Financial Stability Report 2003:1

Contents

Foreword

One of the Riksbank's main functions is to promote safe and efficient payments. The Riksbank's analysis of financial stability concentrates on developments in the banking system and the financial infrastructure.

The assessment begins with the external factors – developments in the real economy as well as events in financial markets – that can affect the risks in the financial system. The first chapter of this report therefore discusses how the environment for banking operations has developed since the publication of the Riksbank's previous stability report. The reasoning in this chapter is based entirely on the Riksbank's assessments in connection with monetary policy decisions. The chapter also identifies and analyses conceivable risks that can affect the banks' borrowers and thereby threaten the banks' financial strength.

The next chapter presents a survey of how the banks' borrowers have been influenced and whether they may act in such a way that the banks become more vulnerable.

The banks' own actions can also affect the stability of the payment system and the third chapter therefore contains a closer analysis of developments in the bank sector. Profitability trends can indicate the extent to which banks are exposed to strategic risks. The quality of bank assets is assessed as a pointer to how credit risks might develop, while the banks' funding capacity provides a picture of the liquidity risks that could arise. If problems in one banking group were to spread to other market participants via interbank exposures, the payment system could be affected immediately. The third chapter therefore concludes with an assessment of the banks' counterparty and settlement exposures.

The fourth chapter analyses and assesses the functions of the financial infrastructure, that is, how the systems for trading, clearing and settlement function.

Two articles conclude the report. The first discusses whether the Swedish banks are of systemic importance for the payment system, that is, essential for its function, and accordingly worth protecting if they are hit by financial problems. The other article analyses the consequences for financial stability in Sweden if Sweden were to move to Stage Three of EMU.

This report has been discussed at the Riksbank's Executive Board meetings on 8 and 22 May 2003.

Stockholm, June 2003

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Summary and conclusions

The Swedish banks have managed well to date in the protracted economic slowdown. Despite some deterioration in borrowers' ability to pay, bank profitability continues to be satisfactory, though somewhat weaker than earlier, and loan losses are low. But if an economic upturn is further delayed, with still more tangible effects on credit demand and the ability of borrowers to pay, the banks could become less resilient.

The Riksbank's assessment of stability

THE BANKS

During the six months since the publication of the previous Financial Stability Report, economic prospects have been revised downwards for Sweden as well as for other countries of economic and financial relevance for Sweden. The Riksbank still considers that economic activity will recover gradually but the upturn is now expected to occur later and be more gradual than was assumed earlier. Financial market prices indicate that uncertainty is still high.

The Riksbank continuously monitors the indebtedness and ability to pay of the Swedish banks' borrowers. Households and non-financial companies each account for approximately half of the banks' lending to the general public.

Just as in the previous report, the Riksbank notes that *non-financial companies* are reducing their total borrowing as the profit trend weakens and the rate of investment slackens. Companies are also continuing to adjust the composition of their borrowing by enlarging the share of bank loans at the expense of borrowing in the Swedish and international bond markets.

Although total corporate loans via banks increased during 2002, this component of borrowing is now being reduced, for the first time since 1996. A weak profit trend and an increased number of bankruptcies have impaired the corporate sector's ability to pay. A large number of bankruptcies are occurring, as before, in the telecommunications sector but the number is now also rising in the services sector. Moreover, default probabilities derived from market data and financial statements indicate that it is in these sectors that the risk of bankruptcy in the coming year is greatest, though it is also rising in other sectors. The bank's credit risk in corporate loans has accordingly grown.

Approximately 18 per cent of total bank lending goes to the *commercial property sector* and an additional around 27 per cent has real estate as collateral. Thus, a negative development in the property sector can affect the banks both because property companies' ability to pay deteriorates and because the value of the banks' collateral declines.

The pattern of prices and rents in the property market has not been uniform recently. Demand for office premises has dropped, leading to depressed rents and falling prices for such properties. For apartment blocks, prices have tended to rise, while prices for commercial and industrial premises have changed only marginally. The price fall for office

premises is particularly notable in the Stockholm region, which is also where the economic slowdown has been most marked. The Riksbank assesses that prices and rents for office premises will continue to be subdued in the coming year, mainly because demand is expected to remain weak. As only a negligible increase is foreseen in the supply of office space, this should not make a sizeable contribution to the negative trend for prices and rents.

The weakening market for office premises does not yet seem to have led to an appreciable deterioriation in property companies' ability to service debt. One explanation is that the rents at which contracts are being renewed continue to be higher than when the earlier contracts were signed. Another is that companies have diversified their holdings over different types of property as well as between different regions. In view of the weak economic prospects ahead and the fact that, as earlier contracts may have to be renewed at lower levels, the reduced rents will successively affect the companies' income, the Riksbank foresees a future decline in the companies' earning capacity and ability to pay. However, the indebtedness of property companies is comparatively low, so the risk of payment problems is correspondingly small.

The debt/equity ratio of *households* has risen gradually since the mid 1990s. This trend continued during the past six months and the Riksbank judges that the ratio will go on moving up. Rising disposable income and high house prices in connection with low interest rates are the main reasons why household borrowing has gone on rising relatively rapidly. Although the debt ratios are approaching the levels from before the crisis in the early 1990s, the Riksbank has repeatedly pointed out that in relation to disposable income, interest expenditure is historically low, so that households are not as vulnerable as they were then. But the more that interest expenditure and debt ratios rise, the more exposed households will become. The Riksbank considers that households' ability to service debt will be somewhat weaker than at the time of the previous report.

All in all, the Riksbank considers that the situation for borrowers has deteriorated since last autumn. This implies some increase in the banks' credit risks.

The performance of the *four major Swedish banks* shows, however, that they have managed well to date during the protracted economic slowdown. There has been some further decline in the profitability of these banks, on account of weaker earnings, but profitability is still satisfactory. The Riksbank finds, just as in the report last autumn, that the decline in bank earnings has more to do with the weaker equity market than with the slack tendency in the real economy. Profitability in the banks' core operations rose during 2002, while income from other operations went on declining.

The tendency for interest income to become increasingly important for the banks as other components of income deteriorate is accordingly continuing. The banks are now as dependent on net interest income as they were at the beginning of the 1990s. But in that the growth of lending has slackened substantially in the past six months, there are grounds

for believing that net interest income will not go on rising at the same high rate.

Net commission income has decreased with the stock-market trend but the fall has been countered by a comparatively favourable development of income from other commissions. Dependence on the equity market has accordingly diminished.

In the second half of the 1990s many banks anticipated that as capital markets became more efficient and accessible, banks would be less important as intermediaries between households and companies. However, bank income from deposits and lending has developed relatively favourably, while income from asset management and investment banking, has decreased markedly. Still, structural changes in the European financial markets suggest that in the longer run net commission income will probably grow.

Despite the cutbacks that many banks made, costs were mainly unchanged in the reporting period. This is partly due to costs associated with structural changes in existing operations but it also has to do with the rigidity of banking costs. However, the banks' ambition is to go on reducing costs. Succeeding in this respect at the same time as income is maintained will be a challenge for the banks.

All in all, the loan losses of the four major Swedish banks have decreased since the summer of 2002. However, the tendency varies, with decreased losses for one bank but increased losses for the other three. But the level of loan losses is still low and there are no indications of a marked increase in the future if the economy develops as forecast by the Riksbank and a recovery materialises. Still, as there is normally some lag in the development of loan losses relative to economic activity, some increase is to be expected.

Thus, the banks have stood up relatively well to the economic slowdown and the sluggish recovery. Their comparatively good productivity means that the banks are in a position to cope with a delayed recovery. However, the situation is eroding the banks' resilience and their ability to absorb unexpected losses. A more protracted period of low economic activity or large loan losses from a particular sector or a major borrower could impose considerable strains on the banks.

THE FINANCIAL INFRASTRUCTURE

The Riksbank's oversight of financial stability also covers the *financial infrastructure*, that is to say, the systems for trading, clearing and settlement of payments and securities. Starting with this report, one chapter describing the present situation will regularly be devoted to an analysis and assessment of the Swedish financial infrastructure.

The European securities market is changing at a rapid pace. The desire to reduce risks and costs has meant that systems and marketplaces in Europe have gradually integrated, firstly on a national basis and now also between countries. Rapid developments in technology and work by the authorities on changing regulations have also contributed to a process of integration and harmonisation. However, when it comes to the

payment market, the map has not altered quite so quickly. Consolidation of these systems has been purely on a national basis, so far.

The ongoing integration and harmonisation in the securities and payments markets will probably result in a more stable financial infrastructure, with increased efficiency, lower costs and considerable risk reduction. However, the fact that the functioning of the financial markets is based on fewer systems may also contribute to an increase in certain risks. One is that the infrastructure will become more dependent on a small number of systems and that its vulnerability to disruptions of these systems will thus be greater. Another is that the concentration to a few systems may create expectations that the authorities will always come to their rescue, regardless of the cause behind the disturbances. From the central banks' point of view, the oversight of more consolidated systems will demand greater cooperation between countries.

During 2002 the Riksbank has assessed the Swedish payment market according to international standards for efficiency and safety. The Riksbank's assessment is that RIX, the central system for primarily large-value payments, to a great extent adheres to these standards. However, the system could be made more efficient. The Riksbank also assessed Bankgirocentralen, BGC, which is the Swedish clearing system for retail payments. BGC also largely adheres to the international standards.

Articles

CAN A BANK FAILURE THREATEN THE PAYMENT SYSTEM?

A properly functioning payment system is a necessary condition for a stable and efficient financial system. The banks are the central participants in the payment system and the considerable concentration in the Swedish banking system makes the four major banks particularly important to the payment system. It is therefore reasonable to assume that the general public and many market participants expect that the central government will always prevent a major bank from defaulting. This article studies whether the major Swedish banks are systemically important to the payment system on an individual basis. The analysis is based on the assumption of only one major bank suffering problems. As the banks have similar exposures and operations, in some cases they risk being affected by problems simultaneously. Together, the major banks are therefore systemically important, which motivates oversight and regulation of them.

For a bank to be systemically important, it must either be essential in itself to the functioning of the payment system, or it must be clear that problems in this bank could spread to other banks and thus compromise the functioning of the system. The conclusion in this article is that none of the four major banks is systemically important from a payment system perspective. They are not systemically important through their significance for the payment system, nor are they always systemically important in terms of contagion risk. There is therefore no reason to always,

whatever the cost, prevent the failure of a major bank in order to protect the payment system.

FINANCIAL STABILITY IN SWEDEN AND THE EURO

If Sweden chooses to participate fully in Stage Three of EMU, financial stability will be affected in several ways. This article studies the effects on the areas the Riksbank oversees – the individual banks, the contagion risks between them and the financial infrastructure. It also touches on the means and tools for managing a financial crisis.

One important conclusion is that membership of the Eurosystem would rapidly have consequences for certain areas, such as reduced foreign exchange trade and a shift towards other instruments in securities trading. Although these direct and initial effects have some influence on the institutions, the consequences for financial stability are slight in the short term. However, in the slightly longer term, the consequences may be more significant as the markets for financial services become increasingly integrated within Europe. The rate of change will largely depend on how quickly the financial institutions adapt to the new situation. The euro is an important element in the growing integration of the markets and therefore contributes to making the European countries more dependent on one another with regard to the stability of the financial system.

The effects of Sweden adopting the euro would vary, which means it is difficult to draw any clear conclusion as to whether this would lead in total to an improvement or a deterioration in the stability of the financial system. The effects would also depend on how the market participants behaved in the new environment, and to what extent the authorities could manage to adapt the focus of their oversight to apply to the euro area.

The Riksbank's view of financial stability

THE FINANCIAL SYSTEM performs important tasks, which are a necessary condition for the overall functioning of the economy. The system's tasks are to convert savings into investments, to contribute services for risk management and to supply efficient instruments of payment. The financial system's importance to society and the economy means that the public sector has a particular interest in overseeing the functioning of the system.

The most important purpose of public oversight is to attain *systemic stability* and prevent systemic risks. Systemic risk is the risk that the financial system will suffer such serious disruptions that it cannot continue to function. Systemic risks exist primarily in the payment system. The breakdown of a vital function in the payment system could entail large efficiency losses in the economy, with potential long-term damage in the form of weaker growth and lower employment. The central figures in the payment system are the banks. This is connected with the central significance of the deposit accounts with the banks, as payment services in a modern economy essentially take the form of transfers between these. The banks thus play a key role in the payment system and a crisis in the banking system could seriously damage the payment system's capacity to function.

Systemic stability came under serious threat during the bank crisis at the beginning of the 1990s. This led to government intervention. The bank crisis has radically affected the Swedish authorities' views of the financial sector. One expression of this is the government bills on new banking legislation and the special bank crisis regulations that have emerged in recent years, as well as the recent review of Finansinspektionen's work. From the Riksbank's point of view, the experiences from the bank crisis have been important because they brought greater focus onto financial stability, not least through the regular publication of a financial stability report.

The oversight of the financial system is mainly done in three ways. The first is a regulatory framework, consisting of laws and regulations, which establishes the bounds within which financial companies must operate. The second is the day-to-day oversight, which comprises both the supervisory authorities' supervision of the risks and regulatory compliance in individual companies, and the central bank's oversight of the risks in the financial system as a whole. The third component is crisis management, which concerns public sector measures designed to deal with crises in the financial system.

With regard to the regulations in this field, the Riksdag is responsible for legislation on financial operations, while Finansinspektionen issues more detailed instructions and in its supervision checks that these are observed. The Riksbank's main work here is by responding to matters submitted to it for comment. However, regulations are developed internationally to a great extent within the Basel Committee and the EU. The Riksbank often participates directly in this work.

In the Riksbank's view, the regular oversight of systemic stability rests on three pillars:

- The first pillar is the supervision of the *individual banks*. The motive for supervising individual banks is that they risk becoming unstable as their funding usually has a short duration and can rapidly disappear, while their assets have a long duration and cannot be realised as quickly. Finansinspektionen is responsible for institutional supervision in Sweden.

- The second pillar is supervision of *systemic stability – system oversight*. When one institution experiences problems, there is a greater risk that other institutions also have, or will develop, problems. This systemic risk is the main explanation for the financial system being unstable and it comprises the base for the need of system supervision. There are several reasons why systemic risk arises. One is that the institutions have credit exposures to one another through, for instance, loans or securities trading. Another reason is that the institutions participate in the payment system and thus have liquidity exposures to one another. Finally, the institutions (the banks) have similar exposures and operations and thus risk being afflicted by the same problems at the same time, if the problems arise from economic events or other external factors. A further explanation for systemic risk is that the international community is aware of its existence and when problems arise in one institution, there is a tendency to behave as though other institutions were also affected, whether or not this is the case. This behaviour reinforces systemic risk and can prove self-fulfilling. The Riksbank's analysis of the stability of the banking system focuses on systemic risk.

- The third pillar comprises the supervision of the *financial infrastructure*. The infrastructure

consists of the systems for trading, clearing and settlement of payments and securities trading. Well-designed systems reduce the risk of contagion from the financial markets, between the institutions or of the infrastructure itself causing problems through, for instance, operational disturbances. The Riksbank's responsibility for the oversight of the financial infrastructure is based on the fact that the Riksbank, as Sweden's central bank, is the ultimate guarantor of payments in Swedish kronor. When the banks make payments to one another they use the central RIX payment system and their accounts with the Riksbank, which means that the Riksbank acts as bank to the banks. By means of the design of the RIX system and by making demands of the adjoining important parts of the financial infrastructure, the Riksbank can work to ensure the infrastructure becomes resilient to various types of disruption, the most important of which would be the default of an important participant for the infrastructure. Finansinspektionen also plays a role in overseeing the institutions that are part of the financial infrastructure.

