted should one single party – irrespective of its size – default on its payments.

24 There are some central counterparties that do not net transactions, merely taking on counterparty risks.

25 Full credit risk refers to a situation where a counterparty risks losing the entire underlying value in a deal. The replacement cost risk reflects the risk that arises if a party in a transaction defaults or for some other reason fails to meet its commitments before the transaction is settled. In this case the non-defaulting party may be forced to enter into a replacement deal to secure the necessary security or money. If the market value has changed so that the replacement deal is more expensive than the original one, the non-defaulting party has made a loss.

26 DVP is applied when delivery of securities takes place at the same time as payment is made.

27 See Financial Market Report 1998:2 for a detailed discussion.



if necessary. On top of this, a central counterparty has its own financial assets to absorb any losses. These assets can take the form of equity capital, settlement guarantee funds or insurance policies.

Traditionally, central counterparties have only been found in the derivatives market, as the need for efficient risk reduction is particularly evident in this market. Replacement cost risks are much larger and more difficult to manage in the derivatives market than in the spot market, as the risk exposure extends over a longer period of time. Spot transactions are usually settled within three days after a deal is concluded. Thus, the derivative transactions give rise to longer exposures and thereby greater replacement cost risks and require good risk management. The repo market comes somewhere in between these two, with durations that are shorter than on the derivatives market but longer than on the spot market<sup>28</sup>. The advantages of a central counterparty increase if the same counterparty can be used for the spot, repo and derivatives markets, while the marginal cost of adding new instruments in an existing central counterparty system would probably be low.

Offering clearing of spot instruments in addition to derivatives entails a modest risk increase for the central counterparty, while the efficiency gains can be considerable. For one thing, as is the case in all clearing and settlement operations, central counterparty clearing has economies of scale that make it more efficient to utilise one and the same system for the various markets. Large fixed investment costs and relatively low variable costs mean that the transaction cost that arises on the margin is reduced in relation to the size of the system, thereby reducing the average cost. Secondly, if a central counterparty manages both the spot and derivative markets, it can take advantage of the participants having offsetting positions on the two markets. In this way, counterparty exposures can be reduced and the central counterparty can have less capital than would have been required for two separate central counterparties.

## The effects of a central counterparty on securities settlement

Central counterparty clearing can contribute to both more efficient and more secure securities settlement. This is mainly achieved by *multilateral netting* and *redistribution of counterparty risk*.

Efficiency gains arise primarily through smaller settlement flows, better utilisation of economies of scale and increased liquidity. The advantages on the risk side stem from fewer and more predictable exposures and simpler risk management.

### MULTILATERAL NETTING

In securities trading the same security is often sold back and forth between market participants. As a result of these transactions, a

<sup>28</sup> According to a survey by the Riksbank in 1998, most of the contracts had a duration of between one and seven days.

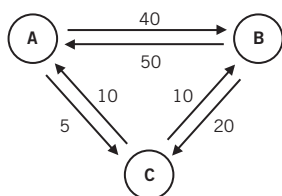




number of exposures can arise that offset one another completely or partially. When the securities transactions are cleared or settled on a net basis the participants can simply offset transactions against one another, which is illustrated in the Figure below.<sup>29</sup>

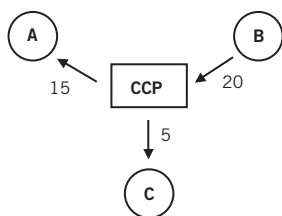
**Multilateral netting with a central counterparty (CCP)**

The exchange of payments arising from securities transactions without a CCP:



	A	B	C	To pay
A		40	5	45
B	50		20	70
C	10	10		20
To receive	60	50	25	135

The exchange of payments arising from securities transactions with a CCP:



	CCP
A	15
B	-20
C	5

Note. The same reduction in the number and value of payments can be offered by a clearing house which provides multilateral net does not act as a central counterparty. For example VPC does this.

The Figure above illustrates the difference between gross settlement and multilateral net settlement through a central counterparty in both turnover and number of settlements. If the transactions are cleared and settled gross, as in the upper part of the figure, the participants have to manage a total of six transactions. The turnover amounts to 135. If the transactions are instead cleared or settled on a multilateral net basis, the number of settlement transactions is reduced by half, which also reduces the exchange of payments between the participants. The participants' net positions towards the central counterparty constitute the difference between what each would have paid in total and what they would have received from the others in gross settlement. The Figure above shows this as the difference per participant between the final column and final row in the table. The turnover is then reduced to 40. The positive netting effect is greater the more the participants trade with one another, i.e. the larger and more numerous the exposures are between the participants.

The reduction in both the number of transactions and the turnover leads to lower total settlement costs. The direct costs that cover

<sup>29</sup> Only the payment leg of the security transaction is discussed here. The securities leg of the transaction can be netted if the exact same security is involved in the transaction. Because this is often not the case, the netting effect is smaller for the securities leg. It is more interesting for fixed income transactions than stocks because it is more often the same security that is being bought and sold.



both charges to the settlement system and internal handling costs, known as operational costs, fall. In addition, the lower value of payments means that the participants' costs for liquidity are reduced. This effect is particularly valuable if liquidity becomes scarce as a result of disturbances or shorter settlement cycles.

Risk reduction as a result of multilateral netting can also affect trade volumes positively. As a result of established practice, or in some cases regulations, market participants often limit their trading volumes to a certain percentage of their balance sheet. In these cases the netting effect increases the participants' scope for action. However, with regard to securities trading this practice is unusual as the replacement cost risk is not one that participants limit to any significant extent. The effect may have greater significance for the repo market.

Increased trading volumes lead to increased market liquidity and to better utilisation of economies of scale, which lead in turn to further savings in terms of settlement costs. Liquidity affects the participants' capacity to rapidly sell or buy securities. Increased market liquidity, combined with better utilisation of economies of scale may in turn attract new investors to the market and further increase trade volumes.

Without well-developed risk management mechanisms, multilateral netting can entail large risks. In a multilateral netting system without sufficient risk management to guarantee settlement, the default of even one participant with very small transaction values can stop the entire settlement process. In order to realise the advantages of a netting system, the market must have access to an institution offering secure multilateral net settlement. This is where the central counterparty has a role to play.

In addition to netting the transactions, a central counterparty can also net the marginal collateral the participants are obliged to offer to cover their exposures to replacement cost risk. If there is extensive trade in instruments with identical or highly correlated risks, the netting helps to lower participants' costs for capital adequacy requirements, given that the financial supervisory authorities are willing to accept this.

#### REDISTRIBUTION OF COUNTERPARTY RISK

Central counterparty clearing also entails an important redistribution of the counterparty risk from the participants to the central counterparty. Market participants exchange risks against individual counterparties for one risk against the central counterparty. If there is no central counterparty, the market participants are exposed to a counterparty risk in each transaction, which creates a need to continuously monitor the counterparties' credit positions. This reduction in the number of counterparty exposures leads to a considerable simplification of participants' risk management and reduces the related costs.

The redistribution of counterparty risks does not only lead to efficiency gains, it also has risk-reducing effects. By gathering all counterparty risks to one single counterparty, each participant obtains a diversification of risk that would not be possible for an indi-



vidual to achieve alone. This advantage increases in relation to the number of participants in the market and according to how heterogeneous their risk distribution is. When the counterparties have a homogenous risk profile, the risk-reducing effect provided by credit assessment and monitoring of counterparties is smaller in relative terms. For foreign participants with less knowledge of the local market, the transfer of risk to a central counterparty is always valuable.

The risk redistribution effect is less interesting in the spot market than in the derivatives market as the counterparty risks are not as high there. On the other hand, a failure to deliver can entail substantial administrative costs.<sup>30</sup> For this reason, counterparty clearing in spot trading may be more valuable on the stock market, where there is a large number of heterogeneous participants. In the fixed income market, on the other hand, the number of counterparties is smaller and they are often better known to one another.

The positive effects of risk redistribution become more evident when the market is turbulent and risks increase. In volatile markets participants might stop trading. This is exactly what happened among other places in the UK in connection with the stock market fall in 1987. Some of those who cease trading during times of market turbulence would probably have continued if they had a known, secure counterparty to trade with.<sup>31</sup> A central counterparty can thus contribute to more stable market liquidity.

The transfer of counterparty risk to a central counterparty also provides better conditions for anonymous trading, as an individual participant's trading does not need to be known to the others. Anonymous trading has a positive effect on the large participants incentive to trade in particular, as they do not need to worry about the effect of their own trading on market prices. Trade with a single counterparty that stands for a known and predictable risk also facilitates trade for smaller participants and thus gives them an entry into the market. The quality of anonymity thus also has a positive effect on market liquidity.

#### ASSESSMENT OF THE ADVANTAGES AND DISADVANTAGES

From an efficiency point of view, given that suitable risk management mechanisms are applied, the consequences of central counterparty clearing are consistently positive, at least in the short term. However, there are costs linked to the creation of and participation in central counterparty clearing and these must be weighed against the advantages. There are costs for acquiring capital, charges for participation and costs that arise in connection with necessary adaptations in the participants' systems. However, these do not need to be so large if there is already a properly functioning central counterparty whose services can be utilised. A total picture of the effects

<sup>30</sup> The central counterparty can handle a failure to deliver a security by having a contract with an institutional investor which would allow the central counterparty to deliver a security from the investor's portfolio.

<sup>31</sup> This is illustrated, for instance, by the market turbulence in autumn 1998. Derivative markets with a central counterparty were relatively unaffected, while many other derivative markets in principle ceased to function.



## EFFECTS OF CCP CLEARING ON THE SECURITIES MARKET

	Multilateral netting	Risk redistribution
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>■ fewer settlements</li> <li>■ economies of scale</li> <li>■ liquidity</li> </ul>	<ul style="list-style-type: none"> <li>■ simpler risk management</li> <li>■ anonymity</li> </ul>
<b>Risks</b>	<ul style="list-style-type: none"> <li>■ fewer exposures</li> <li>■ lower operational risks</li> </ul>	<ul style="list-style-type: none"> <li>■ predictable exposures</li> <li>■ diversification</li> </ul>

of central counterparty clearing in the securities market is shown in the Figure above.

The efficiency gains that can be made through the introduction of a central counterparty arise largely as a result of better utilisation of economies of scale and increased liquidity. This means that these gains increase in relation to the size of the market, both with regard to the number of participants and trade volumes. In addition, the effects on liquidity can be substantial, especially if the size of the counterparty exposures is actually a limiting factor for trade, although this need not always be the case. On the other hand, good settlement systems in themselves can be a condition for ensuring that new participants, particularly foreign participants, become interested in trading on a certain market. New participants can improve liquidity. Centralisation and a lack of competition, on the other hand, if a central counterparty is established, may lead to long-term efficiency problems. For instance, they can lead to poorer incentives for keeping costs down and may hamper the rate of innovation.

From a risk perspective, the effects of a central counterparty are not only positive. Although central counterparty clearing brings about a significant reduction in risk for the participants, this must be weighed against the concentration of risks into one central counterparty. When there is already a central counterparty managing the more risky derivative transactions, the further concentration that would arise from also including the spot market is limited.

## Central banks and central counterparties

The main reason why central banks are interested in securities settlement from a payment system perspective is that problems with this type of settlement can spread through the financial system and cause serious disturbances. This is due to the value of the securities transactions handled daily, to the key role they play as collateral in transactions and to their role in the financial institutions' risk management strategy. In addition, central banks regulate the liquidity in the banking system by providing the banks with loans against collateral. Properly-functioning securities settlement that can manage these flows in a safe and efficient manner is therefore also important for monetary policy.

From a central bank's perspective, the question of central counterparty clearing gives rise to an important trade off. It can provide substantial efficiency gains for market participants and can lead to



more liquid capital markets. However, problems can arise as a result of the large risk concentration entailed in central counterparty clearing. This risk concentration is so extensive that if the central counterparty were to fail, it would lead to the collapse of the entire securities market. The concentration can also lead to “moral hazard” problems if the central counterparty can be considered to be “too big to fail”. If the market expects that the authorities will not allow a central counterparty to fail due to the destabilising effect this would have on the financial sector, it could lead to excessive risk-taking. The requirements regarding risk management and supervision and oversight by public authorities must be dimensioned accordingly. Central banks and supervisory authorities do have experience of handling these issues, as central counterparties have long been active in the derivative market.

Traditionally, central counterparties have been user-owned, but profit-making limited companies are becoming more common in this role. Competing and profit-making central counterparties may have an incentive to lower their costs, for instance, by lowering standards for risk management or for operational security. To counteract this, the central counterparty must have adequate capital that the owners can risk in the event of problems. In addition, the owners’ and the management’s risk exposure can increase in that they contribute their own funds to the settlement guarantee fund. Efficiency aspects, particularly dynamic efficiency, point towards central counterparty systems run by listed companies, which find it easier to finance their operations through share issues. In addition, user-owned companies more often experience conflicts between different categories of owner and user that can result in a slower innovation rate and slower processes for strategic decision-making.

An analysis of the ownership structure becomes even more important if one takes into account the fact that a central counterparty often holds a monopoly position on the market. Limited companies can use their market power to achieve monopoly profits. This problem is not as acute among user-owned companies that often apply the cost plus principle<sup>32</sup> in their pricing, which entails lower charges for members. User-owned central counterparties, on the other hand, can utilise their position to favour their members, particularly the large owners at the cost of potential competition from new members.

All forms of ownership have their advantages and disadvantages. From a public authority’s point of perspective, it is important to understand these in order to follow up on problems that can arise from the different forms.

<sup>32</sup> Cost plus means the company is guaranteed to cover its production costs plus a further compensation that makes up a profit.



## A central counterparty for the Swedish securities market?

In Sweden there is central counterparty clearing for the derivatives market under the auspices of Stockholm Stock Exchange. The introduction of Swedish securities into an existing central counterparty, either within Sweden or abroad would presumably be a less dramatic change than if a central counterparty is built from scratch. Not only would the necessary investments not be as great but also public authorities would have already been forced to manage the risk concentration which a central counterparty entails. The introduction of a central counterparty for securities transactions in Sweden has been investigated by the Swedish Securities Dealers Association, the Stockholm Stock Exchange and VPC. Although the following discussion makes no pretensions to be complete, it may be interesting to review the advantages and disadvantages described in the previous sections once again and see whether they are relevant to Swedish market conditions.

The conditions for a central counterparty in Sweden differ with regard to the stock market and the fixed income market. The stock market is characterised by many market participants, many transactions and relatively low transaction values. The majority of the trading takes place anonymously. In contrast, trade in fixed income securities is characterised by few market participants, relatively few transactions, but high transaction values. This description reflects the current state of the market, but conditions may change over time. For instance, the trade in fixed income securities is currently moving over from telephone trading to the Stockholm Stock Exchange's electronic interest rate market, which is only open to market makers.

Transactions on both markets are settled by VPC. Currently, settlement occurs through a multilateral netting process that lacks risk management. If one participant is unable to meet its commitments, VPC must resort to an "unwinding" routine. This cannot guarantee settlement on the same day and is thus in breach of international requirements for secure net settlement. The Riksbank has long been critical of this and the IMF also pointed out that VPC's net settlement routines were inadequate.<sup>33</sup> During 2003 VPC will launch a new system to remedy this. (see Box).

<sup>33</sup> IMF (2002), Financial System Stability Assessment, IMF Country Report, No.62/161.



## COMING CHANGES IN VPC'S SETTLEMENT SYSTEM


VPC is currently implementing changes in its settlement system. These are aimed at building in risk management mechanisms that will minimise contagion risks if a participant fails. The current system settles transactions on a net basis without satisfactory risk management. It is efficient in the sense that it minimises the use of liquidity and the number of payments. However, it contains an unacceptable level of net settlement risk. Net settlement risks mean that if a participant is unable to meet its commitments at the agreed time, the entire settlement process must be broken off and an “unwinding” process must be used. This means that it can take a long time to get the system functioning once again. The new process will manage this risk, but in return it requires greater liquidity and entails a larger number of payments. The new process also entails a change in the relative advantages and disadvantages of a central counterparty.

The new process will check every transaction one by one. The seller's security and the buyer's money will be reserved for settlement, whereby the transaction will be marked as ready for settlement. This checking procedure means that a transaction that has been marked as ready for settlement is also guaranteed to be settled in the next settlement batch. There is no risk that settlement must be broken off as a result of one participant defaulting. VPC's system will thus fulfil internationally accepted minimum requirements.

The new process is designed to manage continuous gross settlement. However this is not what the market wants at present. Instead, the transactions will be checked and liquidity will be reserved on a gross basis, while settlement will take place at a limited number of settlement batches during the day.

The liquidity requirement is therefore considerable and the liquidity is locked into the system from the time the transactions are marked as ready for settlement until they are settled. When it comes to money market settlement, settlement banks will have an opportunity to borrow using purchased securities as collateral to generate liquidity.

To facilitate VPC's checking of liquidity, the Riksbank has begun a new co-operation with VPC. The Riksbank has decided to allow VPC to administer special Riksbank accounts, intended only for securities settlement. Holdings in these accounts will be claims on the central bank



and settlement will thus be in central bank money. This is a well established requirement for sound settlement systems. The Riksbank can also grant intraday credit on these accounts.

If a registered transaction cannot be marked as ready, for settlement it will remain in the queue until the next settlement occasion. If it cannot be marked during the day, it will be removed from the system. The system manages the risks arising during the settlement process, but not the risks arising during the settlement cycle between deal and settlement.





However, when the new system comes into operation, there will remain a need to manage the replacement cost risk that arises between trading and settlement and to increase efficiency in the use of liquidity. Both of these needs can be satisfied by a central counterparty.

The multilateral netting offered by a central counterparty can reduce counterparty exposure, number of transactions and turnover, even in the Swedish market. There is no multilateral netting of counterparty exposures between trading and settlement today. If a central counterparty entered into the transaction directly after the deal was made, the exposures would be netted directly and thereby be less during the entire settlement cycle. In the fixed income market these exposures are relatively large, but many are bilateral and can therefore be netted by the parties themselves. On the stock market the exposures are smaller but there is a large number of counterparties and central netting may thus be more advantageous here.

Today there are no central processes in the Swedish market that manage the replacement cost risk that arises between trading and settlement. Instead this risk is managed by the individual participants. Historically, this has not been a problem. Almost all transactions are completed according to agreement. The reason for transactions not being completed is that shares could not be delivered. There has always been liquidity. The replacement cost risk is not a source of loss in day-to-day operations but a deal that does not go through gives rise to large administrative costs.

The capacity to spread risk is more important, in relative terms, to foreign participants who have less incentives to make their own credit assessment of Swedish counterparties. For this reason, foreign participants call for central counterparty services to a greater extent than domestic participants. The Swedish market participants see the delivery guarantee offered by a central counterparty as a great advantage. This advantage is less important on the fixed income market, where securities are usually more liquid. The number of failed transactions increases when markets are turbulent. The advantage of a well-known counterparty with collateralised positions is greater under these conditions.

The possibility to transfer all counterparty risk to one set counterparty is important for risk management in anonymous trading. The anonymous trading in the Swedish stock market means that participants do not have any knowledge of whom they have counterparty exposures towards or any possibility of limiting these risks. At present, the anonymous trading in the fixed income market occurs within a small circle, which means that a redistribution of risk does entail limited gains. The situation will change if anonymous trading in fixed income instruments spreads beyond the interbank market. The market participants themselves wish to see a broader circle of participants in the Swedish fixed income market and are one of the driving forces behind the Stockholm Stock Exchange's electronic fixed income exchange.