The need for the third part of the public oversight, crisis management, arises because the public sector may need to act to prevent a crisis that threatens system stability. The primary threat consists of one or more institutions central to the payment system suffering financial problems. Crisis management therefore comprises assessing the consequences of a company with problems going bankrupt and possibly taking measures to reduce these consequences. In some cases these measures may consist of contributing to an orderly liquidation of the company; in other cases the government may need to provide financial support, which was done through the general bank guarantee issued during the bank crisis. The Riksbank's task with regard to crisis management is to provide emergency liquidity assistance to financial companies suffering liquidity problems. However, this should primarily be supplied if the stability of the financial system is under threat. In addition, it should only be given if the company is solvent. If the company is insolvent, the Riksdag must decide on possible financial support, as this would be a cost to tax-payers. In addition to the task of providing emergency liquidity assistance, the Riksbank has the task of providing information in a financial crisis situation; providing the markets with information on whether or not a particular disturbance constitutes a threat to the stability of the financial system.

Day-to-day oversight and crisis management are closely interlinked. Supervision of system stability is a necessary condition for making assessments of whether stability is threatened in the event of a financial crisis. The analysis of the banks in turn provides a foundation for making assessments of whether solvency and liquidity problems have arisen in a crisis situation. The Riksbank's proximity to the RIX payment system would also be central in crisis management as crises would be identified acutely in the payment system.

The Riksbank's tasks with regard to financial stability are thus concentrated on systemic stability, partly through regular oversight of the banking system and the financial infrastructure and partly through a preparedness to act in the event of a financial crisis. In its analysis of the banks the Riksbank concentrates on the four major banks, both because a significant part of the banking system is included here and because it is a default by one of these that would be the primary threat to systemic stability.

PART 1. SITUATION REPORT

Macroeconomic developments

During the six months since the publication of the previous Financial Stability Report there has been a delay in the economic recovery. Financial market prices indicate that although uncertainty has decreased to some extent, it remains high. There are certain tendencies that can seem to be troublesome at present, for example the situation for life insurance companies, the management of corporate pension commitments, house prices and the problems in Germany's bank sector. But none of them constitutes a major threat to the Swedish banks or their borrowers and thereby not to the payment system's stability, either.

The Riksbank's assessment of stability begins with the external factors – developments in the real economy as well as events in financial markets – that can affect the risks for the Swedish banks and their borrowers. The reasoning about macroeconomic developments in this chapter is based entirely on the Riksbank's assessments in connection with monetary policy decisions. Some specific factors that might have a particularly strong impact on the banks and their borrowers are also analysed.

Developments abroad are important for the Swedish banks in that more than half of their assets are located outside Sweden and a large proportion of their funding is also arranged abroad. The banks' borrowers are likewise dependent on developments in the rest of the world, in that they and/or their customers and suppliers are based abroad.

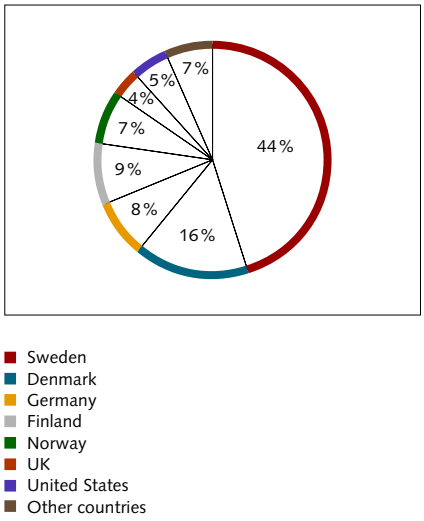
Economic growth in Sweden, Europe and the USA picked up to some extent last year but since last autumn the recovery seems to have slackened. While the weaker tendency was to some extent expected, in the large euro countries it was more marked than had been foreseen. Compared with the forecast on which the previous report was based, the assumptions about growth have again been revised downwards. The prospects for a continued increase in growth are assessed by the Riksbank as favourable in the USA but less so in Europe, above all in Germany. Sweden and the other Nordic countries have withstood the consequences of the international economic slowdown relatively well. But even in the Nordic area it looks as though growth in 2003 will be lower than in the forecasts on which the previous report was based.

Movements in short- and long-term interest rates have been marked by unease about the security policy situation as well as by the absence of clear signs of a quick economic recovery. This has resulted in low inflation expectations and a rearrangement of portfolios in favour of safer investments. As a consequence of this, long government bond rates have fallen in Sweden as well as elsewhere and the level of short-term interest rates is historically low (see Figures 1:4 and 1:5).

Since the time of the previous report, however, the spread between government and corporate bond rates has narrowed, for high as well as low ratings, but the level remains considerably above the average for the past eight years (Figure 1:6).

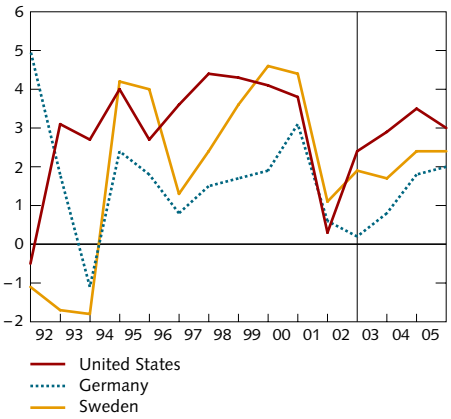
Bankruptcies have become more prevalent in recent years. The total number of bankruptcies has been considerably higher than normal and it also includes the failure of some very large corporations, among them

Figure 1:1. Assets in the major banks, geographical breakdown in December 2002. Per cent



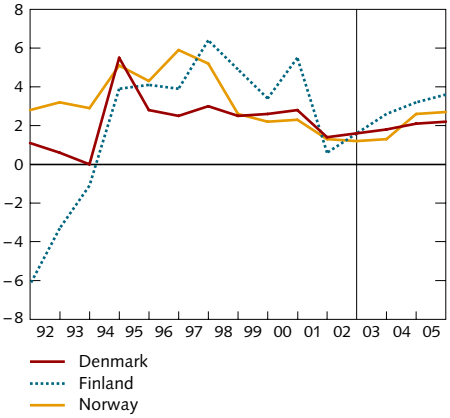
Source: The Riksbank.

Figure 1:2. GDP growth and forecast. Per cent



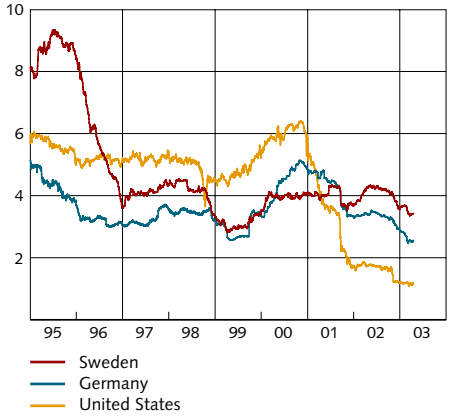
Source: The Riksbank.

Figure 1:3. GDP growth and forecast. Per cent



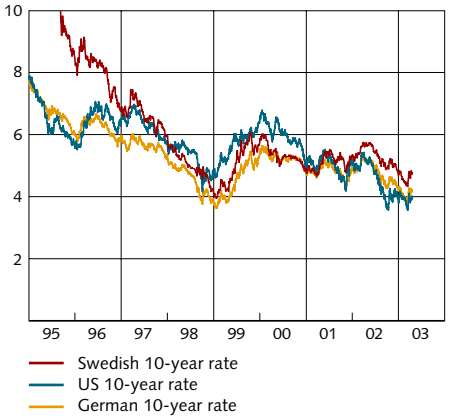
Source: The Riksbank.

Figure 1:4. 3-month interest rates in Sweden, Germany and the United States. Per cent



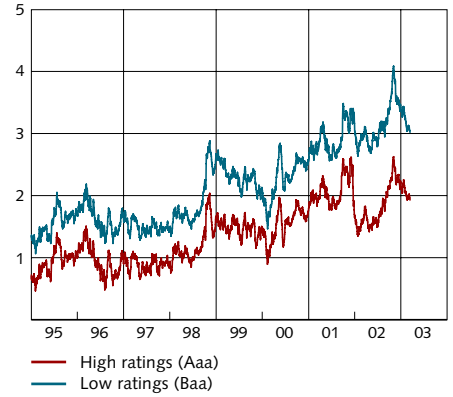
Source: EcoWin.

Figure 1:5. Long-term interest rates in Sweden, Germany and the United States. Per cent



Source: EcoWin.

Figure 1:6. Credit spreads for US companies with high and low ratings. Percentage points



Source: EcoWin.

Enron, Swiss Air and WorldCom. This has been accompanied by lowered credit ratings for a number of major companies in the USA . Even so, the global banking system has not incurred extensive loan losses. A contributory reason is that many banks have taken the opportunity of reducing credit risks by means of securitisation and credit derivatives. Meanwhile, purchasers of these credit instruments have incurred corresponding losses, which might mean that some of the institutions that have been active in this market have become less interested in making new contracts. The market for these new types of credit instrument has existed for a number of years and its development in recent years has been strong. As this market is still relatively immature, the financial contracts are revised comparatively frequently. Accounting practice is still diffuse and at times the markets lack liquidity and depth. Moreover, the markets are heavily concentrated to a small number of major global banks that function as intermediaries. For some time to come the recent developments may make it less possible for banks to manage credit risks with the aid of these instruments. But as the Swedish banks have used these instuments to just a small extent, such a development would have only a minor effect on them.

Equity prices in the USA, Europe and Sweden have not yet turned clearly upwards. American as well as Swedish companies have reported lower profits for 2002 compared with 2001 but earnings have improved since the final quarter of last year. However, the reported improvements seem to have been achieved mainly by rationalising costs and consolidating debt and to only a lesser extent by increasing sales. To generate a sustained improvement in profits, rationalisations need to be combined with increased turnover.

Uncertainty in the wake of the asset price trend

Option prices show that the uncertainty about the stock market's future continues to be higher than normal. There are several grounds for this uncertainty; some of them are the lack of a clear cyclical upturn, the numerous corporate bankruptcies and the security policy situation ever since the events of 11 September 2001. The uncertainty has been heightened still further by questions about the future course of events in the Middle East.

Then there is uncertainty about whether corporate balance sheets have been fully adjusted for the expectations of lower future turnover that have prevailed since the beginning of 2000 and whether the stock-market fall's effects on insurance companies and corporate pension funds have had their full economic impact.

Life insurance companies in Sweden and other countries have been heavily hit by the stock-market fall. A number of these companies in Sweden and Europe are finding it difficult to comply with the statutory solvency requirements and even more so to provide policy-holders with the return they previously anticipated. On the other hand, the cautious assumptions behind the calculation of life insurance companies' technical provisions mean that policy-holders in Sweden hardly risk losing the

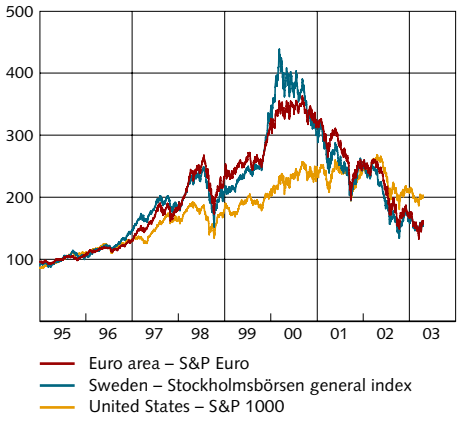
guaranteed capital even if some company's solvency were to fall below the statutory level. A number of large life insurance companies are owned by the four major Swedish banks. As these companies represent only a minor share of the banks' operations and to a very large extent are run as mutual companies, the risk of problems in the life assurance companies spreading to the bank sector is low. This has already been noted in the previous report. However, two of the banks do risk having capital tied up in these companies for a long time at a low return.

In addition to the public pension plans and private pension saving unconnected with employment, in most countries there are *pension plans with corporate financing*. Their size varies from country to country. In Sweden, assets set aside for companies' occupational pension commitments total approximately SEK 1200 billion. Around 10 per cent or rather more than SEK 100 billion of the occupational pension assets in Sweden are held in corporate pension foundations.[1] In many of these funds the marked fall in equity prices has eliminated the surplus value that existed earlier. A deficit in pension funds has a direct impact on the company's earnings. In that the surplus has been eliminated, falling equity prices and an unfavourable development of interest rates affect the company's profit directly. The occupational pension commitments of Swedish companies are discussed in a box in the next chapter of this report.

In the USA these corporate pension plans are generally more important than in Sweden because the public pension system there is more limited. Calculations by Standard & Poor's indicate that in 2002 the preferential occupational pension plans for the 500 largest American listed companies showed a combined deficit of over USD 200 billion. Unlike the case in Sweden, the costs for covering these deficits are spread over a number of years in the corporate profit and loss accounts. This it is feared may burden the American corporations' earnings in the future and thereby delay an economic recovery. It is not until the pensions are due to be disbursed, however, that the companies' liquidity and thereby their financing requirements are affected; this lessens the risk of the deficits causing acute difficulties with payments. Greatly underfinanced pension plans are also a problem for companies in the UK and the Netherlands.

The effects of the stock-market fall on households in Sweden, the USA and the UK are countered by the ongoing increase in *house prices*. By enhancing households' wealth and thereby their capacity to consume, the development of house prices has helped to sustain economic activity. At the same time, it has raised fears that the price rise may be excessive and liable to be followed by steeply falling prices. The latest figures suggest that house prices are no longer rising in these countries and are even falling in certain regions. It is too early to tell whether this is a sign that prices will continue to fall rather than being a temporary slowing of the upward trend. A steep price fall could affect household consumption, with the attendant risk of a negative effect on economic growth. In the

Figure 1:7. Share prices.
Index: 1995=100



Source: EcoWin.

Figure 1:8. Implicit volatility based on OMX and S&P 500.
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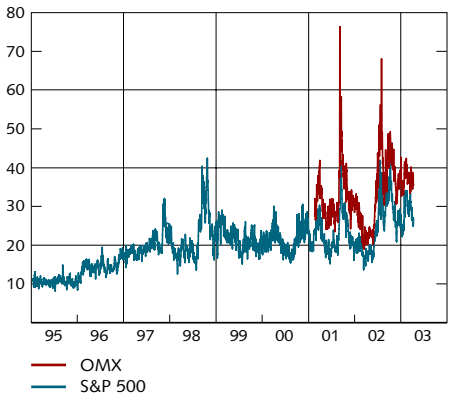


Sources: Datastream, Bloomberg and the Riksbank.

1 These figures for 2001 are from SIRP, the Swedish association of jointly-owned institutions for management of risk and pension plans.

light of the real price fall in the first half of the 1990s, however, the average annual price rise of around 5 per cent in Sweden and the USA in the latter 1990s does not seem alarming. The price increases in the UK in recent years have been considerably higher but they, too, came after a substantial real price fall. There are also many indications that the price rise in Sweden has been motivated by, for instance, the improvement in household disposable income and the low nominal interest rates. The same applies in the USA and the UK .

A steep house price fall does not automatically lead to higher loan losses for the banks. There would also need to be a deterioration in the ability of households to service debt, which occurs as a rule because either unemployment or interest expenditure rises. In these respects there are certain differences between the three countries. In the USA, housing loans are tied for very long periods, so households are not particularly sensitive to interest rates. Instead it is unemployment that seems to be the main factor whereby house prices may have a sizeable direct effect on American banks. Housing loans in Sweden are tied as a rule for shorter periods, which makes households here more sensitive to increased interest rates. This is even more the case in the UK, where a larger proportion of the loans have flexible rates. Interest rate movements as well as unemployment are accordingly of importance for the impact of house prices on the banks. Even if falling house prices do not affect the banks directly, there is a risk of economic growth being impaired.

Besides affecting interest expenditure directly, interest rate movements influence house prices. Rising interest rates can lead to falling house prices. Interest rates are most likely to move up during a cyclical upswing but there is also a risk of them rising without the prospect of a cyclical improvement, which would hold house prices down.

Both corporate and household investment and consumption in the late 1990s and the beginning of 2000 were based on *optimistic assumptions about future income*. When the income failed to materialise, the expectations were revised downward and equity prices followed suit. The uncertainty connected with security policy developments has accentuated the pessimism. In the light of the lower equity prices and expectations, corporate debt and costs appeared unduly high. Corporate attempts to rectify profits as well as balance sheets have involved cost-cutting and decreased investment and this has contributed to the economic slowdown. An economic upturn presupposes a resumption of corporate investment and recruitment. That will not happen until balance sheets and earnings have been adjusted to the new pattern of expectations or until expectations are revised upwards, which could occur if, for example, the security policy situation is judged to have become more stable. Considering that the process of adjusting corporate debts and costs in both the USA and Europe has been in progress for a couple of years and that the largest imbalances were concentrated to a few sectors, more positive expectations ought to lead to increased economic activity.

Changed conditions

The conditions for economic agents change continuously. Structural changes can lead to imbalances if unfamiliarity with the new environment causes economic agents to make mistakes. One such change was the deregulation of financial markets in Sweden in the 1980s; together with other events, it led to the bank crisis in the early 1990s.

Another change is the transition to low-inflation regimes in many OECD countries during the past decade. The new environment probably leaves monetary policy with less possibility of providing a strong economic stimulus if required. The protracted economic slowdown in recent years has led to some concern that the central banks' instrumental rates are becoming so low that they cannot be cut further. That may also have increased the risk of a deflationary process. The Japanese experience, for example, shows that the consequences of such a process can be disastrous, if they coincide with other structural problems. This applies in particular to the banking system because as a rule deflation leads to rising real interest rates and a growing burden of debt for the banks' borrowers. But although the risk of deflation is now greater than in earlier periods in many countries, the probability of it actually happening is slight.

However, the risk of deflation or other problems related to the economic slowdown does seem to be greater in Germany than in other countries. High debt, low domestic demand and a not particularly competitive corporate sector contribute to this. The absence of a national monetary policy means that as the consequenses cannot be mitigated with monetary stimuli, structural problems need to be tackled thoroughly. In addition, there are particularly clear problems of a structural nature in the bank sector, where over-establishment is accompanied by weak local competition. The explanation lies in the large proportion of the sector that consists of banks receiving public support or of savings and cooperative banks that lack a distinct owner with the ambition to rationalise operations and make them profitable. Attempts by the commercial banks to compete with these banks have led to shrinking margins. In order to improve their profitability, the commercial banks have adopted alternative strategies that in a number of cases have proved to be misguided. With the economic slowdown, moreover, the proportion of non-performing loans and loan losses has begun to grow and is considerably higher than in Sweden. However, the capital ratio in the system is still satisfactory.

To cope with this situation, extensive cost-cutting is in progress, above all in the German commercial banks. The semi-public banks are also making cuts, not least because the public guarantee is to end in a couple of years' time. In view of their depressed margins and increased loan losses, the banks are also tending to raise prices and thereby strengthen their interest margins. This, however, can exert more pressure on German companies that incur higher interest costs or are refused credit. The problems in Germany are unlikely to spread to Swedish banks through losses by a single counterparty. But the developments in Ger-

many do affect the operations of Swedish banks and other companies there as well as international economic activity.

In the years ahead there are a number of *changes of importance* for Swedish banks and their borrowers. A decision is to be taken on Sweden's participation in Stage Three of EMU.[2] The new accounting rules (IAS) are to be implemented and the changeover to the new Basel rules is scheduled for end 2006. These changes are intended to lead to a more stable financial system but their implementation entails risks that may be worth considering.

All in all, there are inevitably a number of disturbing factors that may lead to problems for banks and their borrowers. Some of these factors can be identified as potential problems before they actually arise, others occur unpredictably. As mentioned above, however, the risk of unforeseen problems occurring is particularly great in certain situations. The Stability Report aims to identify potential problems and assess which of them might develop into a threat to financial stability. The Riksbank appraises the ability of banks and their borrowers to cope with both foreseeable and unforeseeable events.

2 The long-term consequences for financial stability of participation in Stage Three are discussed in the article "Financial stability in Sweden and the euro" at the end of this report.

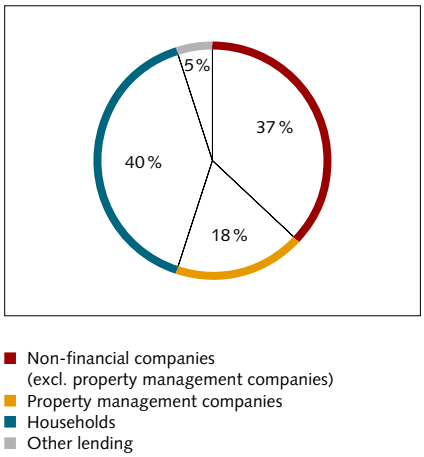
The Swedish banks' borrowers

Corporate borrowing is declining, while the growth of household borrowing is still comparatively high. The slower economic recovery has impaired all borrowers' ability to service debt. The property market has eased, leading to a fall in prices and rents. The risk of loan losses for the banks has accordingly grown but there are no signs of this imposing substantial strains on the banks at present.

The corporate sector in Sweden

Loans to non-financial companies make up approximately half of the Swedish banking system's stock of loans to the Swedish general public. Historically, it is the corporate sector that has occasioned the major share of the banks' loan losses. In order to assess the risk of loan losses, the Riksbank studies companies' indebtedness and ability to pay as well as the development of bank lending to the corporate sector.

Figure 2:1. Breakdown of total bank lending. Per cent



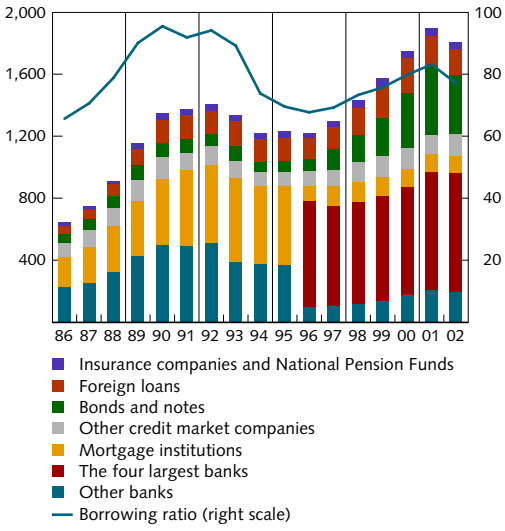
Source: The banks' reports.

CORPORATE INDEBTEDNESS

In the previous report it was noted that, for the first time since September 1996, total corporate borrowing was declining. This tendency is continuing. The slow economic recovery, with slackening investment and a weakened profit trend since the second half of 2001, has subdued corporate demand for credit.[3] As the Riksbank observed in the previous report, total corporate borrowing is falling relative to GDP (see Figure 2:2). A breakdown of corporate borrowing over components of the credit market shows the extent to which borrowing is concentrated to the bank sector.

The decline in corporate borrowing has been accompanied by some changes in the borrowing's composition. There was a break last year in the long-term tendency for corporate financing to be arranged to a growing extent in the securities markets. Borrowing against bonds decreased together with a slight increase in borrowing from banks. In annual terms, corporate borrowing via the bank sector rose by an average of 5 per cent in 2002, which can be compared with an average annual increase of around 11 per cent in the past five years. Loans from banks accordingly make up a growing share of total corporate borrowing, around 36 per cent.[4] The relatively low level of interest rates probably favours bank borrowing at a time when companies' internal earnings are slackening and credit risk premiums in bond markets are rising. Relation-based lending by banks to companies suggests that the banks maintain their lending to customers even when there is a temporary fall-off in the latter's earnings. Since September 2002, however, there has also been a fall of about 2.5 per cent in corporate borrowing from banks.

Figure 2:2. Corporate borrowing and borrowing ratio. SEK billion and per cent

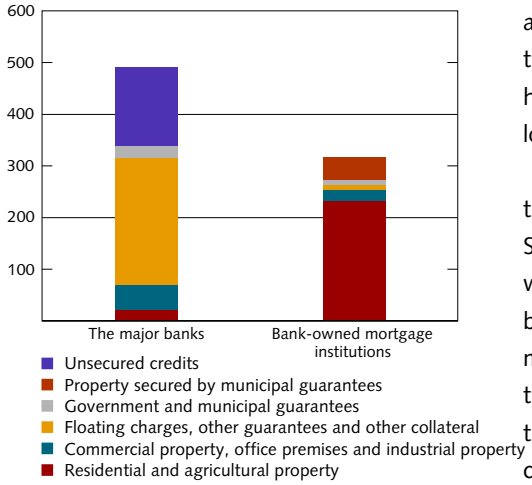


Source: The Riksbank.

3 Simple regressions for credit demand, presented in the previous report, show that corporate borrowing covaries strongly with cyclical activity and corporate investment; see "Credit expansion as an indicator for financial instability", Financial Stability Report 2002:2.

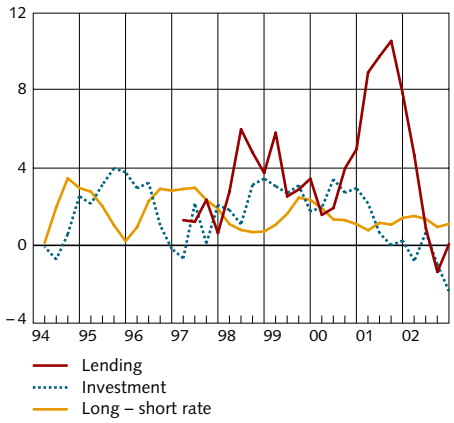
4 The four major Swedish banks arrange a growing share of borrowing by non-financial companies; the share currently accounts for about 80 per cent of lending by the Swedish banking system to non-financial companies.

Figure 2.3. Lending to the corporate sector in 2003 by the major banks and bank-owned mortgage institutions broken down by collateral. SEK billion



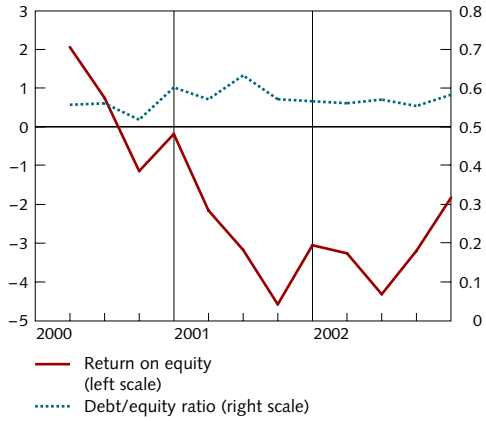
Source: The Riksbank.

Figure 2:4. Growth in corporate lending, rate of investment and spread between long and short interest rates. Per cent.



Sources: Ecowin, Statistics Sweden and the Riksbank.

Figure 2:5. Debt/equity ratio (ratio of interest-bearing liabilities to equity) and return on equity after tax for listed Swedish companies. Ratio and per cent.



Source: Ecowin.

The Riksbank has pointed out in earlier reports that the banks' credit exposures are liable to grow just in those periods when credit risks are rising. A loss of creditworthiness can make it difficult for companies that arrange a part of their financing in the bond market to renew their loans there. Instead of issuing new bonds, they then turn to the banks. That has presumably tended to increase the credit risks in the banks' corporate loans.

The relatively large scale of corporate borrowing via mortgage institutions is a consequence of the largest of these institutions, apart from SBAB, being owned by the banks and that it is largely these institutions which arrange loans secured with real estate.[5] Most of the four major banks' corporate loans secured with real estate, as well as their loans to municipal housing companies, are concentrated to these mortgage institutions (see Figure 2:3). Of the corporate loans from mortgage institutions, almost 90 per cent are secured with residential property or municipal guarantees. Together with their fully-owned mortgage institutions, the four major Swedish banks provide 43 per cent of the total stock of loans to non-financial companies. However, corporate borrowing from mortgage institutions is tending to decline in the long run as some of the lending via mortgage institutions is transferred to the parent banks. Borrowing via other credit market companies rose about 3 per cent in annual terms during 2002.

THE COMPANIES' ABILITY TO SERVICE DEBT

When assessing whether the risks in bank lending to companies have increased, a key issue is the ability of companies to repay their debts. The Riksbank therefore analyses the development of corporate profits and debt ratios. In the previous report it was noted that the ability to service corporate debt had deteriorated relatively markedly during 2001. Balance-sheet data broken down into small, large and new non-financial companies showed that the financial position had weakened for all three categories. According to annual accounts for 2002, the corporate profit trend has continued to weaken.[6] A compilation of 211 non-financial companies listed on the Stockholm Exchange shows that the return on equity remains low and that the debt ratio has been virtually unchanged up to the end of 2003 Q1. This indicates that the financial position of companies has not improved (see Figure 2:5).

The development of corporate bankruptcies supplements the picture of the credit risk in lending to companies. A diminishing corporate ability to pay and a weakened financial position lead to companies having greater difficulties in servicing their debts and ultimately to a rising number of corporate bankruptcies. The bankruptcy statistics show that the number of bankruptcies has risen above all in the services sector and is

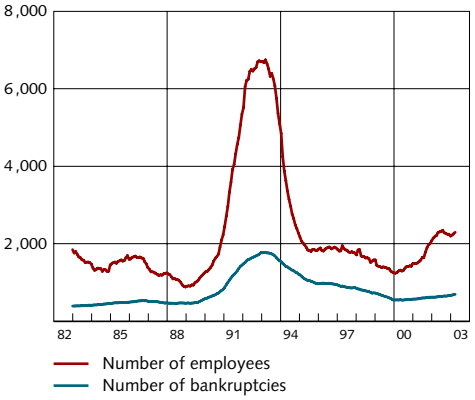
5 Lending by mortgage institutions to non-financial companies largely consists of loans to municipal housing companies, private property companies and private property-owners, with collateral in the form of commercial property or apartment buildings. The ceiling for mortgages on loans of this type is about 70 per cent of the property's appraised market value.

6 Annual accounts for 332 Swedish listed companies show that during 2002 the total profit level fell 11 per cent. Of these companies, 94 combined increased turnover with an improvement in earnings. In 2003 Q1, however, the aggregate level of profits in 300 companies has risen 11 per cent.

still high among telecommunication companies. From April 2002 to March 2003 the number of corporate bankruptcies rose by around 12 per cent in annual terms. The increase in the first four months of this year was as much as 15 per cent, which can be compared with an annual average of 8 per cent since December 2000, which was when the number first rose again after 1992 (see Figure 2:6). The rising number of employees in companies hit by bankruptcy indicates that larger companies are going bankrupt to a growing extent. However, companies with less than twenty employees still make up over 95 per cent of all corporate bankruptcies. A new tendency to date this year is, however, that bankruptcies among property management and construction companies are beginning to rise relatively strongly, albeit from a low level.

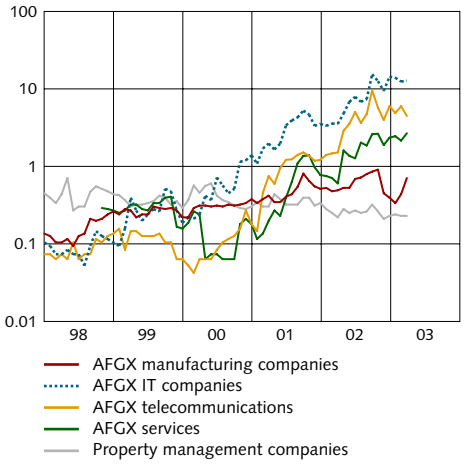
A leading indicator of bankruptcies in the corporate sector is the expected default frequency (EDF) for listed non-financial companies, calculated on the basis of stock-market information and data from financial statements (see the box on market-based indicators).[7] This points to an increased risk of bankruptcies in every sector except property management and primary producers. The highest risks of bankruptcy are concentrated, however, to just a few sectors, for example IT, telecommunications and services. This indicates that the credit risk in lending to companies in these sectors will remain high in the coming year. For loans to manufacturing, producers of consumer goods and primary producers, on the other hand, credit risks will continue to be comparatively low. The one-year risk of default is lowest in property management, where the credit risk in loans has decreased steadily over the past three years (see Figure 2:7). However, the average risk does include an increase for property management companies with the lowest credit ratings and a decreased risk for the most creditworthy companies in this industry.

Figure 2:6. Number of company bankruptcies and number of employees in companies going bankrupt. 12-month moving average



Source: Statistics Sweden.