## Conclusions

A central counterparty for the securities market can contribute to efficiency gains by reducing costs both for settlement and risk management. Cost reduction can also lead to increased market liquidity. The advantages which a central counterparty offers increase the larger the market which it serves.

The current situation, in which equity trading and segments of fixed income trading are carried out anonymously, does not provide the basis for satisfactory management of counterparty risks. A central counterparty would rectify this situation and thereby increase the attractiveness of the Swedish market for foreign investors. Moreover, it would reduce the operational risks which market participants face and the costs associated with these.

Market participants must, however, weight the advantages of a central counterparty against the costs of establishing one. If the market can be integrated into an established central counterparty, whose technical system is already available, the costs may well be limited.

The disadvantage of a central counterparty is the ensuing concentration of risks and particularly operational risks. This concentration entails a risk for the financial system as a whole which can and must be management through public efforts to insure that the organisation, technical systems, risk management etc, are of the highest standard. For this reason supervision and oversight must be commensurate with the importance of the central counterparty for stability of the financial system.



# Credit expansion as an indicator of financial instability

Loan losses caused by numerous borrowers simultaneously defaulting on their loans is the most common reason why banks find themselves in financial trouble. In the permanent sections of the Stability Report we have examined the risks associated with lending to the corporate and household sectors. The stability analysis has focused on the financial position and ability of borrowers to repay their loans. Our object is to provide an assessment of whether the probability of a banking collapse is higher or lower as a result of the risk of loan losses on consumer credits and loans to the corporate sector. This article highlights another aspect of lending, namely whether or not credit expansion as such can present a threat to the stability of the banking system, and how the growth in lending can be analysed.

It is often claimed that high credit expansion and a high level of debt in relation to GDP are themselves regarded as indicators that the risk of a banking crisis is increasing. High levels of consumer and corporate debt raise the level of exposure to economic disturbances with a higher probability of the banks incurring loan losses. Several country studies have aimed to identify systematic correlations between a small number of common factors and the probability that a banking crisis will occur (see Box below). The results of these studies are not entirely clear cut, especially when it comes to the value of changes in the volume of credit as crisis indicators. Even though there is no definite correlation between credit expansion and the occurrence of banking crises, several crises in the industry have been preceded by strong growth in the volume of lending. A high rate of credit expansion may thus contribute to increasing vulnerability to macroeconomic disturbances. Nonetheless, there are many cases where a high rate of growth in lending did not give rise to any problems in the banking sector.

Credit expansion as such is therefore not especially useful as an indicator. We need a more detailed understanding of why the volume of credit expands in a specific case; this will enable us to form an opinion about whether this growth represents a threat to the stability of the banking system. In this article we discuss which supply and demand factors could influence the rate of credit growth. If we can explain why the volume of lending increases, we will be in a better position to decide if it is particularly risky for the banks. Our first step is to examine, on the basis of interviews with Sweden's big four banks, the credit process, aiming to understand how supply arises and demand is handled. Finally, we look at what factors could conceivably influence the demand for credit in the corporate and household sectors.

## WHAT DOES THE LITERATURE HAVE TO SAY ABOUT LENDING AS AN INDICATOR OF FINANCIAL INSTABILITY?

Numerous studies have endeavoured to identify some sort of correlation between leading indicators and the occurrence of banking crises. The conclusions from these studies vary. Some demonstrate a correlation between strong credit growth in relation to GDP and the incidence of banking crises. These studies have focused primarily on the situation in growth and developing economies, where the correlation between credit expansion and banking crises appears to be closest in Latin America.<sup>34</sup>

Naturally, several different variables may serve as indicators of financial crises, and some studies therefore use a number of leading indicators as a means of forecasting these. Apart from credit growth, these leading indicators include the rate of growth in asset prices and capital expenditure. Using these variables, one study<sup>35</sup> has successfully predicted – on a one-year horizon – no fewer than 40 per cent of the financial crises that have occurred. This particular study shows that the most important factors that can function as leading indicators are credit growth in combination with rising asset prices. The use of credit growth as a leading indicator for banking crises is not, however, without its difficulties, which is evidenced by the divergent results. One of the conclusions of another study<sup>36</sup> is that the only macro-variable that can be relied on for predicting a banking crisis is falling equity prices one year ahead of the occurrence of the crisis.

In other studies the correlation between credit growth and banking crises is less evident. When the data is extended to include banking crises in more countries, both developed and developing countries, the correlation between credit expansion and banking crises is often weak. One conclusion is that although macroeconomic disturbances weaken balance sheets in the banking sector it is

34 See for example: Demirgüç-Kunt and Detragiache (1998a), “The Determinants of Banking Crisis in Developing and Developed Countries”, IMF Staff papers, vol. 45, No 1, (1998b), “Financial Liberalization and Financial Fragility”, IMF Working Paper, WP/98/83, (1999), “Monitoring Banking Sector Fragility: a Multivariate Logit Approach with an Application to the 1996-97 Banking Crisis”, IMF Working Paper.

35 Borio and Lowe (2002), “Asset Prices, Financial and Monetary Stability: Exploring the Nexus”, BIS Working Paper, No 114.

36 Hutchinson and McDill (1999), “Are all Banking Crises Alike?”, NBER Working Paper, no 7253.

the regulatory system and institutional factors that, in the final analysis, determine how robust the banking system is in its response to economic disturbances.<sup>37</sup>

Nor is there any unambiguous connection between credit growth and the banking crises that have actually occurred.<sup>38</sup> Only six out of the 22 countries that experienced one banking crisis had an unusually high rate of credit growth during any of the three years prior to the crisis. Moreover, the records show that of these 22 countries, ten have experienced at least one period of unusually high credit expansion without a banking crisis occurring during any of the three subsequent years.<sup>39</sup> This particular study also shows that among those countries that have had more than one banking crisis there is no definite correlation between the volume of credit and the occurrence of banking crises. In only two of the 13 countries that have experienced more than one banking crisis was there an unusually high rate of credit growth during at least one of the three years prior to a banking crisis. However, it is possible that in this context three years is too short a period. In connection with the Swedish banking crisis, bank lending expanded rapidly rather earlier than that, and the growth rate had already levelled off during the years immediately prior to the crisis. One conclusion is that whereas most banking crises may well have been preceded by strong growth in bank lending, a banking crisis did not in fact occur after most of the periods of strong credit expansion. Rapid growth in the volume of credit would thus appear to increase exposure to macroeconomic disturbances, but it only has an effect in a few cases.

However, there is good reason to read these studies with some degree of caution. Many of them are based on data from the 1970s and later, and they include both industrialised and developing economies, which means that the countries studied diverged widely in structural terms, and during some of the periods the credit markets were largely controlled.

37 Caprio and Klingebiel (1997), "Bank Insolvency: Bad Luck, Bad Policy or Bad Banking?", Annual World Bank Conference on Development Economics, M. Bruno and B. Pleskovic (Ed), The World Bank, Washington D.C.

38 See for example: Gourinchas, Valdés and Landerretche (2001), "Lending Booms: Latin America and the World", NBER Working Paper No 8249.

39 See Boyd, Gomis and Kvak (2001), "A User's Guide to Banking Crisis", Working Paper, University of Minnesota.

## Bank lending and the influence of credit expansion

In a previous stability report the Riksbank discussed bank lending with the aim of understanding how credits are granted, and how the banks manage them.<sup>40</sup> In this article, we have concentrated on how the banks' behaviour influences the total volume of credit available in the economy. Two key points are the extent to which the supply of bank credit is determined by demand, given the price charged by banks for loans and the effect of different types of supply side restriction. Thirdly, does the structure of the banks' balance sheets play any role in determining the supply of credit?

Two main constraints might influence a bank's ability to provide credit. The first is its ability to fund its lending – i.e. to find funding for the volume of credit that is in demand, or whether the funding cost makes the price of bank lending uncompetitive. However, in normal circumstances, Sweden's leading banks have ready access to financing, mainly via the regular domestic market for bank deposits. In addition, they raise substantial funds abroad, partly to arrange matched financing for major lines of foreign currency credit, and partly to swap these funds into Swedish kronor.

Bank lending could also be limited by the availability of equity. Capital adequacy rules compel banks to maintain a given amount of equity that is proportionate to their risk-weighted assets and thus to their credit volume. Hence, their equity might not be adequate at times when their lending grows rapidly. Normally, banks keep some excess equity, partly to cover fluctuations in their capital requirements. For this reason, the supply of equity is not usually a restriction for bank lending in the short term. Moreover, the banks are usually capable of adjusting the amount of own funds they need by issuing bank certificates, buying credit derivatives or securitising their credits.

The interest rate that borrowers have to pay is determined by the bank's internal price for money, taking into account the expected return on equity. There could be some scope to negotiate a lower price if a customer were in the market for other banking services and not only borrowing. Banks are not normally ready to raise their interest rates for a risky customer to obtain compensation for the higher risk. They would rather refuse to grant the customer any credit.<sup>41</sup> The actual assessments of credit status varies over time, depending on the risk propensity of the various decision-makers in the bank. For instance, they might be less ready to grant credit during a recession. Conversely, their risk propensity could be comparatively high when economic conditions are more buoyant. A special case of this is the situation after credit controls have been eased or removed, when the supply of credit is no longer subject to control. However, it is difficult to demonstrate such behaviour is systemic,

40 See Financial Stability Report 2001:2.

41 There are sound theoretical reasons for this approach. If the banks were to raise the rate of interest for lower quality borrowers, they would risk ending up with an adverse selection problem. See also Stiglitz & Weiss (1981) "Credit Rationing in Markets with Imperfect Information", *The American Economic Review*, for a more detailed analysis of this problem.



and it would not appear that the banks have issued any general directives intended to influence or control the risk propensity of the credit officers.