Figure 2:7. Expected default frequency (EDF) by industry for listed non-financial companies.
Per cent (logarithmic scale).



Source: Moody´s KMV.

SUMMARY COMMENTS

Corporate borrowing from credit institutions has continued to fall. This indicates that companies are reducing their liabilities in order to consolidate balance sheets. A weak development of earnings and generally increased probabilities of companies defaulting imply that the credit risk associated with lending to the Swedish corporate sector has increased since the time of the previous report. The default probabilities point to increased credit risks in the year ahead. However, the credit risk is highest for loans to IT, telecommunication and services companies and these are sectors to which the exposures of at least the four major Swedish banks are relatively small.

7 Moody's KMV 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 when the debts mature, the EDF shows the risk of a listed company being unable to meet its commitments. The market value of the company's assets is derived in turn from the company's market value, using option pricing methods.

Market-based indicators

INDICATORS BASED ON prices from financial markets are being used by the Riksbank to a growing extent. The Riksbank's view of such indicators is presented here. A more detailed account is to be published in this year's second issue of the Bank's periodical *Sveriges Riksbank Economic Review*.

There are a number of reasons for considering indicators based on market prices instead of looking solely at, for instance, accounting-based indicators. Market-based indicators reflect information on how market participants view the future, while indicators based on national accounts or annual reports only give a picture of developments in the past. Moreover, in that prices can be updated daily, market-based indicators are available more frequently and without a time lag. A further reason is that methods for extracting information and calculating risks from market prices are well-developed and further developments are in progress.

The Riksbank considers that to a large extent, market-based indicators mirror the risks in Swedish banks and companies. The results of empirical studies show that increased risk, in a bank or the corporate sector, is generally signalled by market-based indicators in an effective way and often also in advance of other signals. This was clearly the case during the Swedish bank crisis in the early 1990s; market-based indicators pointed to an increased risk in the Swedish bank sector before the problems were evident and the public debate had got under way.

With market-based indicators, the level of risk in different sectors can be followed over time and it is also possible to compare sectors without having to follow each sector in detail.

For the Riksbank's ongoing analysis of financial stability, the market-based indicators are an important addition and provide a frame of reference for the conventional analysis of the main categories of borrower in the bank sector. If the market-based indicators signal an increased level of risk in a particular bank or sector, the Riksbank can compare this signal with other assessments of that bank or sector. If the two analyses differ substantially, the causes of the difference have to be considered more thoroughly. Doing so is particularly important in that market-based indicators change more than traditional indicators and may signal an increased risk without there being any change in the underlying credit risk. In the work of analysis, however, it would be more serious if the market-based indicators failed to signal risks that do exist.

In the present analysis the Riksbank has mainly used equity-based indicators rather than those based on debt instruments such as bonds. The main reason is the better quality of the data, particularly as regards liquidity. Moreover, debt instruments may be misleading because the prices may not reflect the full risk of a bank defaulting if there are expectations that the government would intervene to prevent that. This problem does not apply to companies but in their case there is the difficulty that relatively few Swedish companies issue debt instruments that are traded and accordingly show reliable prices.

The main market-based indicators used by the Riksbank at present are:

- implied volatilities, used for the four banks and aggregated for the corporate sector,
- distance-to-default, an implicit indicator of the risk of bankruptcy, based on equity and accounting variables, used in the analysis of the four major banks but not presented in the report, and
- expected default frequency, estimated by Moody's KMV, based on the same theory and variables as distance-to-default and used for the corporate sector.

Pension commitments of Swedish companies

MOST COMPANIES IN SWEDEN offer employees an occupational pension (contractual pension). At end 2001 the assets for meeting occupational pension commitments had a total value of SEK 1190 billion.[8] Occupational pensions are one of the three pillars in the Swedish pension system. The other two are the statutory pensions and the individual pension arrangements unconnected with employment. These three forms of pension solution also exist as a rule abroad.

Occupational pensions are either contribution plans or defined benefit plans. In the case of contribution plans, the sole responsibility of the employer is to pay the premiums to the pension manager the employee has selected from a number of alternatives. The risk in the subsequent development of the pension capital is carried by the employee. For defined benefit plans, on the other hand, the employer is responsible for ensuring that a specified, predetermined sum is available to the employee when the latter retires; here the financial risk is accordingly carried by the employer.

The employer can choose between a number of arrangements for the administration of the funds for the future pensions. The arrangements are associated with different degrees of financial risk.

Insurance. The commonest model and the one used for contribution plans is for the employer to pay premiums to a life insurance company, which undertakes to manage the pension capital and disburse the pensions. At end 2001 about 81 per cent, or SEK 968 billion, of the assets reserved for occupational pensions were held by life assurance companies. In the case of premiums for benefit-based occupational pensions, the company is as a rule owned mutually by the premium-paying companies. One such insurance company is Alecta. With the insurance model, the employer's financial risk is generally low. However, if additional capital has to be provided because the insurance company becomes insolvent, this will affect the employer's profit; conversely, if the insurance company does well, the employer can obtain a bonus that contributes to profits. Moreover, the level of premiums can be changed, depending on how the insurance company develops, and this also affects the employer's profit. Some years ago, when share prices had risen rapidly, Alecta launched a refund to its employer companies but this was discontinued when stock markets turned steeply downwards.

Pension foundations. About 9 per cent, or SEK 112 billion, of the assets reserved for occupational pensions at end 2001 were held in pension foundations. The employer establishes a pension foundation and transfers to it annually a sum (the equivalent of the premiums in the pension model above) that is then managed off the company's balance sheet by the foundation as a separate legal entity. When the employer disburses pensions in accordance with commitments, compensation for the expenditure can be obtained from the pension foundation. Thus, the company's profit and liquidity are affected when the transfers are made to the foundation for the build-up of pension liabilities. When pensions are paid out, the company is compensated by the foundation, so the disbursements do not affect either profits or liquidity. If the foundation has done well and is over-capitalised, the company can also choose to cover the current year's pension expenses from the foundation's surplus. Moreover, the surplus can be used for other pension-related expenses, for example early-retirement pensions. If the foundation is less successful, on the other hand, and becomes under-capitalised, only its annual yield may be used to cover that year's pension payments. In such cases the company's earlier pension commitments may have to be charged against its annual profit. In addition, the company is required to contribute additional capital so that the foundation is again fully capitalised; that is what happened in many companies last year. Instead of making additional contributions, non-bank companies can, however, opt to charge the foundation's deficit to their own financial statements (see below, Book provisions), in which case the deficit will not affect the company's liquidity. Banks are subject to different rules because the collective labour agreements stipulate that their pension foundations must always cover the liabilities in full.

Book provisions. At end 2001 about 9 per cent or SEK 109 billion of the assets reserved for occupational pensions in Swedish companies consisted of book provisions. This arrangement means that the company's pension commitments are booked on its balance sheet as a liability. In this case the company is not exposed to financial risk and only has to defray the expenditure when the pensions are disbursed. The build-up of pension

8 The figures in this box come from SIRP unless indicated otherwise.

liabilities affects profits but not liquidity since no payments or transfers are made. The disbursement of pensions reduces liabilities correspondingly, so that liquidity is affected but not profits. Companies that choose this arrangement are obliged to have external credit insurance to ensure that employees receive their pensions even if the company goes bankrupt.

Financial risk to companies from pension foundations

What financial risk for the companies do their pension commitments represent? As the life insurance companies that manage a large proportion of the assets for the defined benefit plans are adequately capitalised, in this respect the financial risk to the companies is small. Instead it is the pension foundations that pose a risk of the company's profits being affected by an unfavourable development of equity and bond prices.

The value of Swedish companies' assets in pension foundations at end 2001 totalled approximately SEK 112 billion. As no comprehensive figures are available on the composition of these assets, a picture of the situation has to be formed by making some rough approximations. Using data compiled by the Swedish Trade Union Confederation on pension and staff foundations' holdings of equity in large Swedish companies in June 2001, the shareholdings of pension foundations at end 2001 can be estimated to about SEK 80 billion. Assuming instead that the portfolios of pension foundations have the same composition as those of the life insurance companies that manage occupational pensions, the shareholdings of the foundations total approximately SEK 50 billion. These two figures provide at least an indication of the approximate size of the shareholdings and the financial risk.

Assuming that the value of these assets has fallen to the same extent as the stock market since end 2001, the drop in the value of the pension foundations up to 15 April this year is equivalent to SEK 18–30 billion and the drop since 1 March 2000 amounts to SEK 53–87 billion. These figures can be related to total earnings in the Swedish corporate sector; for 2000, aggregate annual earnings after financial items amounted to around SEK 460 billion. The loss of value should, however, be seen in the light of the fact that between March 1999 and end February 2000 the stock market had risen 98 per cent, so the fall began from a level that probably made these foundations over-capitalised. It is therefore unlikely that corporate sector earnings have been affected by the whole of the fall in the value of the pension foundations.

The surpluses in many pension foundations may therefore have been eliminated. Confirmation of this is to be found in the annual reports of the largest listed companies. Nordea and TeliaSonera, for example, made capital contributions to their pension foundations last year of SEK 2.6 billion and SEK 1.0 billion, respectively. Besides the deficits in the Swedish foundations, a number of Swedish companies have deficits in pension plans abroad, for instance in the USA. American accounting of such deficits differs, however, and the full effect on earnings is not confined to a single year.

When many Swedish companies have pension foundations that are poorly capitalised, their earnings will be more sensitive to financial market developments. A new stock-market fall or an unfavourable development of interest rates is liable to have a direct impact on their financial statements. Moreover, the companies have less possibility of financing early-retirement pensions and similar rationalisations with pension foundation surpluses. This is less of a problem if economic activity and equity prices turn upwards but if the uncertainty continues and stock markets remain weak, growth will be retarded.

The commercial property sector in Sweden

The Riksbank has many reasons to analyse the property sector separately. Property companies are major borrowers from the banks and a large proportion of bank loans is secured with real estate. In December 2002 bank loans to the property sector made up about 33 per cent of lending to companies and 18 per cent of total lending to the general public (see Figure 2:8). Moreover, about 27 per cent of total lending to companies and households had property as collateral.

A fall in commercial property prices and rents weakens the property companies' earnings capacity and ability to service debt and also lowers the value of collateral for mortgages. In the event of a borrower being unable to pay, the value of the collateral may then have to be realised for less than the amount of the loan. Problems in the property sector can accordingly lead to loan losses for the banks.

The development of prices and rents is studied in this section and thereby the development of the value of collateral pledged in the commercial property market as well as the development in property companies. The commercial property market is defined here as consisting mainly of properties rented out as accommodation and offices; such properties make up about two-thirds of the holdings of the listed property companies. The market for shop and industrial premises, which make up just over one-tenth of those holdings, is considered briefly.

PRICES AND RENTS

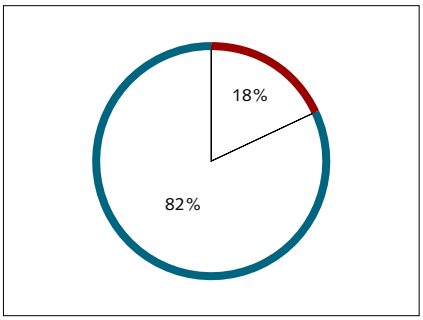
Since 2000 prices for *office buildings* have fallen markedly. This is clearest in Stockholm, where the fall up to March this year amounts to about 24 per cent. Prices in Gothenburg and Malmö have fallen in the same period by 18 and 9 per cent, respectively. The development of real prices for office premises in central locations is shown in Figure 2:9.

Under ordinary circumstances, property prices reflect the yield required by investors, current cash flows (mainly rental income) and expected future cash flows discounted with the required yield.

The SFI/IPD Svenskt Fastighetsindex (SFI/IPD Index) indicates that the required yield has increased marginally during the year, which to some extent has contributed to the lower prices. The somewhat higher required yield is a result of greater uncertainty in a weakening market. Essentially, however, the price trend since 2000 is a result of lower rents and thereby lower income for property companies. The real level of rents for central office premises has fallen since 2000 in all three metropolitan areas. Here, too, there is a clear regional pattern, with the steepest fall – 20 per cent from December 2000 to March this year – in Stockholm and figures of 9 and 17 per cent, respectively, for Gothenburg and Malmö (see Figure 2:10).

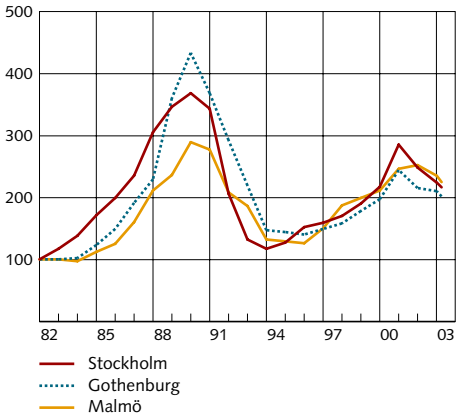
The lower rents are mainly explained by the economic slowdown, which has led to falling demand for office premises since 2000. The slowdown has been most evident in Stockholm, which has also been more exposed to the problems in the IT and telecom sectors. The increase in

Figure 2:8. Lending by the major banks to the property sector as a percentage of lending to the general public. Per cent



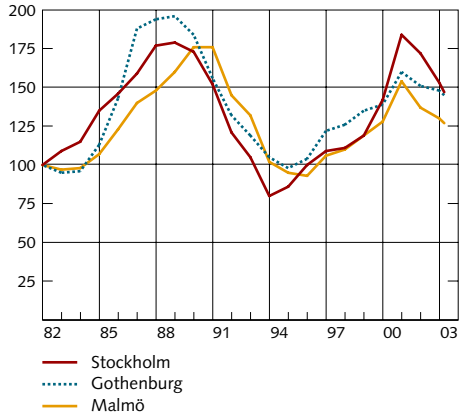
Source: The banks' reports.

Figure 2:9. Real prices of centrally located office premises. Index: 1981 = 100



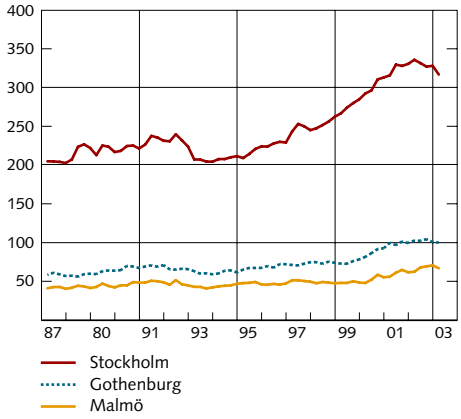
Sources: NewSec AB and the Riksbank.

Figure 2:10. Real rents of centrally located office premises. Index: 1981 = 100



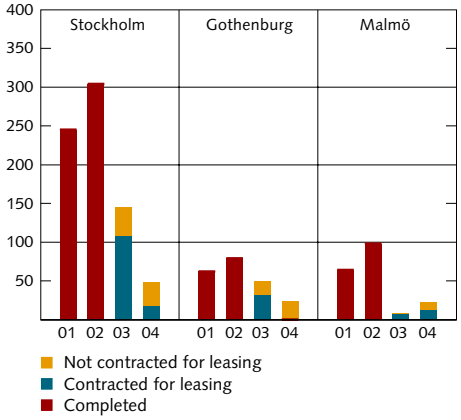
Sources: NewSec AB and the Riksbank.

Figure 2:11. Number of office employees in local labour markets in Stockholm, Gothenburg and Malmö.
Thousands



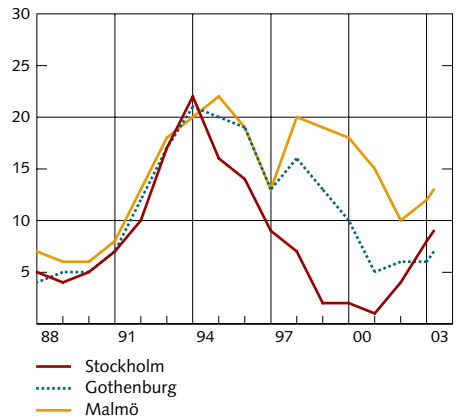
Source: Statistics Sweden.