The volume of credit thus appears to be largely determined by the level of demand. The banks do not make any assessments of the future demand for credit; they tend for the most part to respond reactively to the actual demand. However, they do take account of the expected growth in credit in their annual budgets, since it is above all in connection with these strategic issues that the banks decide the size of their capital base.

Under normal circumstances supply side factors do not appear to influence the volume of credit. Supply is likely to be influenced when the banking sector is experiencing serious financial problems, so their equity is inadequate to satisfy the existing demand for credit. The growing use of risk parameters to determine the capital adequacy rules as a result of the proposed Basle accord, will probably mean that capital adequacy requirement will vary more in line with fluctuations in the economic cycle than at present. This could give rise to a procyclical effect, which is to say that bank lending will reinforce swings in economic cycles.<sup>42</sup>

The absence of supply side effects means that we need to analyse the demand for credit to obtain a real understanding of why credit demand expands and contracts. We will examine credit demand more closely in the next section.

## Factors that influence the demand for credit

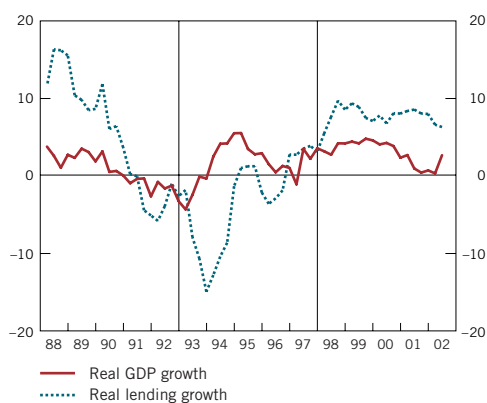
This section provides an overview of factors associated with the demand for credit. The analysis as such is not exhaustive; it is rather intended to indicate the correlation, if any, between credit expansion and selected macroeconomic variables.

Most earlier studies of credit demand include one variable for the level of economic activity, such as GDP or industrial output, and another of the cost of borrowing, such as a market rate of interest or a lending rate of interest. Even if long-term trends in real credit growth and real growth in GDP move fairly closely in line with each other, the changes in these variables diverge quite significantly from time to time (see Figure 47). This suggests that a positive long-term correlation does exist, but there could be significant short-term deviations from this pattern. Covariations often occur with a time lag, which means that the time series need to be adjusted in time when they are to be compared, which was the case for most of the covariations discussed in this section.

As far as long-term growth in the demand for consumer credit is concerned, variables such as consumption and disposable incomes are probably more relevant than GDP. There is probably a positive correlation between a rise in disposable incomes and the rate of growth in lending to consumers. A permanent increase in household disposable incomes will make it easier for consumers to raise

42 See Financial Stability Report 2001:1 for a more detailed analysis of procyclicality.

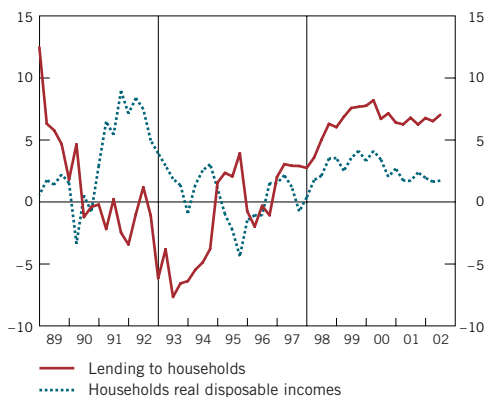
Figure 47. Annual percentage growth in real GDP and lending to the private sector. Per cent



Sources: Statistics Sweden and the Riksbank.

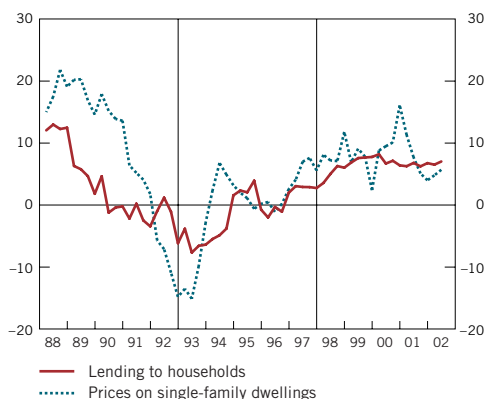


**Figure 48. Annual percentage real growth in lending to the household sector and annual change in households' disposable incomes.**  
Per cent



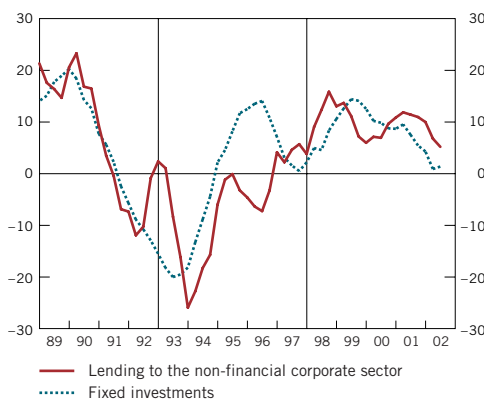
Sources: Statistics Sweden and the Riksbank.

**Figure 49. Annual percentage growth in lending to the household sector and annual change in prices on single-family dwellings in real terms.**  
Per cent



Sources: Statistics Sweden and the Riksbank.

**Figure 50. Annual percentage change in real lending to the non-financial corporate sector and annual change in real fixed investments.**  
Per cent



Sources: Statistics Sweden and the Riksbank.

further loans, which suggests that higher consumer lending is preceded by an increase in disposable incomes (See Figure 48).

Most empirical studies of the demand for credit also include a parameter for the cost of credit as one of the factors that influences the demand for credit. There is probably a negative correlation between credit demand and the cost of credit, and most of the studies confirm that this correlation exists.<sup>43</sup>

The correlation between the level of economic activity or incomes and credit demand is probably relatively loose. More information would probably be obtained by looking at each sector's financing requirement. A high proportion of lending to consumers is used to finance a house purchase, 65 per cent of the total lending to households is provided by mortgage institutions that concentrate solely on secured credits for house purchases. In addition, second mortgage finance for house purchases probably accounts for a significant share of Sweden's bank lending. House prices could therefore well be a determining factor, since when house prices rise buyers can raise larger mortgages when buying their house, and houses that are not on the market can be used as security for other major purchases, such as cars. A positive correlation between credit growth and house prices seems probable (see Figure 49). The correlation has been particularly evident since the mid-1990s, with both variables, with the odd exception, showing very similar rates of growth.

Industrial investment is the variable that first springs to mind as being likely to throw light on financing needs in the corporate sector, as companies often find it difficult to use ploughed back profits for major investment projects and as only a few companies have access to the stock market as a source of further equity. Credit growth in the corporate sector and the level of industrial investments seem to move closely in line with each other (See Figure 50).

Property is also believed to be an important driving force behind the growth in lending to the business sector, mainly in studies claiming to show that property, by virtue of its role as collateral, can serve as an accelerator for lending. It is assumed that the collateral value of the property corresponds to a given proportion of its market value, so that when this market value rises, mortgage loans will also increase. Bank lending to property companies, as such, is relatively high, as is the use of property as collateral (see also Chapter 1), but there are reasons to suppose that it is not so overwhelmingly important as it was in the years between the abolition of credit controls and the banking crisis at the beginning of the nineties. One reason could be that banks nowadays focus more on the capacity of corporate borrowers to repay their loans, and see collateral rather as a secondary factor. Another point is that property companies are not so heavily leveraged as before, and thus better equipped to finance acquisitions with equity. Thirdly, the level of property construction has been comparatively low in recent times.

In the Box below we have summarised the factors affecting credit demand discussed above. It would appear that all the variables have a relatively high explanatory value.

43 For example: Bernanke and Blinder (1988), "Credit, Money and Aggregate Demand", The American Economic Review, Vol. 78, pp 435-39, for the role of interest rates in credit demand.



## REGRESSION ANALYSIS OF CREDIT DEMAND

In order to illustrate which variables might have an influence on credit demand we have produced two simple regressions, one for the corporate sector and one for consumers. Our intention is to illustrate the correlation, and not explain its character in detail.

The regression for the demand for consumer credits includes house prices, interest rates with tax shield effects<sup>44</sup> and disposable incomes.<sup>45</sup> All these variables are stated in real terms and indicate the change in the variable from one quarter to the next. As there is reason to suppose that the demand for consumer credit changes after some time has elapsed, the four preceding quarters are included for both disposable incomes and changes in lending. Consumer behaviour and credit demand are probably not influenced immediately by a change in the variables we are looking at. Moreover, there is probably a delay before the volume of consumer credit actually changes. A further reason for using variables for earlier quarters is that consumer expectations are probably also included, to some extent, in the equation.

This simple model explains 70 per cent of all variations in the change in consumer credit. Just as expected, if the cost of credit rises, households reduce their demand for credit (See Table below). Higher house prices and disposable incomes have a positive effect, which induces consumers to step up their level of borrowing. However, it is important to point out that this model says nothing about whether or not the expansion in the volume of credit is excessive, but merely shows the empirical connection between the variables. If anything, a deviation from the long-term trend indicates that a more detailed analysis is needed to determine the causal factors behind the rise in the rate of credit growth.

44 The rate of interest on three-month treasury bills.

45 The regression is based for statistical reasons on changes in the variables.

The model estimated is:

$$\Delta \ln(\text{credit})_t = a + b_1 \Delta \ln(r)_{t-1} + b_2 \Delta \ln(P)_{t-1} + b_3 \Delta \ln(\text{credit})_{t-4} + b_4 \Delta \ln(\text{disp.inc.})_{t-4} + \varepsilon_t$$

#### OLS ESTIMATE OF GROWTH IN CONSUMER CREDIT 1987:1-2002:2

**R2 0.70**

Variable	Coefficient	T-value
Constant ( <i>a</i> )	0.00	0.06
Interest $_{t-1}$ ( <i>r</i> )	-0.02	-2.03
House $_{2-1}$ ( <i>P</i> )	0.18	2.35
Credit $_{t-4}$	0.50	4.78
Disp. Income	0.06	2.62

Note: All variables are quarterly changes and are expressed in real terms. Logarithmic scale.

For the corporate sector, we include the same types of explanatory variable as for the household sector, namely the slope of the interest rate curve, GDP and gross capital formation. As with the household sector, all variables are in real terms and show the rate of change from quarter to quarter. In the Table below we can see that all variables have the expected signs. The change in GDP three quarters back in time and lending and gross capital formation four quarters back in time all have a positive effect on credit demand in the corporate sector. For companies as well, the interest rate also has a direct impact on their credit demand. A steeper slope to the interest rate curve (long-term rate – short-term rate) and a higher short-term market interest rate have a negative effect on their credit demand, which is to say that if the curve becomes steeper or the short-term market rate rises, the model implies that, assuming that all else remains constant, the corporate demand for credit will fall.<sup>46</sup>

#### OLS ESTIMATE OF CREDIT GROWTH FOR NON-FINANCIAL COMPANIES 1987:1-2002:2

**R2 0.67**

Variable	Coefficient	T-value
Constant	-0.07	-2.77
GDP $_{t-2}$	3.17	4.15
Credit $_{t-4}$	0.47	4.53
Fixed gross inv. $_{t-4}$	0.13	3.14
Interest rate $_{t-4}$	-0.009	-3.18
(Long-Short) $_{t-4}$	-0.20	-3.01

Note: All variables are quarterly changes, and all variables except (Long - Short) are logarithmic.<sup>47</sup>

<sup>46</sup> Measured as the difference between the yield on long bonds (9–11 years) and that on 3-month treasury bills. This variable provides an implicit picture of market consensus regarding interest rates in the future.

<sup>47</sup>  $\Delta \ln(\text{credit})_t = a + b_1 \Delta \ln(\text{GDP})_{t-3} + b_2 \Delta \ln(\text{credit})_{t-4} + b_3 \Delta \ln(\text{Inv})_{t-4} + b_4 \Delta (L-S)_{t-4} + b_4 \ln(r)_{t-4} + \varepsilon_t$



## Concluding discussion

For a banking crisis to occur, something has to happen to prevent numerous large borrowers from amortising and paying interest on their loans – at the same time. Several studies suggest that banking crises often coincide with structural changes in legislation, taxation policy etc.<sup>48</sup> On the other hand, there is no unambiguous correlation between strong growth in lending and the occurrence of banking crises. The former may relatively often have preceded the latter, but it is also common for periods of rapid credit growth not to have caused problems in the banking sector. To understand whether it is the growth in credit *per se* that increases the risk of financial instability, we have to examine the structural factors underlying the actual expansion in credit.

It has emerged from interviews with the banks that the supply of credit is unlikely, other than in exceptional cases, to affect the rate of credit expansion. There is reason, therefore, to concentrate the analysis of credit growth on factors that can influence the demand for credit.

This article has only presented a tentative discussion of which factors drive the demand for credit. A more in-depth understanding of the mechanisms behind it is needed if we are to assess the extent to which credit risks, which can give rise to problems at a later date, are accumulated in the banking system. If, for example, we can demonstrate that sharply rising house prices are a primary factor behind the growth in consumer credit during any given period, there would be reason to try to decide whether these prices have been inflated to unsustainable levels. If industrial investments have determined the level of corporate borrowing, there would be reason to examine the nature of these investments in order to assess whether they have been based on excessively optimistic expectations about the future, which could mean that the investments fail to generate the anticipated return, leaving the companies with payment problems at some future time.

If, however, credit growth increases in the absence of any underlying explanatory factors, this in itself could be a warning sign. For example, it could be due to the banks being subject to intense competitive pressure and consequently more willing to take risks in their lending and grant credits to poorer quality borrowers. It could also reflect the accumulation of a structurally higher level of indebtedness than before. A better understanding of the mechanisms driving the demand for credit should, at all events, improve our ability to assess whether there is a risk that lending at a later stage would result in the banks incurring heavy loan losses.

48 See “Turbulence in Assets Markets: The Role of Micropolicies” for a more elaborated discussion on this kind of structural changes, Mimeo, G10.





# Swedish banks’ international expansion

*As the Swedish banks become larger and their operations more wide-spread, exposure to new, and in many cases less well-known, risks arises. The possible sources of instability thus increase and are increasingly beyond Sweden’s borders. However, this must be weighed against the lower risk concentration the banks achieve through diversifying their operations.*

During the second half of the 1990s, the major Swedish banks began in earnest to expand their operations beyond Sweden’s borders. At present more than half of the major Swedish banks’ assets are abroad and an almost equally large part of their earnings stems from business with foreign customers.<sup>49</sup>

This article begins with an overall review of the motives and conditions that affect the banks’ decision to expand internationally. This is followed by a description of how the Swedish expansion has been implemented and what has distinguished the Swedish banks’ strategies. Finally, there is a discussion of what significance this development may have for financial stability in Sweden.

## Banks and expansion

### MOTIVES AND CONDITIONS

Most industries undergo recurring phases of expansion and consolidation. This development is partly brought about by changes in the companies’ operations with regard to production technology and demand, and partly by changes in external conditions, such as legislation, regulations and trade barriers. Both with regard to the internal driving forces and the external conditions, there are factors that distinguish banks from many other industries. As banking is concerned to a greater extent with customer relations, confidence and information than with production technology and logistics, economies of scale, for instance, have often proved to be very limited. In addition, the external conditions for expansion and consolidation have been more inhibited in the banking sector, which is governed by very extensive regulation.

The presence of banks is usually explained by the fact that they have special knowledge of credit risks in a particular market. The banks’ knowledge is assumed to arise from long-term customer relations and to be expressed in a good ability to assess economic conditions and risks in this market. If a bank enters a new market,

<sup>49</sup> An asset is classed as foreign if the counterparty has its legal domicile outside of Sweden.



where it has previously lacked a presence and thus has no special knowledge, its information advantage is lost. In a market containing established banks, a new bank risks obtaining the least profitable customers and worst loans because of inferior information. Of course, the new bank can try to circumvent the information problem by gradually building up its own customer relations and local expertise, but this is very time-consuming. There are also plenty of examples of banks that have made unsuccessful attempts to break into new markets.

However, it is possible for new entries to succeed under certain circumstances. A bank that expands into a non-established market where no other player has yet managed to gain an information advantage has a better opportunity to choose the best borrowers. Another favourable situation in terms of new entry is if loyalty to the local banking system is low (for instance, as a result of solvency problems or poor service) and the new bank has a strong trademark that inspires confidence. Such circumstances occur in particular in developing countries. The few successful cases of new entry have almost always been establishments in developing countries by relatively large banks from industrialised countries.

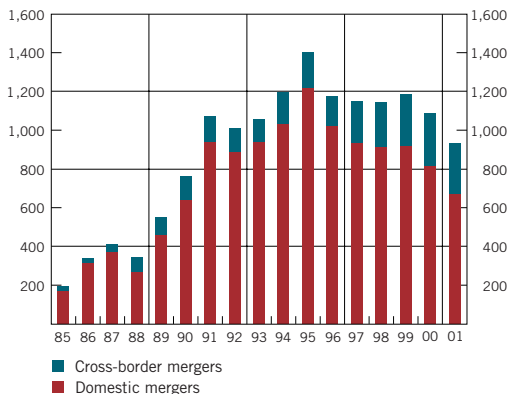
The obvious way to manage the information problem is to acquire a local bank. This gives direct access to the special information necessary for successful business. Acquisition is also by far the most common strategy for local establishment. The disadvantage is that expansion through acquisition risks being very costly, albeit not due to large loan losses. Rather, the acquiring bank may be affected by – often underestimated – costs as a result of e.g. personnel leaving, management problems, merger costs, cultural problems, bureaucracy, etc. It is also probable that a well-managed bank with a well-composed client base will fetch a high price.

Fairly special conditions are thus required to ensure that international expansion will be profitable. Expansion *without* these conditions is often for defensive purposes. Banks become international because their corporate clients become international. The fear of losing its business with a domestic company that is expanding abroad makes the bank decide to follow suit and establish itself on the same geographical market as its client. In the case of defensive expansion the information cost is limited, as the bank already knows the client. Regardless of the purpose, there are in practice considerable restrictions regarding banks' international expansion. The question is whether extensive regulations and establishment barriers, rather than high information costs, might have been the most important factor in slowing down banks' international expansion.

#### CHANGED CONDITIONS

During the 1990s, there was a gradual change in the scope and form of banks' international operations. During the same period the banking sector in many countries underwent an extensive consolidation process with an increasingly international element, which can be seen in the growing number of cross-border mergers (see Figure 51). The purpose of the expansion is no longer merely to follow international clients, but also to gain new clients on local

**Figure 51. The number of domestic and cross-border mergers per annum in the world.**



Note. Refers to mergers where at least one partner is a bank.

Source: Thomson Financial Security Data in Buch & DeLong (2001).



markets abroad. The motives for international expansion have thus come closer to those applying for domestic expansion – economies of scale, critical mass, growth, etc.<sup>50</sup>

This change has been described by some analysts as a shift from international banking towards multinational banking.<sup>51</sup> While international banking is characterised by cross-border transactions, where assets on one market are financed by funds from another market, multinational banking entails assets on one market being locally funded on that same market. The main reason for this change of scene is a combination of, on the one hand, deregulation and harmonisation in industrial nations and, on the other hand, economic liberalisation in developing countries.