Figure 2:12. Supply of premises, completed and estimated.
1,000 square metres



Source: Jones Lang Lasalle.

Figure 2:13. Vacancy rates for centrally located office premises.
Per cent



Source: NewSec AB.

the number of office employees since the mid 1990s ceased some time ago.[9] In 2003 Q1 office employment fell in all three metropolitan areas but most clearly in Stockholm (see Figure 2:11).

The supply of office space grew from 2001 to 2002 in all the metropolitan regions (see Figure 2:12). Viewed in a long-term perspective, however, the increments to office space have been comparatively small in the late 1990s.

Lower demand combined with a slightly growing supply has led to higher vacancy rates (see Figure 2:13). The vacancy rate has risen most markedly in Stockholm. However, the rates are still low compared with the situation in the early 1990s.

The decline in the office market accordingly seems to be mainly demand-driven and reasonable in the light of the economic slowdown. Considering that the slowdown has been most marked in Stockholm, it is not surprising that the office market there has been weaker than in the other two metropolitan areas.

Demand for office premises will probably remain weak during 2003 on account of the slack economic activity and its effects on employment and defaults. The Riksbank foresees some further fall in the number of corporate sector employees this year. As noted in the previous section, moreover, the risk of bankruptcy in the coming year has grown, above all for IT, telecom and services companies, which confirms this picture.

As to the supply of office space, the Riksbank judges that the increment will not lead to a further sizeable fall in prices and rents. A low increment is foreseen in the next two years in all three metropolitan areas. In both 2003 and 2004 it is expected that the increment will be halved from the preceding year in Stockholm and Gothenburg, while in Malmö it will be less than a quarter of this year's increment (see Figure 2:12).

The future development of prices and rents is accordingly dependent on whether economic activity picks up, thereby increasing the demand for office premises. In view of the weaker economic development and the continuous fall in employment, however, it is reasonable to assume that prices and rents may both go on falling, while vacancy rates may continue to rise. But as both prices and rents seem to be driven by fundamentals, the risk of a dramatic collapse is slight.

For *apartment blocks*, price formation is primarily governed by regulations, such as those concerning utility value, and the system for central rent negotiations, both of which affect income and thereby the value of properties. The development of real prices for centrally located apartment blocks in Stockholm, Gothenburg and Malmö is shown in Figure 2:14. The comparatively rapid price increases since the mid 1990s are mainly a result of rental properties being converted to tenant-owned apartments. Since 2001 the price rise seems to have slackened, particularly in Stockholm, which can be explained in part by fewer conversions.

Rents in apartment blocks are comparatively stable in the system of

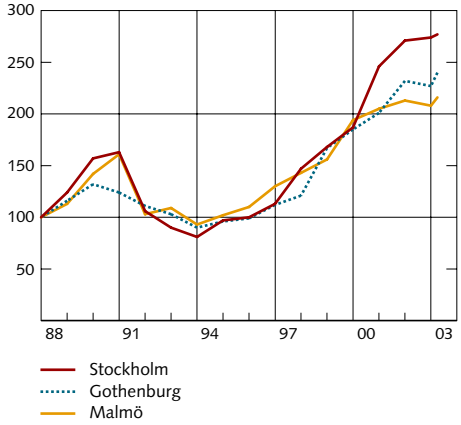
9 Office employees are defined as employees in banks and other credit institutions, insurance companies, service companies for financial operations, property companies and property management companies, computer consultants and computer services offices, R&D institutions, other business services companies, civil authorities, professional and industrial organisations.

central negotiations but are susceptible to changed conditions in the form of, for example, a greatly increased output of new apartments or steeply falling demand. In that residential construction is low at present and housing demand is likely to remain high, the probability of increased vacancies that lead to rent adjustments in apartment blocks is no doubt very low.

The market for *shop premises* and to some extent the market for *industrial premises* have not been affected by the economic slowdown to the same extent as the market for offices. The change in value[10] during 2002 according to the SFI/IPD Index was 1.5 per cent for shops and –1.1 per cent for industrial premises. The change for office premises was –5.1 per cent, while the value of apartments rose 5.1 per cent.

A conceivable explanation for the continued increases in value, above all for shop premises, could be that the economic slowdown has not yet had any sizeable impact on consumption in Sweden.

Figure 2:14. Real prices of centrally located apartment blocks. Index 1987 = 100



Sources: NewSec AB the Riksbank.

PROPERTY COMPANIES

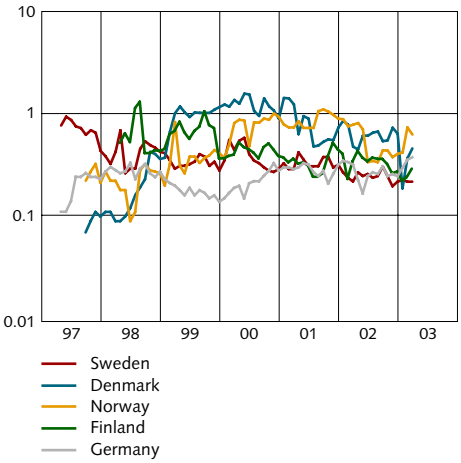
In the individual property companies the weakening of the office market shows up mainly in a slower increase in profitability compared with the late 1990s. For the large property companies,[11] the operating profit rose only 6 per cent in 2002 as against 14 per cent the year before. However, the interest cover ratio for the listed property companies remained around 2 and the debt ratio around 3. In 1992 the interest cover ratio in these companies was around 1 and the debt ratio was about 6, which indicates that the financial position of property companies is still appreciably better than in the early 1990s.

The number of bankruptcies in property and construction companies has been rising; the increase in annual terms from March 2002 to March 2003 was over 17 per cent. But the number is low compared with the mid 1990s.

Additional information about the financial position of property companies is provided by KMV's calculations of the probability of bankruptcy in the coming year (see Figure 2:15). For the Swedish property companies the probability of bankruptcy is in principle unchanged, which indicates that the market does not expect a further increase in bankruptcies in the property sector. Moreover, the probability of bankruptcy for Swedish property companies is lower than in both Germany and the other Nordic countries.

There are several reasons why the weakening of the office market has not had a greater effect on property companies. One is that these companies are still in a position to renew some contracts at higher rents because the rent in contracts from a couple of years ago is lower than the current market level. But the more rents fall, the harder it will be to raise rents when contracts are renegotiated. Calculations from SFI/IPD Index indicate that during 2002 approximately 10 per cent of the current

Figure 2:15. Expected default frequency (EDF) for listed property companies. Per cent (logarithmic scale)



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

Source: Moody´s KMV.

10 The SFI/IPD Index defines change in value as the change in market value between two valuations, net of investment and partial sales, divided by capital employed during the year.

11 The listed property companies together with Akademiska hus, AP-fastigheter and Vasakronan.

contracts in the Stockholm office market had rents below the present market level and could accordingly be renegotiated at higher levels; for 2001 the corresponding figure was 18 per cent. The downward tendency in rents suggests that it will be increasingly necessary to renegotiate contracts at lower rents, which could lead to a negative effect on the development of property companies' income.

Another reason is that office premises are only one component of the property companies' holdings. The weakening of the office market has been offset to some extent by developments for apartments and shops. Finally, the downward tendency has been concentrated above all to Stockholm and the existence of regional diversification makes the property companies less vulnerable to developments in particular regions and sectors.

SUMMARY COMMENTS

Last autumn's report noted that for a time the situation in the commercial property sector has seemed to be more strained. Since then, the downward tendency in prices and rents has continued and vacancy rates have gone on rising. These developments are, however, clearly motivated by lower demand for office premises, essentially due to the economic slowdown. Some of the properties that are pledged as collateral have decreased in value. Lower rents and higher vacancy rates have also had some impact on property companies but the financial position in this sector has not deteriorated drastically. Earnings have continued to grow because it has been possible to renew contracts at higher levels and diversification of property holdings has countered negative effects from certain markets. But as it looks like being some time before economic activity recovers more markedly, prices and rents may go on falling, accompanied by a further increase in vacancies. Together with a diminishing possibility of renegotiating contracts at higher rents, this suggests that property companies' earning capacity and ability to pay will weaken during the year. Still, the comparatively low level of debt in property companies argues against this leading to a loss of debt-servicing capacity that would hit the banks.

The market for office premises 1981–2003

IN THE EARLY 1990s there was a property crisis in Sweden, with rapidly falling prices and high vacancy rates as two of its characteristics. The crisis led to extensive economic problems for property companies and financial institutions. Of the loan losses the banks incurred in 1992–93, about 44 per cent are judged to have been related to property.[12]

The property market then recovered in the latter part of the 1990s. A successive increase in prices and rents was accompanied by falling vacancy rates. The debt ratios of property companies also fell and by the end of the 1990s they were considerably lower than in the late 1980s and early 1990s.

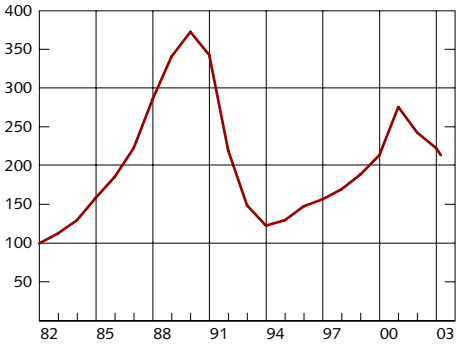
Since 2000, however, the market for office premises has again been characterised by rapidly falling prices and rents, together with rising vacancy rates.[13] Prices in the most central locations in Stockholm have dropped about 24 per cent and the vacancy rates have moved up from 1 to 9 per cent.

In the periods 1981–93 and 1995–2003 Q1, prices rose and fell comparatively rapidly but the real price level was considerably lower in the more recent period. A comparison of the driving forces behind the price movements in these two periods reveals other important differences.

Up to 1993 the price movements were mainly a result of three factors: *economic development*, *financial market deregulation* and *changes in economic policy*.

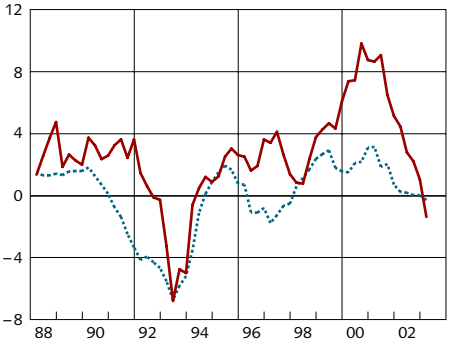
The favourable economic development in the second half of the 1980s included increased employment in office occupations in particular, entailing increased demand for office premises. This development was reflected in high rent increases. It also led to optimistic expectations of the future property market, not least expectations of a continued increase in rents. These expectations also influenced the banks, whose lending to the property sector expanded substantially in this period. The most important factor for the banks, however, was the deregulation of financial markets, particularly the abolition of credit controls in 1985. Bank profitability had been low in the early 1980s and the deregulation provided an opportunity of expanding lending and thereby improving profits. For property companies, the high inflation in the 1980s meant that in practice, interest expenditure and thereby the required return were low. Debt ratios rose. Moreover, property investment was high in this period. Thus, the rapid price increases were driven by the actual development of demand and rents at a time when the supply of credit was plentiful and real interest rates were low. But optimistic expectations of further rent increases probably also played a major part in the develop-

Real price for commercial property in metropolitan areas. Index: 1981=100



Sources: NewSec AB and the Riksbank.

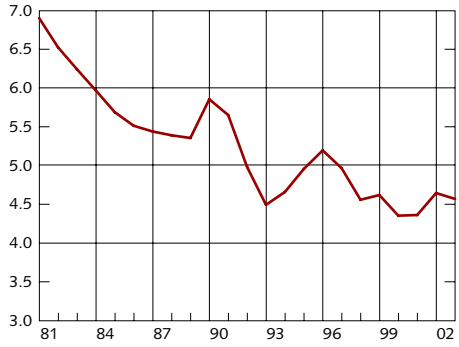
Annual percentage change in employment. Per cent



Office employees
Total number of employees

Source: Statistics Sweden.

Investment in non-residential property. Per cent of GDP



Source: Statistics Sweden.

12 Wallander, J. (1994), "Bankkrisen – omfattning, orsaker, lärdomar" (The bank crisis – extent, causes, lessons) in *Bankkrisen* (Bank crisis), report from the Bank Crisis Committee, Finansdepartementet, Stockholm. Property-related loans refer here to loans for property management and agencies, construction and "other property-related operations in the opinion of the credit institution".

13 Besides office premises, the property crisis in the early 1990s involved other commercial premises, private houses and tenant-owned dwellings but the discussion here is confined to office premises.

ment of prices, not least through their importance for the growth of credit.

The decline on the property market from 1990 onwards was due above all to the economic slowdown and the structural changes that resulted from the realignment of economic policy. The weaker economic trend in the early 1990s led to dramatic changes in unemployment, which from 1990 to 1993 shot up from about 2 to 8 per cent, accompanied by lower demand for office premises. At the same time, the economic policy realignment fundamentally altered the conditions on which prices had been based. The change to a more restrictive economic policy focused on low inflation led to a fall in inflation. Meanwhile, nominal interest rates moved up in the early 1990s in connection with the defence of the fixed exchange rate but also as a consequence of international developments. All this lead to a sharp increase in the real interest rate. For the heavily indebted property companies this meant increased borrowing costs at a time when lower demand was leading to decreased income. In addition to the problems in the Swedish market, property companies suffered losses in markets abroad. The payment difficulties that ultimately arose led to extensive loan losses for these companies' creditors.

In the period since 1995 prices have been mainly *demand-driven*. Economic development in Sweden improved by degrees from 1995 onwards, due in part to a more favourable situation internationally, with increased demand from the USA in particular, and in part to growing confidence in the Swedish economy. The economic recovery led to higher employment in office-intensive occupations in particular, which led in turn to rising rents and lower vacancy rates. But in contrast to the earlier period, investment in new property remained low and property companies reduced their debts (see figure and the section on the commercial property sector).

The price fall for office premises since 2000 is mainly a result of the recent economic slowdown, which for the property market entailed decreased demand for office premises. Like the earlier upswing, the economic slowdown has been particularly marked in certain sectors and is still mainly concentrated to the Stockholm area, which is also where the changes in office prices and rents have been most pronounced. In that the GDP share for real-estate investment was comparatively constant during the upward phase, supply has probably played just a limited role in the price fall. Moreover, the slowdown has not so far led to greatly increased unemployment, which has probably helped to dampen the price fall.

A comparison of the two periods shows that the development of demand was clearly important for both, whereas the underlying factors on which expectations were based differed appreciably. An import factor behind the price developments in the late 1980s was the optimistic expectations of the future. When structural changes drastically altered the conditions underlying those expectations, prices fell steeply. The current situation differs in two important respects. One is that the price rise in the late 1990s seems to have had less to do with expectations, being driven more by fundamentals, above all the development of demand. The other is the unlikelihood of major structural changes occurring in the near future and leading to altered market conditions. Against this background, the present situation suggests that the probability of equally extensive loan losses occurring is low. But the developments in this period do show that major structural changes are liable to have drastic consequences. When assessing the future it is therefore highly important to be alert to and make as much allowance as possible for changes of this type.

The household sector in Sweden

Loans to households make up 40 per cent of lending by the Swedish banking system to the Swedish general public. The risks of loan losses associated with lending to households are assessed by studying households' indebtedness, financial position and ability to service debt.

HOUSEHOLD INDEBTEDNESS

Households are still borrowing at a comparatively high rate, probably in connection with the continued increase in their disposable income and the comparatively low interest rates.[14] Borrowing in March rose 9.5 per cent in annual terms, which was some what more than the rate of 8.8 per cent a year earlier. However, household borrowing from banks is not rising as much as before. The overall increase is being maintained mainly by borrowing from mortgage institutions, probably in connection with the rising prices and persistently high activity in the house market.[15]

Although households are still borrowing at a high rate, the ratio of their debts to disposable income has hardly changed since the time of the previous report because income has also risen rapidly. The ratio of interest expenditure to disposable income is still low; interest expenditure after tax deductions averages less than 5 per cent of disposable income.