During the 1980s, most industrial nations deregulated their domestic financial markets and the conditions for international capital flows were liberalised. At the same point in time the first initiatives were taken towards an international harmonisation of banking regulations, which led, for instance, to the Basel Capital Accord in 1988. Since then the integration of national markets has continued through further harmonisation; in western Europe this has mainly been through the EU co-operation. While banks in industrial nations were given an opportunity to expand abroad in earnest, political upheavals led to regime changes in a number of countries, including in Latin America and central and eastern Europe. The introduction of market economy and various forms of deregulation combined with large investments from Western companies in these countries created a large and almost completely unexplored market for financial services. In consequence, the industrialised countries' banks with their advantage of greater capital and competence came to completely dominate the banking systems of many developing countries.

However, deregulation and economic openness do not automatically create cross-border integration in the bank market. Interestingly, the EU's bank market, despite extensive harmonisation of legislation, is still very much divided into national markets. Most of the EU's banks have evidently considered it much more attractive to expand in South America, central and eastern Europe than into other EU countries. One obvious explanation is, of course, the growth potential that exists in developing countries in general. Another important factor is probably that these markets have in many cases had relatively undeveloped banking systems, which, as discussed above, can make expansion less costly. In the EU the situation is the opposite, with a substantial excess capacity in many national bank markets. The advantage a bank from an EU country may have on growth markets, in the form of expertise and experience, rarely exists in another EU country. A successful expansion in a mature market like the EU first and foremost requires the capacity to realise cost synergies. This type of more defensive expansion is a much more

50 For a discussion of banks' motives for consolidation, see Frisell and Noréus, "Consolidation in the Swedish banking sector: a central bank perspective" in *Sveriges Riksbank Economic Review* 2002:3.

51 See McCauley, Ruud and Wooldridge, "Globalising International Banking" in *BIS Quarterly Review*, March 2002.



sensitive issue for company management than growth-oriented expansion, as the former entails difficult decisions regarding cutbacks, which can result in internal conflicts of a political and cultural nature.

To summarise, a bank's decision to expand internationally today can be described as weighing up the gains arising from economies of scale and a transfer of competence against the costs connected with information, regulation and cultural conflicts.

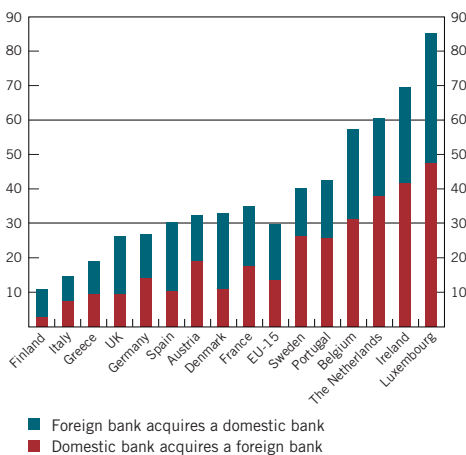
## The international expansion of the major Swedish banks

### RETROSPECT

In Sweden, the first steps towards internationalisation were taken in the 1960s by Handelsbanken and what was then Skandinaviska Banken (later SEB). The primary driving force at that time was a desire to gain access to the international capital market in order to arrange financing for large Swedish corporations. As other commercial Nordic banks were experiencing the same needs for their large corporations and there were advantages to be gained from co-operation, two Nordic bank alliances were established, both comprising one bank from each country. These two alliances then established jointly-owned subsidiaries, known as consortium banks, first in Switzerland and later in London. The consortium banks survived until the end of the 1980s, when deregulation and the possibility to establish foreign branches made them obsolete. Anyway, the form of ownership, with four different owners without any majority was not efficient, which indicates that the consortium banks would not have survived very long even without deregulation. From the end of the 1970s and during the 1980s, Handelsbanken and SEB (then named SE-banken) established their own subsidiaries and, when legislation permitted, branches in a number of major finance centres, Singapore, Luxembourg, Frankfurt, New York, Hong Kong and Tokyo. However, apart from a few exceptions, these operations were focussed on Swedish-related business. Then came the bank crisis and it was not until the second half of the 1990s that the expansion entered into a new phase.


Since the mid-1990s, Swedish banks have been highly active in cross-border acquisitions and mergers. From a European perspective, the Swedish banks are among the most active when it comes to acquiring foreign banks (see Figure 52). One possible reason for this is that the Swedish banks succeeded in consolidating the domestic market at an early stage and were thus almost forced to look beyond the Swedish border to find room to continue growing. In addition, they had achieved the critical mass necessary to be able to bear the risk normally entailed in international expansion. The expansion also changed its geographical focus, from important but "distant" financial centres such as New York, London, Luxembourg and Singapore to markets closer to hand. The expansion, which

Figure 52. Percentage of cross-border bank mergers within the EU. Per cent



Source: Thomson Financial Security Data in Buch & DeLong (2001).





was earlier defensive, became increasingly offensive. The customers no longer consist merely of foreign investors and large Swedish corporations, but to an increasing extent also comprise foreign companies and households. All of the major Swedish banks now define their domestic market as northern Europe.

#### STRATEGIES FOR INTERNATIONAL EXPANSION

Although the motives for international expansion are basically the same, there are major differences in the strategies chosen by the major Swedish banks. The differences concern both *where* and *how* the expansion has been done. Part of the explanation for these differences is the differing corporate traditions, but on many occasions chance has also played an important role. Acquisitions, mergers and alliances require suitable and available candidates, which is to a great extent influenced by the behaviour of competitors. To simplify somewhat, one can distinguish at least three strategic alternatives: (1) new entry, (2) acquisition and mergers and (3) alliances and minority ownership.

Expansion by *new entry* entails selling banking services through a newly-started branch or subsidiary. As noted earlier, this is considered to be a very difficult strategy, because of the information advantage usually held by domestic institutions through their more in-depth local knowledge. Another complicating factor is the reluctance to switch banks that often prevails among smaller bank customers, such as small companies and households. It is rarely more than a very limited number of customers that take the step of actually changing bank, even in the case of very competitive offers. There are also very few examples of Swedish banks making completely new entries on local markets abroad. Both SEB and Förenings-sparbanken tried, with little success, to use their Internet bank platforms to expand to, for instance, the UK and Denmark. The only completely new entries so far are Handelsbanken's and Nordea's gradual build-up of offices in the UK and Estonia respectively. On the whole, the time aspect appears to be very important. The majority of all unsuccessful new entries – not merely with regard to Swedish banks – are characterised by exaggerated expectations of quick profits. If shareholders and management lack the patience required for new entry, it may lead at best to a sudden abandonment of the strategy and at worst to excessive focus on acquiring market shares, which can result in both soaring costs and a poor quality loan portfolio.

As a consequence of new entry being considered so difficult, fusions, in the form of *acquisitions and mergers*, are by far the most common strategy for international expansion adopted by the major Swedish banks (see Table on the next page). In the case of an acquisition, it is usually clear by whom and where decisions are made, while mergers are often implemented in a spirit of agreement whereby everything from seats on the board and management posts to central functions are divided between the parties. One danger with the clear division of roles in an acquisition is that key personnel in the acquired bank may feel brushed aside and therefore leave the bank,

taking profitable clients with them.<sup>52</sup> Even in the cases where an acquisition is possible, a more co-operation-oriented strategy may sometimes prove more successful. Nordea represents the most pronounced merger strategy, as the result of merging of four banks from four different countries. The distinguishing feature of Nordea's strategy is that its four banks were relatively equal in size with strong positions on their respective home markets. SEB and Handelsbanken have instead chosen to acquire much smaller banks, where there has been no doubt as to where the top management is located.

The third alternative for international expansion is to buy equity stakes in foreign banks. As this strategy does not entail taking full control, it can rather be described as a form of indirect expansion. Sometimes the holding may be merely a passive shareholding, while in other cases it entails an active ownership with extensive joint operations. Strategic holdings can also be seen as an option on a future acquisition. The owner gains exposure to a market without having to bear the risk of complete ownership. The shareholding provides an opportunity for a future merger and at the same time prevents a competitor getting there first. Föreningssparbanken is currently the most obvious representative for the alliance strategy with its "Nordikum" alliance. However, both Nordea and SEB own strategic holdings in certain minor banks, for instance in Russia and Denmark.

#### THE MAJOR SWEDISH BANKS' ENTRY STRATEGIES FOR ESTABLISHMENT ON LOCAL MARKETS ABROAD

	SEB	Handelsbanken	Nordea	Föreningssparbanken
<b>Denmark</b>	2 & 3 Codan Bank Amagerbanken (30%)	1 & 2 Midtbank	2 Unidanmark	1 & 2 FI-Holding (70%)
<b>Estonia</b>	2 Eesti Uhispank	1 & 2 Aktoris	1	2 Hansabank (60%)
<b>Finland</b>	1 & 2 Gyllenberg	1 & 2 Skopbank	2 Merita Bank	3 Aktia (25%)
<b>Latvia</b>	2 Latvijas Unibanka		2 Société General Latvia (60% via Hansabank)	2 Hansabanka
<b>Lithuania</b>	2 Vilniaus Bankas		2 Société General Lithuania (60% via Hansabank)	2 Hansa-LTB
<b>Norway</b>	2 Enskilda Securities- Orkla (75%)	2 Bergensbank Oslobanken Oslo Handelsbank Stavanger Bank	2 Christiania Bank og Kreditkasse	3 SpareBank 1 Gruppen (25%)
<b>Poland</b>	2 Bank Ochrony Srodowiska (48%)		2 & 3 Bank Komunalny (97%) BWP-UNI Bank LG Petro Bank	
<b>UK</b>		1		
<b>Germany</b>	2 BfG			

Note. 1 = new entry, 2 = merger/acquisition, 3 = alliance/equity stake. If not otherwise stated, the banks are wholly owned.

Source: The banks' annual reports.

<sup>52</sup> This is particularly common (and expensive) when the acquisition concerns operations that are dependent on key persons, such as investment banking and asset management. The value of these operations is largely determined by the competence of the personnel and by client relations.

To summarise, it can be noted that the most common entry strategy for Swedish banks has been to acquire a smaller bank with the aim of gaining a foothold in the new market. The acquired bank can be relatively easily integrated into the group and may then with the aid of the parent bank's financial resources provide a base for continued local expansion.

#### EXPOSURE

International expansion has meant that the major banks have become much larger in relation to the Swedish economy than was previously the case. In June 2002 the major banks' total foreign assets amounted to just over SEK 3,100 billion, which corresponds to an increase of 170 per cent over the past four years (see Figure 53). The greatest change took place in 2000, when Nordea merged with Danish Unidanmark and Norwegian Christiania at the same time as SEB acquired German BfG. However, the increase has continued since then, partly due to several smaller acquisitions and partly due to a very high growth in lending on certain foreign markets, for instance in the three Baltic countries.

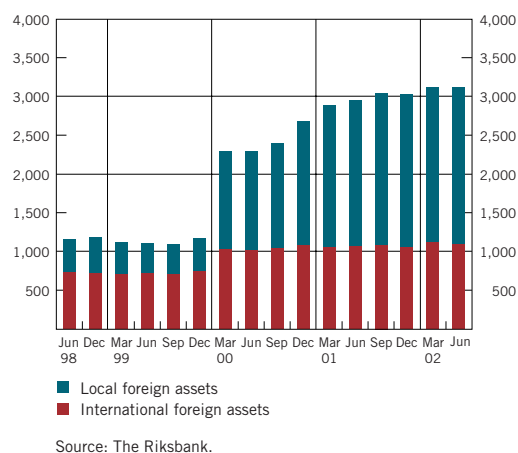
The expansion has led to the percentage of foreign assets increasing steadily since the end of the 1990s and now amounting to more than 50 per cent. The largest exposures can be found in the Nordic countries and other industrialised countries, although it is the shares of the three Baltic countries that have increased the most (see Figure 54).

Foreign assets can be divided into two types: international and local assets.<sup>53</sup> To simplify slightly, international assets can be said to refer to a bank's cross-border activities in another country, while local assets refer to activities in another country through a local presence in the form of a branch or subsidiary. International assets are mainly comprised of loans to banks, large corporations and governments, often in the form of securities. Local assets, on the other hand, also include lending to smaller companies and households. The UK and the USA have traditionally been the most important foreign markets for Swedish banks (see Figure 55). Although a significant part of the assets in these countries can be defined as local (via branches in London and New York respectively), they have in nature been international. The target group in these markets has not been the general public as such, but large corporations, often Swedish subsidiaries. Therefore, these assets have not necessarily entailed any specific American or British risk.

The shift in recent years towards local expansion is clearly visible from the exposures. The local assets' share of foreign assets has grown from just over one third in 1998 to two thirds in 2002. The shift has also entailed a change in geographical focus. The Nordic countries, Germany and the Baltic states are the areas that have increased most in significance in recent years. Denmark is now the Swedish banking sector's largest individual country exposure. This

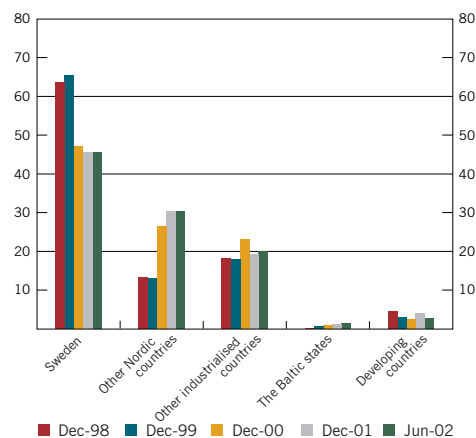
53 In the statistics on foreign assets compiled by the Riksbank, local foreign assets are defined as a foreign branch's/subsidiary's assets in local currency with counterparties in the country where the branch/subsidiary is established.

Figure 53. The major banks' foreign assets. SEK billion



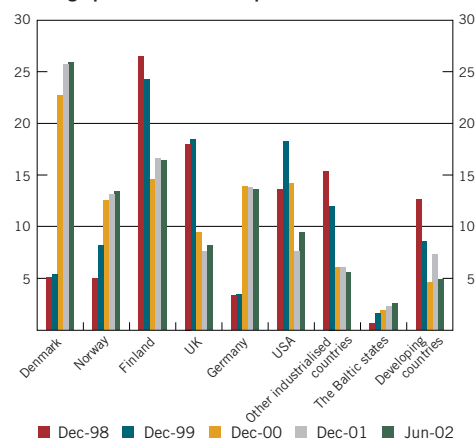
Source: The Riksbank.

Figure 54. Major banks total assets. Geographic distribution in per cent



Source: The Riksbank.

Figure 55. The major banks' foreign assets. Geographic distribution in per cent



Source: The Riksbank.



is largely explained by Nordea's Danish subsidiary, but Denmark is also among the five largest country exposures for the other three major banks.

## The effects on financial stability

The ongoing process of internationalisation can affect financial stability in Sweden in a number of ways. The degree of effect is also determined to some extent by the legal form taken by the international expansion. Firstly, internationalisation entails greater exposure to new countries and industries. The banks' changed macro-economic exposure means that their results (and financial strength) are affected to an increasing degree by economic developments outside of Sweden. Secondly, the banks' risk profile can change through the increased complexity of their operations with regard to risk management.

The stability of the Swedish banking sector is not merely affected by Swedish banks' expansion abroad, but also through foreign banks gaining an increasingly significant role in the Swedish market. The following discussion is, however, limited to the effects on stability arising from Swedish banks' international expansion.

### FORM OF OWNERSHIP AND CONTAGION RISK

Whether a bank's operations abroad are pursued in the form of subsidiaries or branches may, at least in principle, have considerable significance for the risk of contagion from other countries to the home country. A subsidiary is a legally independent unit that the parent can choose to declare bankrupt. If the parent bank assesses that the value of the subsidiary does not motivate continued financial support, there is thus an opportunity to let go. The immediate loss for the parent company is limited to the capital invested and any loans. A branch, on the other hand, is a legally independent part of the bank, which means that a loss in a branch is borne directly by the bank's capital and that claims against the branch can be directed to the bank.

In principle, therefore, it could be less risky for the bank to conduct operations through a subsidiary. In practice, however, it is very rare that a parent bank does not accept full liability for a subsidiary, as not doing so would damage the bank's reputation and thereby its operations. If the bank has several subsidiaries in other countries, the market would question whether or not these were guaranteed by the parent bank. The consequence would be not only higher funding costs for the bank, but also a long-term loss of credibility among both counterparties in the market and authorities.

It may be worth noting that parent banks can in extreme cases allow subsidiaries, but not branches, to fail if the problems are not primarily due to the bank's actions but affect all banks in the country in the same way; as was the case in Argentina, for example, because the loss of reputation would probably be less severe if the subsidiary was allowed to fail. Several foreign banks have also conditioned any infusion of capital to their Argentinian subsidiaries on

the Argentine government presenting a credible plan for reconstruction of the country's banking system as well as showing that contracts entered into will be respected.

#### THE VARIOUS EFFECTS OF DIVERSIFICATION

The greater international element in the banks' assets may affect their risk levels in two different ways: (1) spreading risk over a greater number of industries and countries leads to diversification, which can contribute to a lower level of risk; (2) expanding beyond the earlier home market means that the banks' special knowledge advantage declines or disappears, which could increase the total risk.<sup>54</sup>

Diversification reduces the risk in a loan portfolio because the individual loans are not affected by the same underlying factors. There are two main types of diversification: geographical and according to industry. Geographical diversification assumes that business and risk cycles differ between countries and regions. Diversification according to industry is instead made possible by the fact that different industries develop at different patterns.

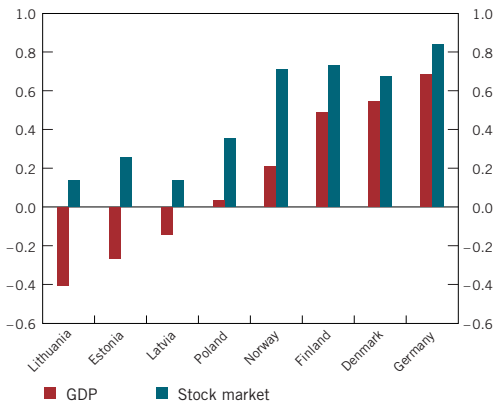
However, it is difficult to assess the significance of diversification in practice. Although it is in general fairly simple to find empirical evidence of the differences in economic development between countries, this relationship is not always stable. Deep downturns almost always affect several countries at the same time, which was true in the case of the recession at the beginning of the 1990s. There is also reason to believe that an increase in trade and international investment has led to fluctuations in the world's economies becoming more and more synchronised over the past decade, which should have limited the potential for geographical diversification. Industrial diversification is not generally considered to have the same potential as geographical diversification. The profitability of many industries (for instance, services, construction and the property sector) is mainly dependent on local demand, which is determined by the economic conditions prevailing in a particular region rather than by industry-specific factors. Diversification according to industry should have greatest effect between export-oriented industries, where profitability is relatively isolated from local conditions. However, if the timing and depth of the recessions still differ between countries and industries, it is always possible to attain some diversification.