The Riksbank assesses that households will continue to borrow at a comparatively high rate but believes there will be some slackening. Disposable income will go on rising favourably, though somewhat less than before on account of higher unemployment and increased income taxes. However, continued financial uncertainty and a slacker development of house prices will probably contribute to some fall-off in credit demand. As debts are expected to grow faster than incomes, the debt and interest expenditure ratios would both move up, given an unchanged level of interest rates (see Figure 2:20).

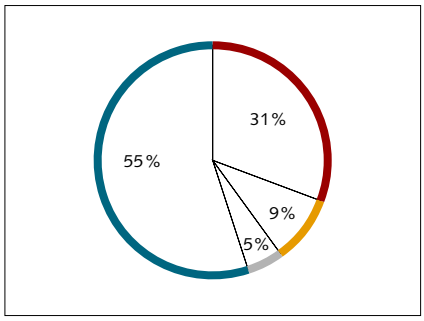
Increased debt makes households more sensitive to rising interest rates. New borrowing is being arranged at fixed rates to a growing extent but more than half of households' loans from banks and mortgage institutions still have flexible rates. The high proportion of flexible-rate loans means that a change in the short-term interest rates quickly affects households' economy.

An interesting question is what drove the debt and interest ratios in the years before the bank crisis in the early 1990s. Household debt shot up from 1986 to 1988, when the annual increase averaged over 17 per cent. This had to do with the deregulation of the credit market and advantageous tax relief for interest expenditure. As the nominal annual growth of household disposable income in this period averaged 6 per cent, both the debt and the interest ratio rose sharply. When less advantageous tax relief for interest expenditure were introduced in 1991, the

14 A simple regression for credit demand, presented by the Riksbank in the previous report, showed that house prices, interest rates and disposable income are important for households' demand for credit. See "Credit expansion as an indicator of financial instability", Financial Stability Report 2002:2.

15 Of total lending to households, 65 per cent comes from mortgage institutions that exclusively lend against residential property.

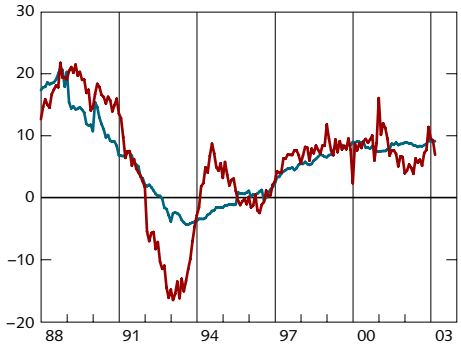
Figure 2:16. Lending by the major banks to households as a percentage of lending to the general public. Per cent



Mortgage loans to households
Consumption loans to households
Lending to non-financial companies (incl. property management companies)
Other lending

Source: The banks' reports.

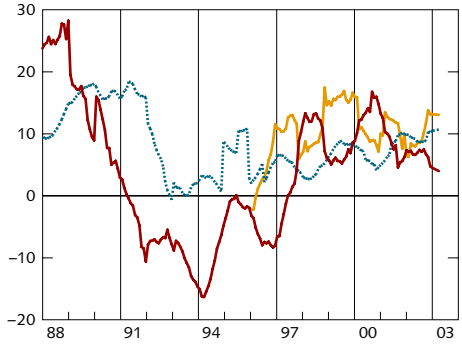
Figure 2:17. Lending to households by credit institutions and prices of single-family dwellings. Annual percentage change.



Prices of single-family dwellings
Lending

Sources: Statistics Sweden and the Riksbank.

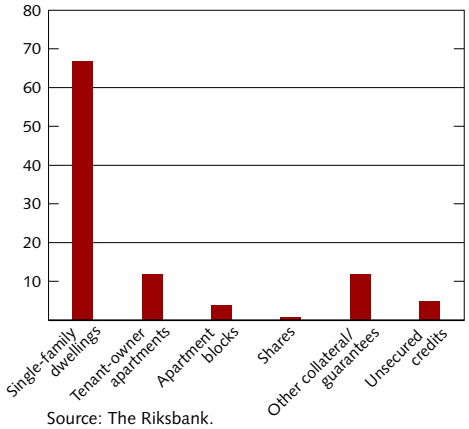
Figure 2:18. Households' borrowing from different institutions. Annual percentage change



Banks
Mortgage institutions
Other credit market companies

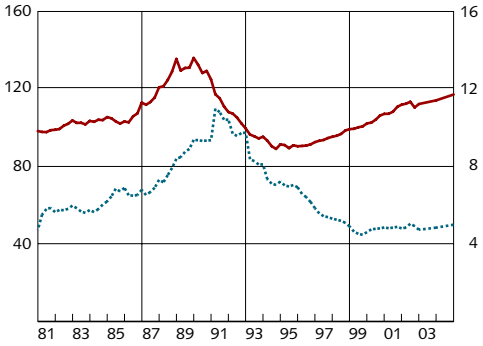
Source: The Riksbank.

Figure 2:19. Lending by the banks and mortgage institutions broken down by collateral. Per cent



Source: The Riksbank.

Figure 2:20. 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.

growth of debt slackened appreciably. From 1990 to 1995 households reduced their debts, so both the debt and the interest ratio fell. In relation to household disposable income, interest expenditure peaked at 11 per cent. For the interest ratio to move up to such a level from the current figure of 5 per cent, there would need to be a sharp increase in the general level of interest rates and a growth of disposable income that is well below the current forecast.

Distribution of household debt

HIGH INDEBTEDNESS makes households more vulnerable to macroeconomic shocks and thereby increases the probability of loan losses to the banks. Both assets and liabilities are distributed unevenly over households. As a high proportion of household borrowing is used to finance housing, the debts are largely concentrated to households with real wealth in the form of an owner-occupied or tenant-owned dwelling. From the viewpoint of stability this is an advantage in that the creditor then has collateral for the loan.

In an attempt to study the financial situation in the most vulnerable households and the dispersion of risk in the household sector, the Riksbank has analysed an extensive material from Statistics Sweden's wealth register.[16] Households with loans have been divided into five groups based on the size of disposable income, after which the size of each household's debts in relation to the value of its total assets has been calculated.[17] The statistics show that in the lowest income group, 60 per cent of the households have assets worth at least as much as their debts, that is, net wealth. The remaining 40 per cent have net debt and 25 per cent of these have no assets at all. In the top income group, on the other hand, almost 87 per cent have net wealth and only 13 per cent net debts and only 1 per cent of the latter have no assets at all.

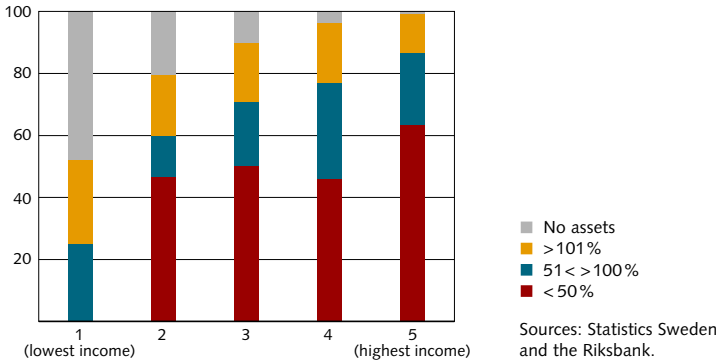
In the context of stability it is of interest to study net debt in relation to household disposable income because in the event of payment problems, assets can be realised in order to reduce debts. The proportion of households whose net debt is at least as large as their annual disposable income is greatest in the lowest income group. In the top income group this is the case for only 2 per cent of households.

The study accordingly shows that households with a high ratio of debt to disposable income are most frequent in the lowest income group. This group of households is therefore most vulnerable to macroeconomic shocks. The debts are admittedly large in relation to income but not necessarily in absolute terms. Average net debt in the top income group is four times larger than in the lowest group. The probability of loan losses should thus be greatest in the lowest income group but the magnitude of any loan losses would be considerably less than in the other income groups.

It is worth noting that the interest burden (interest expenditure after tax relief in relation to disposable income) is relatively similar in income groups 2 to 5. On average, interest payments after tax relief absorb around 5 per cent of household income. In the lowest income group, however, the burden of interest is heavy for many households; around 25 per cent of the households in this group use more than a fifth of their disposable income for interest payments.

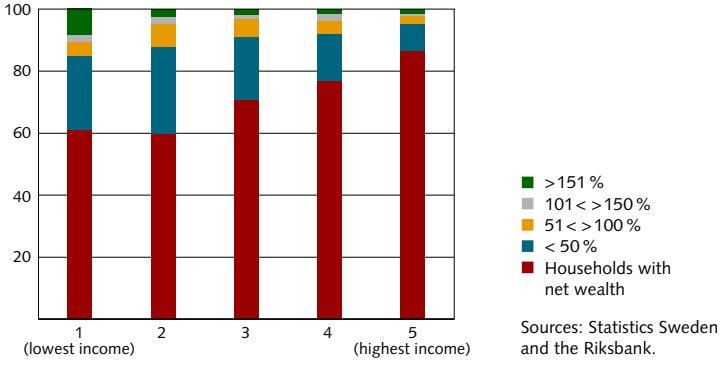
Another matter of interest for stability is the distribution of household debt over the income groups. Households in the top income group have almost 40 per cent of the total debt. This is to be

Debt/equity ratios (liabilities/total assets) . Households in five income groups, per cent



Sources: Statistics Sweden and the Riksbank.

Net debt in relation to disposable income (categories) and percentage of households with net wealth. Households in five income groups, per cent

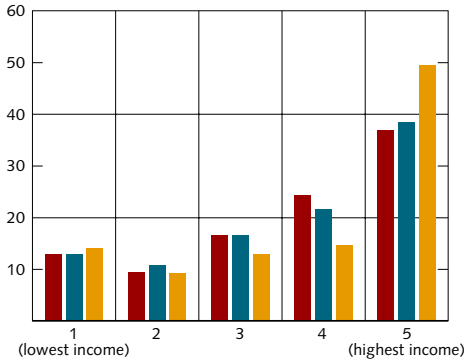


Sources: Statistics Sweden and the Riksbank.

16 The so-called HINK data from Statistics Sweden.

17 Total assets include financial assets, including insurance saving, and the market value of owner-occupied and tenant-owned dwellings and secondary dwellings; other items are rental property, agricultural property and other property including building sites.

Distribution of assets and liabilities over different income categories.
Per cent



- Share of total debts
- Share of the value of single-family dwellings
- Share of financial assets.

Sources: Statistics Sweden and the Riksbank.

expected in that a large proportion of household borrowing is used to finance house purchases and this group of households owns around 40 per cent of the total value of owner-occupied and tenant-owned dwellings. Households in the top income group also hold almost half of total financial assets.

HOUSEHOLDS' ABILITY TO PAY

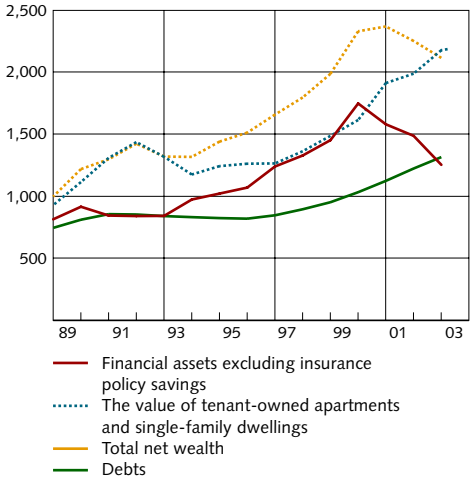
The ratio of household debts to assets can serve to indicate the ability of households to meet their commitments in the somewhat longer run. The financial assets are comparatively easy to realise and can therefore function as a buffer in the fairly short run.[18] From the peak in March 2000, household wealth in the form of equity and mutual funds had decreased by SEK 600 billion at end 2002. The contraction of financial wealth has been partly offset, however, by rising property prices. Since 1999 the real assets of households have increased in value by SEK 590 billion. But as household debt has grown more rapidly, total net wealth decreased in this period (see Figure 2:21).

The marked increase in house prices in recent years has raised the question of whether prices have been driven above the levels that seem reasonable in the light of fundamentals such as income, interest rates and demographic variables. If that is the case, there is a large risk of prices falling steeply, which could lead to enforced sales of over-mortgaged houses if households have difficulty in servicing their debts. That in turn can lead to loan losses for the banks. The Riksbank analysed underlying supply and demand factors in an earlier study and concluded that house valuations are comparatively reasonable.[19]

Another study shows that price developments generally seem to be motivated by fundamentals.[20]

The development of prices for tenant-owned housing is considerably more difficult to analyse in this way, partly because the price data are not as adequate as for owner-occupied housing. One problem is that the data are not comprehensive and do not allow for the level of the tenant associations' borrowing, being based solely on the selling price per square metre. In spite of the shortcomings, the statistics can provide an approximate picture of price developments. Figure 2:22 presents the development of prices for owner-occupied houses, selling prices for tenant-owned dwellings and the real five-year house mortgage rate. The price trend has been strongest for tenant-owned dwellings, with a tripling of the level since 1997. This has been accompanied by a dramatic fall in the real mortgage rates, to roughly half of the level in 1997. The sharp price rise for tenant-owned dwellings is also one explanation for the fact that lending from mortgage institutions to finance these dwellings has almost quadrupled since 1997; another is the large number of rented apartments that have been converted into tenant-owned dwellings. This lending now accounts for 13 per cent of these institutions' total lending to the household sector compared with just over 5 per cent in 1997.

Figure 2:21. Households' holdings of financial assets, tenant-owned apartments and single-family dwellings.
SEK billion



Sources: Statistics Sweden and the Ministry of Finance.

Figure 2:22. Prices of single-family dwellings, contracted prices of tenant-owned apartments and real mortgage rates.
Index: Jan 1993 = 100 and per cent

Sources: Statistics Sweden,
Svensk Fastighetsförmedling and Ecowin.

18 The insurance savings of households are not included because they are tied.
19 See Inflation Report 2002:3.
20 See Berg (2002), "Hushållens förmögenhetsfördelning" (Distribution of household wealth),

SUMMARY COMMENTS

A slower increase in disposable income, continued financial uncertainty and a weaker house price trend will probably subdue the growth of household indebtedness during the year. However, indebtedness is expected to rise faster than disposable income, with some increase in the interest ratio. The higher household indebtedness indicates a somewhat greater vulnerability to macroeconomic shocks and thereby a greater probability of loan losses for the banks. The Riksbank's overall assessment is that the ability to pay in the household sector will be good during the year, though somewhat less so than at the time of the previous report.

Loans to tenant-owned housing associations

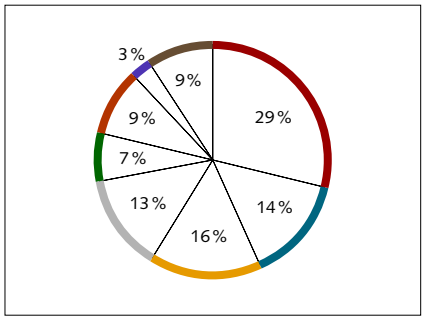
MANY TENANT-OWNED housing associations encountered severe financial problems during the economic crisis in the 1990s. Associations in properties constructed between 1985 and 1993 were hit particularly heavily and virtually all of them had acute problems with payments. The financing system that applied when those properties were built included generous government subsidies for interest expenditure, virtually no required input of owner's capital and no proper credit assessment or valuation of collateral. Credit institutions were required to base their loans on the county housing board's valuation of the collateral, which was based in turn on production costs, not market value. This meant that the mortgage institutions did not make an independent valuation of the collateral. A public institution arranged the final borrowing, which meant that the need for owner's capital was reduced to a minimum.

The low inputs of owner's capital made the system highly sensitive to decreased income or increased expenditure. The system presupposed that rents and monthly charges could be raised in step with the prevailing rate of inflation; in other words, continued inflation was discounted in the valuation of collateral. If inflation slackened or ceased, there would be no margin for coping with increased costs or a loss of income. The change-over to a low-inflation economy accordingly meant that the financing system ceased to function as intended. At the same time, markedly increased property tax and decreased interest subsidies added to operating expenses.

Most of the problems with insolvency have been resolved by reconstructing the associations instead of through bankruptcy, the reason being that in the case of these housing associations, reconstruction generally has a better outcome for the creditors. Bankruptcy followed by compulsory auction involves the property being valued as a rental building with a required return on owner's capital, whereas tenant-owners have no such requirement as a rule. Valuations can differ considerably depending on whether the property is treated as being tenant-owned rather than as a rental building. Losses arising from the reconstructions have had to be carried by the creditors, in the first place the public institutions.

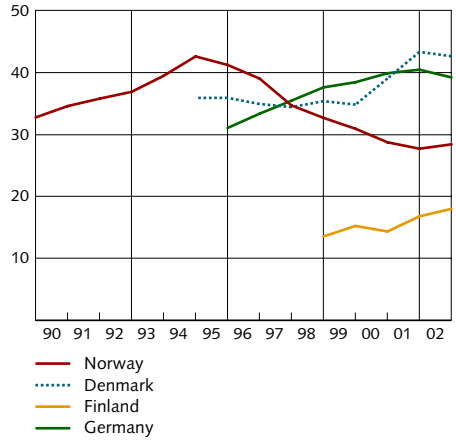
The financing system has been changed and tenant-owned housing cannot be mortgaged as before. Credit assessments have been tightened. A capital input is now required for housing projects and the borrowers' ability to pay must always be assessed regardless of the security. So today the financing system does not have the earlier built-in defects and the risk of it leading to large loan losses is no doubt considerably smaller.

Figure 2:23. Geographic distribution of foreign claims of the major banks. Per cent



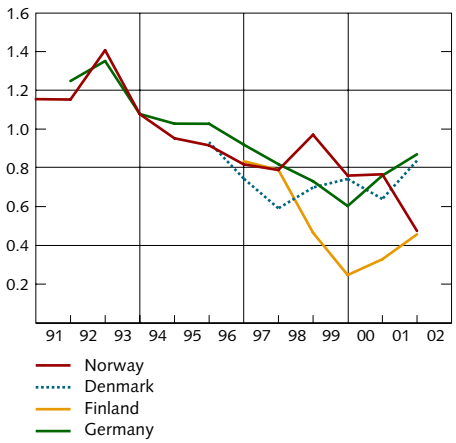
Source: The Riksbank.

Figure 2:24. Corporate borrowing from credit institutions in the Nordic countries and Germany. Per cent of GDP



Sources: The Nordic central banks and the Bundesbank.

Figure 2:25. Companies' debt/equity ratios in the Nordic countries and Germany.



Sources: Bundesbank, Danmarks statistik, Statistics Norway and Statistics Finland.

Borrowers in other Nordic countries and Germany

Increased participation in and purchases of banks in the other Nordic countries and Germany have led to Swedish banks now being exposed to a high degree to credit risk in loans to borrowers abroad. Lending by the Swedish banks to the general public is now divided more or less equally between borrowers in Sweden and abroad. This warrants a brief survey of the categories of borrower in the countries where the operations of the Swedish banks are most extensive, namely companies and households in the other Nordic countries and Germany.

COMPANIES IN THE NORDIC AREA AND GERMANY

The international economic slowdown has entailed weaker economic activity in both the Nordic area and Germany, which has subdued demand for corporate credit. Total corporate borrowing relative to GDP is unchanged or falling in these countries (see Figure 2:24). The borrowing ratio has fallen most clearly in Germany, where the situation differs from that in the Nordic area in that much of the weak economic trend has to do with internal structural problems in both the real and the financial sector.

Corporate debt ratios followed a downward trend in Germany and the other Nordic countries in the 1990s, signalling greater financial strength and less vulnerability (see Figure 2:25). Since 1999, however, the debt ratios have risen again in Germany, Denmark and Finland. This has been accompanied by an increased number of actual and expected bankruptcies. The financial position of companies in these countries therefore seems to have weakened.

The development of bankruptcies provides a rough picture of the path of corporate loan losses in each country. In all the countries considered here the number of corporate bankruptcies rose during 2002, in some of them relatively sharply (see Table 1 and Figure 2:26).

Table 1. Number of corporate bankruptcies in the Nordic area and Germany.

	2001	2002	Change (%)
Denmark	2 189	2 472	+ 12.9
Finland	2 674	2 807	+ 5.0
Norway	2 174	2 507	+ 15.3
Germany	32 390	37 700	+ 16.4
Sweden	7 433	7 819	+ 5.2

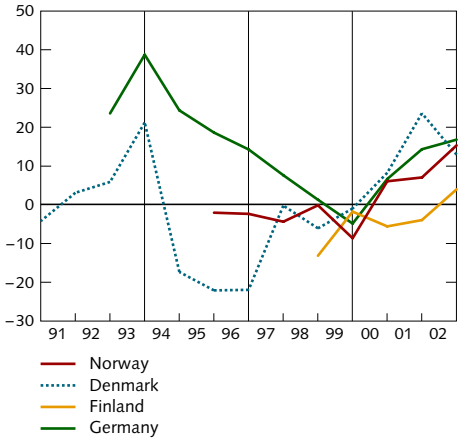
Sources: Insolvencies in Europe 2002/03, Creditreform Economic Research Unit.

Besides the large number of bankruptcies in Germany, it was German companies that featured in seven of Europe's ten largest corporate bankruptcies in 2002, in such disparate industries as banking, media, food, machine manufacturing, aircraft production and construction.

The expected frequency of defaults in the coming year (EDF)[21] among listed non-financial companies, calculated from share prices and financial statements, indicates that the credit risk in lending to the corporate sector has increased steadily since mid 2000 in all these countries but most strongly in Germany and Norway (see Figure 2:27). As to the future, the expected probability of default points to an increased frequency of bankruptcies in the coming year in Germany and Norway in particular.

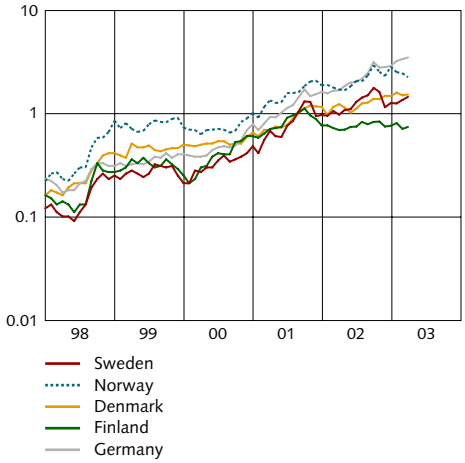
All in all, the statistics on lending and bankruptcies indicate that the risks in lending to the German and Norwegian companies remain high and that for the Finnish and Danish companies they have grown since the time of the previous report. In all these countries it is mainly the electronics, computer and services companies for which the probabilities of bankruptcy in the coming year are highest. At the same time, the one-year probability of bankruptcy is lowest for property companies in all these countries, as it is in Sweden.

Figure 2:26. Company bankruptcies in the Nordic countries and Germany. Percentage change



Sources: The Nordic central banks, DESTATIS and UC AB.

Figure 2:27. Expected default frequency (EDF) for non-financial companies in the Nordic countries and Germany. Per cent (logarithmic scale)



Source: Moody´s KMV.

21 For a fuller description of EDF, see note 7 on p. 25.

Exposure of Swedish banks to high-risk countries

THE SWEDISH BANKS have become increasingly international.[22] A higher international exposure implies an increased diversification of earnings and risks. At the same time, the international exposure of Swedish banks has made them more dependent on developments abroad. While this exposure is very largely to low-risk countries, the proportion of exposures to high-risk countries is not negligible.

Country risk refers here to the risk that a majority of a country's legal entities will be hit simultaneously by an event that greatly impairs their ability to service debt. Examples of such events are sovereign insolvency, as in Argentina in 2001, or extensive balance-of-payments crises, as in the Asian crisis 1997–98. Other examples are hyperinflation, nationwide expropriation of assets or companies, war and natural or environmental disasters. Such events frequently involve bank crises as well as restrictions on currency transfers or conversion. The restrictions block cross-border payments and are due either to the government prohibiting the exchange or export of currency or to a dramatic fall in the value of the domestic currency that renders outward payments impracticable.

As such events are liable to deprive a bank of a large proportion of its exposures to a country all at once, there may be a case for studying the size of each bank's total exposure to high-risk countries and in these cases treat all the bank's exposures to a country as a single exposure.

High-risk countries are defined here as those with a Moody's rating of A or lower.[23] There are thirteen countries in that group to which at least one of the Swedish banks has a net exposure that exceeds 1 per cent of its equity. The Swedish banks' total net exposure to these thirteen countries is SEK 104 billion, which is equivalent to 1.7 per cent of their assets and about 42 per cent of their equity. The shares in Estonia, Lithuania, Latvia and Poland are 29, 30, 20 and 10 per cent, respectively, which means that, according to BIS statistics, almost 90 per cent of the exposures to the high-risk group of countries are in countries close to Sweden. The shares for Brazil, Thailand and Argentina are 2, 2 and 1 per cent, respectively.

It is only in the Baltic states that a single Swedish bank has exposures exceeding 10 per cent of its equity. Except for Poland, there is no other country where exposures total more than 4 per cent of equity. Thus, for stability, the exposures of the Swedish banks to other high-risk countries are marginal.

Exposures to the three Baltic states

The exposures of the four major Swedish banks to the three Baltic states are equivalent to between 8 and 12 per cent of the banks' aggregate equity. These exposures largely consist of lending by local subsidiaries of the Swedish banks. Via subsidiaries in the three countries, SEB has exposures totalling about 28 per cent of the subsidiary's equity in Estonia, 23 per cent in Latvia and 39 per cent in Lithuania. For Föreningssparbanken, the other Swedish bank with large operations in these countries, the exposures via subsidiaries amount to about 26 per cent in Estonia, 15 per cent in Latvia and 18 per cent in Lithuania.[24] To gauge the scale of these exposures, they can be related to the annual profit of the two Swedish banks in 2002, which was equivalent to about 16 per cent of equity.

The risk in these subsidiaries depends on how they are treated in a crisis. Subsidiary banks can, in theory, be allowed to fail if they incur heavy losses, in which case the parent bank in Sweden would avoid having to meet the subsidiary's commitments and its losses would be confined to the loans to and the equity in the subsidiary. However, such an alternative would probably have considerable consequences for the bank's reputation and credibility; it is likely to be used only if the survival of the parent bank is deemed to be at stake. Still, the effect on credibility does depend on the cause of the subsidiary's losses; war or expropriation is probably less damaging for the parent bank's reputation and credibility than, for example, a balance-of-payments crisis or hyperinflation.

In addition to the local assets, the parent banks are directly exposed to these countries, for

22 See e.g. Financial Stability Report 2002:2 and Frisell, L. & Noréus, M. (2002) "Consolidation in the Swedish banking sector: a central bank perspective", Sveriges Riksbank Economic Review 3.

23 This is a subjective demarcation, supported by the fact that of the countries where country risk can be said to have materialised during the Asian crisis, two (South Korea and Thailand) had an A rating prior to the crisis, while this was not the case in any countries with a higher rating (e.g. Singapore and Taiwan).

24 For Estonia the calculations are based on total assets in SEB's fully-owned subsidiaries (Eesti Ühispank, Latvijas Unibanka, AB Vilniaus Bankas), where these assets are considered to be located in the bank's home market. For Föreningssparbanken the calculations start from the geographic distribution of the assets in the Estonian bank Hansa Pank, adjusted for the fact that Föreningssparbanken owns only 57.7 per cent of this subsidiary.

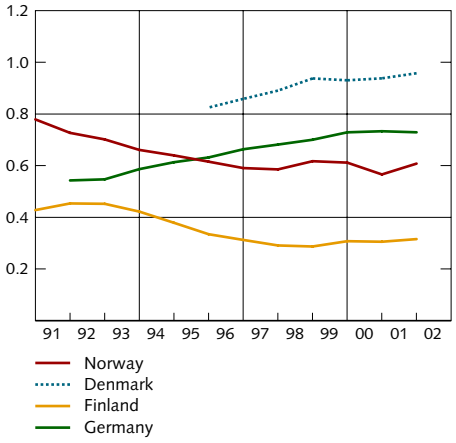
instance through loans to their subsidiaries and to companies in the country as well as through export credits.

The total exposures of the two Swedish banks to Estonia, Latvia and Lithuania are so large that the loss of a major share of the assets in one of the countries would be a considerable problem for the banks. But the effects of sizeable loan losses should be manageable. Loan losses of 20 per cent in one of these countries, for instance, would entail losses for the parent bank of up to about half of its annual profit.

Conclusions

Among high-risk countries, it is only developments in the three Baltic states that could conceivably have effects on financial stability in Sweden. For that to happen, the problems would have to be very extensive, for example a crisis on the scale of the one in Argentina. The risk of this happening in one of the three Baltic states is low. One indication of this is the credit ratings, which are considerably higher than Argentina's rating prior to the crisis. On the other hand, the ratings are on a par with or even lower than those some countries had before they were heavily hit by the Asian crisis. The Riksbank considers that the Swedish banks could cope with sizeable loan losses in one of the Baltic states. All in all, the risk of financial stability in Sweden being affected by the banks' exposures to high-risk countries is accordingly low, though not entirely negligible in the case of Estonia, Latvia and Lithuania.

Figure 2:28. Household borrowing ratio in the Nordic area and Germany. Percentage of GDP



Sources: The Nordic central banks and the Bundesbank.

HOUSEHOLDS IN THE NORDIC AREA AND GERMANY

The weak economic development has contributed to an impairment of the financial position of households in the other Nordic countries and Germany. Even so, household borrowing has grown, aided by relatively low interest rates and rising house prices. The level of the household borrowing ratio varies between these countries, partly on account of structural differences, but some increase in borrowing can be seen in the past two years.

However, the expansion of credit has slackened in all these countries except Norway, where growth is still high. The main factors behind the growth of lending to Norwegian households and their increased indebtedness are a rapid increase in income, relatively low post-tax interest expenditure and rising house prices. Indebtedness is rising above all among low- and medium-income households with few or no financial assets. As these households are in the weakest position to cope with falling income and rising interest costs, the increased borrowing has tended to heighten the risk in lending to Norwegian households.

In Germany, weak economic activity and prospects of persistently slack economic trends have contributed to increased unemployment, a growing tax burden and decreased consumption. The primary underlying causes of the slack German economy have been identified as labour market rigidities, a large tax burden and a social security system that gives households the wrong incentives. While this has probably reduced the propensity of German households to borrow more, the main effect has been to impair their financial position and ability to service debts. In this context it can be mentioned that amendments to German bankruptcy law during 2002 made it easier to apply for a personal bankruptcy. As a result, in 2002 the total number of bankruptcies in Germany rose by around 70 per cent, which can be compared with an increase of 16 per cent in the number of corporate bankruptcies in the same period.

Borrowing by Finnish households has gone on rising to some extent, partly in connection with decreased tax pressure and a house market turnover that is still relatively high. The future borrowing propensity of households will depend, however, on economic developments and unemployment. A relatively weak international economic trend will probably contribute to a fall-off in household borrowing.

In Denmark, too, rising house prices have contributed to increased household indebtedness. Meanwhile, rising disposable income and growing financial assets have reinforced the financial position of Danish households and their ability to pay. However, the age distribution of household financial assets and liabilities is uneven. Young house-owning households have the largest share of financial liabilities but the smallest share of financial assets. Still, in relation to disposable income it is the households with the largest incomes that have the biggest burden in terms of financial liabilities. The debt burden has grown in general for all households but it is mainly the young house-owning households that have experienced the sharpest increase in the interest burden for financial debt. For

households' future ability to service debt, however, it is crucial that the level of employment remains high.