Even if diversification can reduce the risk in a credit portfolio, this is not the whole truth. When a bank expands its operations to new industries and geographical markets where it has not previously been active, its information and thus its credit assessment may be poorer. The consequence is that the bank's loans in these new markets will run a higher credit risk than the loans on the traditional domestic market and the total risk in the bank's loan portfolio can thus increase. The effect on risk of a greater geographical and industrial breadth is thereby divided into two parts: better diversifica-

54 If the expansion is attained through the acquisition of a local bank with local expertise, this effect can be reduced considerably, as mentioned earlier. Given that the central management of the bank lacks special knowledge of the new market, the specialisation effect can rarely be completely avoided, even in the case of a local acquisition.



**Figure 56. Economic growth and stock market correlation between Sweden and a sample of European countries. Quarterly versus monthly changes, 1993–2002**



Note. For Estonia, Latvia and Lithuania data on stock market correlation refers to the period 1996 to 2002.

Sources: Ecwin, Statistics Sweden and the Riksbank.

tion lowers risk but can be counteracted by the fact that poorer quality information leads to higher risk in individual loans. When assessing the combined effect of these two factors, there might be a risk that the diversification factor is given undue weight since it is quantifiable. The lack of special market insight is a much more elusive factor.

Historically, the major Swedish banks' loan portfolios have been very concentrated to Sweden.<sup>55</sup> There has thus been almost no geographical diversification and the health of the bank sector has depended on the situation in the Swedish economy. When Sweden underwent a deep recession at the beginning of the 1990s, the banks' loan portfolios received a heavy blow. If their assets had then been as geographically diversified as they are today, it is possible that the banks would have coped better. Although none of the Nordic countries avoided the recession at that point in time, few countries were as hard hit as Sweden. It can also be seen in a comparison of the business cycle patterns in the northern European economies that there are significant differences between them (see Figure 56). A Swedish bank appears able to attain a particularly high diversification effect by exposing itself to Norway, Poland and the Baltic economies. Given this perspective, the increased geographical diversification should prove a positive factor for the stability of the Swedish banking system.

In spite of their geographical concentration on Sweden, Swedish banks have had a relatively low exposure towards many of the traditionally dominant industries in Sweden, such as the engineering, forest and steel industries. Characteristic for Swedish banks, compared with foreign commercial banks, are the large exposure towards property companies, which amounts to between 15 and 20 per cent and the large element of household lending, largely consisting of mortgage loans. At the time of the bank crisis in the 1990s the percentage of property lending was even higher and it was the profound problems in the property sector that caused most of the problems for the Swedish banks. On the one hand, this episode can be seen as a good example of the dangers of poor diversification. On the other hand, it is important to note that despite limited differences between the banks in industry-sector distribution, there were large differences in the losses suffered by them sectorwise. Despite a comparable degree of diversification, some banks managed much better than others, which indicates that it was not primarily an overly high concentration in a particular industry, but other factors (such as a weak credit culture and poor collateral management) that explained a large part of the loan losses during the crisis.

As the loans' industry distribution in Sweden is not the same in other countries a geographical expansion naturally entails a change in the composition of the Swedish banks' loan portfolios. From the point of view of diversification, this type of development should be

55 This is to a great extent a result of regulation and thereby hardly a consequence of any deliberate strategy by the banks.



positive as it can enable a reduction in exposure to the Swedish property market. If, on the other hand, the banks' capacity for credit risk assessment is poorer in industries where they have not previously specialised, large exposures to new industries could have a negative effect on the risk in the banks' loan portfolios.

To assess how international expansion affects the total risk, it is important to also note the significance of the new market's specific risk level. Given that not all risk can be diversified away, entry into a new market with a high level of risk means that the total risk increases, even if the bank has obtained the special knowledge necessary. Certain countries and sectors quite simply have a higher risk level, which is reflected in higher anticipated losses as well as unexpected losses. For instance, an industry such as shipping has much more volatile earnings than property. When it comes to countries, this is clearly illustrated by the difference in risk between developing countries/emerging markets and industrialised countries. The cyclical fluctuations are often much more pronounced in growth economies than in more mature economies, which leads to a higher country risk. If a default occurs, the degree of recovery is often much more uncertain in developing countries *inter alia*, as a result of less efficient legal systems that prevent the seizing of collateral. In addition, several developing countries have political systems that are less than stable and this entails a higher political risk.

Finally, it may be the case that the net effect of diversification and specialisation differs according to bank and to risk level.<sup>56</sup> Special knowledge may be more important in a bank with a large percentage of high risk credits than in a bank with a low risk level, aimed for instance towards lending against collateral to households and stable companies. Thus, in a bank with a higher level of risk the negative effect of reduced specialisation will be greater than the positive effect of diversification, which means that the risk increases when the bank expands.

#### COMPLEX ORGANISATIONS AND TRANSPARENCY

When a bank expands, whether this is through mergers and acquisitions or by starting up completely new operations, the bank becomes larger and more complex as an organisation. A larger organisation leads almost inevitably to more complex hierarchies and longer decision-making processes. The more layers of divisional, country and department staff, the more difficult it can be for the head office to govern and control operations. Many geographically scattered subsidiaries and branches with partially different focuses can also obstruct management's control. Personnel in divisions that are geographically or operationally more remote may also feel alienated from the central head office. In a division that does not perceive itself as an integral part of the group the loyalty towards the head

<sup>56</sup> Acharya, Hasan & Saunders, "The Effects of Focus and Diversification on Bank Risk and Return: Evidence from Individual Bank Loan Portfolios", Working Paper December 2001, Stern School of Business.



office may be relatively low, which can make management much more difficult.<sup>57</sup> There are thus several factors indicating that expansion can increase a bank's exposure to operational risk. This increases demands on the bank management and the internal risk control.

Another aspect of international expansion is that the change in itself tends to increase the level of operational risk in an organisation. Acquisitions, mergers and large investments require considerable attention and focus from the management, which can lead to internal controls being neglected, albeit only temporarily. In addition, it takes time to integrate operations and systems, which hampers the management's control until the new organisation has become established. In many bank crises, including that in Sweden, the largest losses have arisen in the banks that had expanded the most and undergone the most reorganisation during the years immediately prior to the crisis.

The increased complexity of having several operations in different countries also makes it more difficult for external analysts to assess the bank's risk levels. This may then undermine the market's ability to use pricing to discipline the bank's risk-taking. The supervisory authorities' task may also be obstructed when banks become more international. Today, financial supervision in most countries is designed to safeguard the country's own national banking system, which means that it is less well-suited to multinational banks. The tasks and powers of the supervising authority focus on legal entities, such as a bank charter or a licence to pursue securities business. However, in large banking groups consisting of several legal entities, day-to-day operations are not conducted according to legal structure but according to business area. Supervisory authorities can solve this problem on a national basis through what is known as consolidated supervision. However, this can prove difficult with regard to multinational banks, as it could force the various countries' supervisory authorities to encroach upon one another's jurisdictions.

## Conclusions

Of course, it is difficult to make an overall assessment of the consequences of international expansion on financial stability in Sweden. As the Swedish banks grow larger and acquire more widespread operations, exposures to new risks arise. This must then be weighed against the diversification the banks achieve through a better risk allocation. One important conclusion that can be drawn, however, is that the potential sources of instability are growing in number and are to be found to an increasing degree outside of Sweden.

<sup>57</sup> It is interesting to note that many of the best known cases of rogue traders (which are perhaps the most notable example of operational risk) have occurred in subsidiaries or branches geographically remote from the head office. These include Barings (subsidiary in Singapore), Allied Irish Bank (subsidiary in the USA), Daiwa Securities (branch in New York).





The international economy will become increasingly important to stability.

Strategic risk is an important component in the Riksbank's analysis of the risks in the banking system. This concerns the risk of misguided ventures or unsuccessful business models leading to banks increasing their risk-taking. It may seem that the level of strategic risk in the banks increases when they expand outside of Sweden. However, this is not necessarily the case. The expansion is rather a reaction to something that has already happened. The level of strategic risk in a bank increases when the conditions for the bank's business model change. Then the bank is forced to act and to adapt itself, and the probability of making mistakes is higher on a market undergoing change than on a static market. However, failing to adapt one's strategy to changes in the outside world may be a bigger mistake. The gradual deregulation processes since the end of the 1970s have led to a continuous increase in strategic risk in the Swedish banking sector. By removing barriers to establishment and acquisition with the aim of promoting competition and growth, the authorities have also significantly weakened the protection from competition previously enjoyed by the banking sector. Increased strategic risk in the banking system is in a way the price countries pay in order to benefit from a freer and more open market.

This brings us to perhaps the most important conclusion the authorities can draw with regard to the internationalisation of the bank market. Just as the altered conditions have forced the banks to develop and adapt their strategies, the supervisory authorities and central banks need to reconsider their working methods and aims to ensure a balance between national financial stability and a continued development of an efficient global financial market.



## Articles in previous stability reports

### ■ 2002:1

The future payment system in Sweden

The management of market risks

The major Swedish banks in a international comparison

### ■ 2001:2

Oversight of the financial infrastructure and financial stability

Credit granting and credit risks

CLS Bank – improved risk management in the foreign exchange market

Economic effects of introduction of third generation mobile telephony (3G)

### ■ 2001:1

Liquidity and liquidity risk

The business cycle and and regulations for banks

Operational incidents in the banking system – two examples

Increased financial stability through international standards

### ■ 2000:2

Operational risks

### ■ 2000:1

Which measures can be taken in the event of a significant build-up of risk in the banks?

### ■ 1999:2

Preparations for the year 2000 transition

### ■ 1999:1

The year 2000 transition in the financial sector

### ■ 1998:2

Counterparty and settlement risks – an introduction

Year 2000 – a threat to financial stability?