SUMMARY COMMENTS

All in all, the developments in the other Nordic countries and Germany show that the risks in lending to German and Nordic companies remain high and that the credit risk in loans to the Finnish and Danish companies has grown since the time of the previous report. As in Sweden, in all these countries it is mainly among electronics, computer and services companies that the expected frequency of bankruptcies in the coming year is highest, while it is lowest for property companies. Among households, the ability to pay and the financial position have deteriorated in Germany. In Norway, relatively low interest rates and rising house prices have helped to maintain a high household borrowing rate. In that indebtedness has risen above all for households with low incomes and little or no financial assets, the risk in lending to Norwegian households has grown in the past year.

Developments in the banks

Both the earnings and the loan losses of the four major banks have stabilised in recent quarters after the gradual deterioration that began at the end of 2000. But unless economic activity improves markedly, there are few factors that point to an appreciable improvement in profitability in the coming year. Still, the Riksbank considers that the major banks are well-equipped to cope with a possible weakening of economic activity.

The Riksbank's analysis of developments in the banking system concentrates on the four major Swedish banks – Föreningssparbanken, Handelsbanken, Nordea and SEB – because it is primarily these banks that are crucial for systemic stability. The analysis focuses on the strategic risk in profitability, the quality of assets, the structure of financing and capital adequacy.

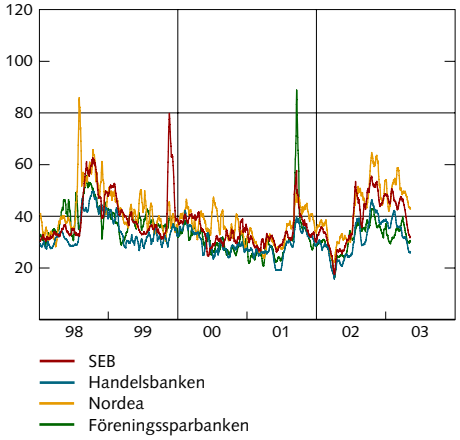
With the absence of an economic recovery and the further deterioration of the economic situation in a number of major euro countries in the past six months, the uncertainty about the future earnings of the major banks is comparatively large at present. An illustration of this is provided by the implied volatility of bank equity: after falling steadily from high levels in the autumn of 2001, this began to rise again last summer (see Figure 3:1). The market has been particularly concerned about the risk of considerably higher loan losses.

Profitability – strategic risk

The underlying earnings of the major Swedish banks, measured as profit before loan losses in constant prices, totalled almost SEK 44 billion in the most recent reporting period, which is over 6 per cent less than a year earlier (see Figure 3:2).[25] Loan losses in the same period totalled just over SEK 5 billion, an improvement of almost 10 per cent. Due to a combination of falling earnings and rising loan losses, the difference between underlying earnings and loan losses narrowed continuously from the end of 2000 until mid 2002. But since then both earnings and loan losses have stabilised.

Profitability, measured as the return on equity after tax, was 10 per cent in the most recent reporting period, which is a deterioration of almost 3 percentage points from the previous period (see Figure 37). Compared with the level in the late 1990s, during the past two years profitability has decreased by almost 6 percentage points or more than a third. The deterioration is mainly explained by the equity price fall and decreased stock-market activity in the past two years. The most manifest effect of the contracting market is decreased income from commissions. However, profits from the banks' core operations have been more than offset by high growth in net interest income.[26]

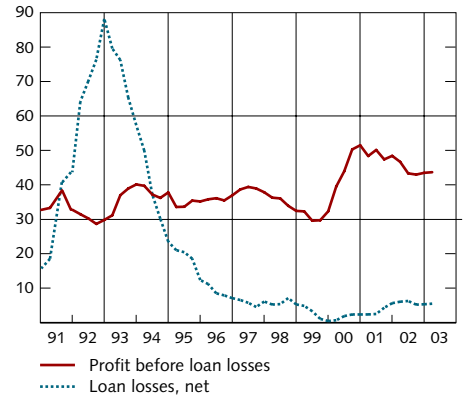
Figure 3:1. Implied volatility of bank equity. 10-day moving average. Per cent



Note. The implied volatility has been calculated from bank options with a maturity of three months.

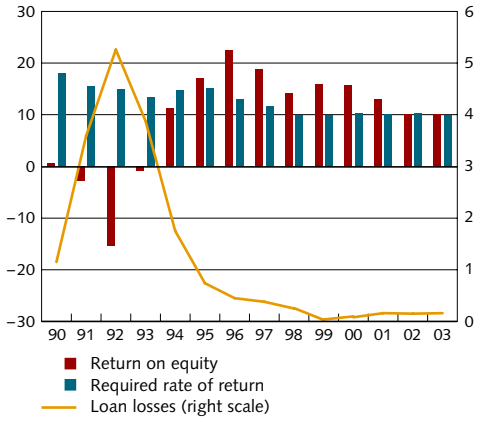
Sources: Bloomberg and the Riksbank.

Figure 3:2. Profit before loan losses and loan losses, net, in the major banks, accumulated over four quarters. SEK billion, today's prices



Sources: The banks' reports and the Riksbank.

Figure 3:3. Return on equity after tax, the market's required rate of return and loan losses as a percentage of lending by the major banks. Per cent



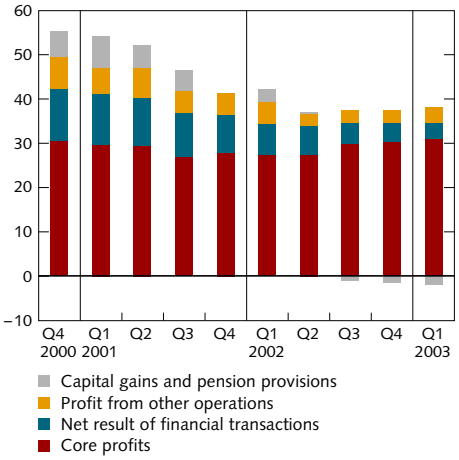
Note. The market's required rate of return is defined as the sum of risk-free interest and a risk premium; risk-free interest is represented by the ten-year government bond rate and the risk premium is assumed to be 5 per cent over the entire period. The data for 2003 refer to the latest reporting period (the four most recent quarters)

Sources: The banks' reports and the Riksbank.

25 The reporting period is the most recent four quarters up to 2003 Q1. All earnings data have been adjusted for sizeable one-off effects and, unless stated otherwise, all comparisons are with the four preceding quarters.

26 In this context core operations are defined as net interest income and net commission income less total expenditures and loan losses.

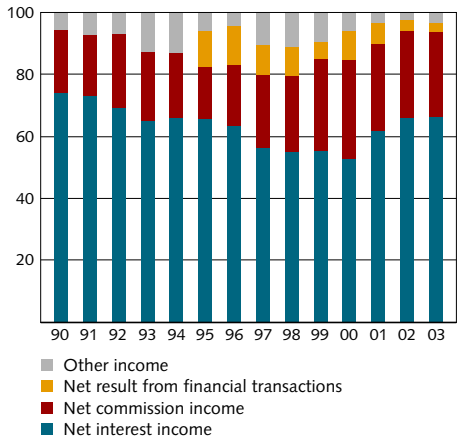
Figure 3:4. Core profit, profit from other operations, financial transactions and capital gains in the major banks, accumulated over four quarters. SEK billion



Note. Figures are pro forma adjusted for acquisitions. Core profit consists of net interest income and net commission income less costs and loan losses. Profit from other operations consists of other income, profit from associated companies, net insurance income.

Sources: The banks' reports and the Riksbank.

Figure 3:5. Breakdown of income in the major banks. Per cent



Note. The data for 2003 refer to the latest reporting period (the four most recent quarters).

Sources: The banks' reports and the Riksbank.

Core profits were actually smallest in the third quarter of 2001, the reason being a marked increase in loan losses before the banks had managed to adjust costs to the weaker market situation (see Figure 3:4). As costs were cut and loan losses decreased, during 2002 core profits gradually picked up again and are now actually higher than in 2000.

The declining market has hit the banks' earnings from other sources considerably more heavily. In the last two years, net income from financial transactions has fallen 70 per cent and other income (e.g. dividends received, insurance operations and miscellaneous interests) has halved. In addition, the previously considerable surplus values in the banks' pension funds, which up to a year ago made a positive contribution to profits, have now been greatly reduced and this has led to profits being lowered instead by pension allocations. Finally, there has been a substantial fall in net capital income, above all because previously large capital gains have given way to financial write-downs.[27]

In a longer perspective, profitability has now dropped to the same level as in 1994 even though loan losses at that time were considerably larger. The level of interest rates and thus the banks' required rate of return have admittedly moved down continuously since then but even with an adjustment for this, profitability has been on a downward trend for a number of years. The decline was broken for a time during the cyclical and stock-market boom of 1999–2000 but even then the level of profitability failed to reach the record performance in 1996–97. A comparison between the periods 1996–97 and 2001–02 shows that the cyclical situation was fairly similar, with a slowdown followed by a recovery, though the latter was stronger in 1997 than in 2002. Lending grew at approximately the same rate in these two periods but loan losses were clearly larger in the earlier period. Turnover and the level of equity prices on the Stockholm exchange were also much the same. So the difference in profitability between these two periods cannot be attributed to cyclical factors such as economic activity and stock-market developments. It is rather a consequence of lower margins on lending and deposits in Sweden, which despite international expansion is still the single most important market. As the comparatively low profitability at present is not primarily a cyclical phenomenon, it is therefore hard to see that an economic recovery would lead to an essential improvement.

INCOME

The income of the major banks fell 3 per cent in the most recent reporting period. Net interest income remained comparatively buoyant, rising 4 per cent. During the past two years net interest has risen at an average annual rate of between 5 and 15 per cent, partly offsetting the decline in other income items. But this also means that after the rising trend for commission income in the 1990s, the banks are again as depen-

27 Capital gains are defined as changes in the value of non marked-to-market assets in connection with their realisation or major re-valuation. Capital gains are treated here as one-off effects and thus do not affect underlying profitability but of course they affect the return to shareholders.

dent on net interest income as they were in the early 1990s (see Figure 3:5).

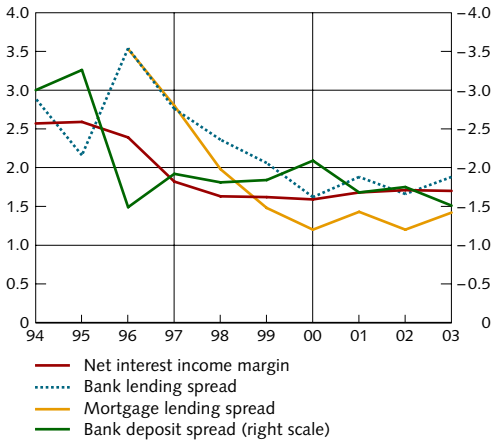
The positive trend for net interest income is explained above all by the high growth of lending in the period. Interest margins in the Swedish market have not changed appreciably in the past two years (see Figure 3:6). There has, however, been some improvement in the net interest income margin of the major banks, defined as net interest income in relation to interest-bearing assets; this may indicate that margins have developed more favourably on some of these banks' markets abroad. Another explanation is that the fall in market interest rates has lowered the major banks' costs for market financing. While it is true that notably low market rates are said to be a disadvantage for banks because they depress deposit margins, this effect applies mainly to banks with a structural deposit surplus that has to be placed in the market at low rates. For a number of the major banks, which instead are net market borrowers, low market rates are not necessarily a drawback. Moreover, the depreciation of the US dollar has had a clear positive effect on net interest income in that the US certificate market is an important source of funding for some of the banks (see below, however, for the negative effect on net income from financial transactions). But as the growth of lending has clearly slackened during the past six months, net interest income can hardly go on rising at the same rapid rate.

Net commission income fell 6 per cent, entirely because equity prices and stock-market turnover fell (see Figure 3:7). Commission income from securities dropped almost 20 per cent and now represents less than 40 per cent of total commission income compared with over 50 per cent in 2000, which means it has decreased by more than one-third. Commission income from asset management has fallen gradually with the decline in equity prices. Most of the fall in brokerage income from securities trading occurred during 2002 in that it was not until then that stock-market turnover declined markedly. Commission income from advising on issues, mergers and acquisitions, on the other hand, was more than halved in 2001, since when there has been some stabilisastion at a low level.

At total level, however, net commission income has not fallen more than 15 per cent since 2000 because other items, mainly payment services but also deposits and lending, developed relatively satisfactorily (see Figure 3:8). As a result, total income from commissions has become less dependent on the stock market. In 2003 Q1, for example, commissions from payment services almost matched the size of income from security commissions and so did commissions from other services.

In the second half of the 1990s the strategies of many banks were driven by the notion of disintermediation, which predicts that as capital markets become more efficient and accessible, the traditional role of banks as intermediaries between savings and investment will become increasingly peripheral. The foundation for bank earnings will be challenged when households are in a position to place their savings on the market directly instead of in a bank account and when companies can just as well finance investments directly in the bond and equity markets

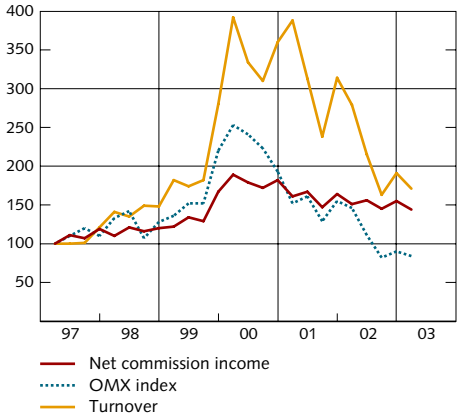
Figure 3:6. Net interest income margin and spread on bank deposits, bank lending and mortgage lending. Per cent



Note. The spread is calculated as the difference between the average rate of interest and a 6-month treasury bill.
The data for 2003 refer to the latest reporting period and the first quarter for the net interest margin and the spreads, respectively.

Sources: The banks' reports and the Riksbank.

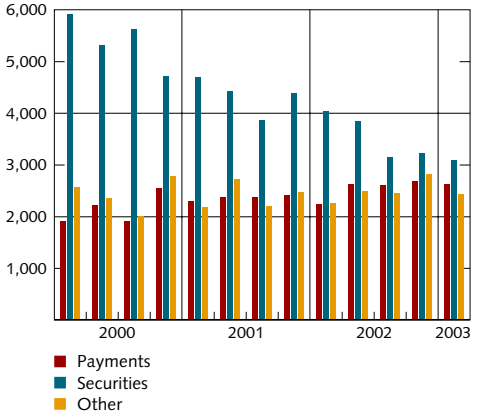
Figure 3:7. Net commission income in the major banks together with share prices and turnover on the Stockholm Stock Exchange. Index: March 1997 = 100



Note. The figures are pro forma adjusted for acquisitions.

Sources: The banks' reports, Stockholmsbörsen and the Riksbank.

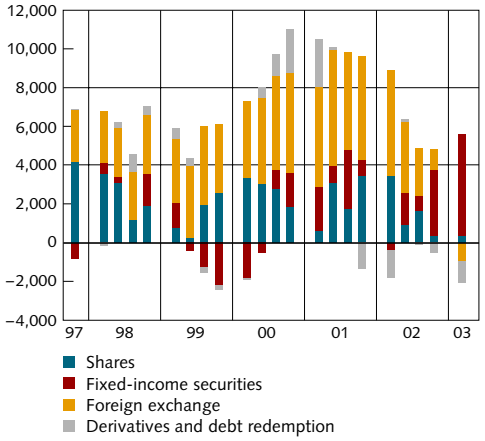
Figure 3:8. Net commission income in the major banks, by category. SEK million



Note. The figures are pro forma adjusted for acquisitions.

Sources: The banks' reports and the Riksbank.

Figure 3:9. Net result of financial transactions in the major banks, accumulated over four quarters. SEK million



Sources: The banks' reports and the Riksbank.

instead of with bank loans. Seen in this light and given the prevailing stock-market boom, asset management and investment banking were perceived to be future sources of earnings, while traditional deposit and lending operations were judged to be a mature sector with steadily declining margins.

During the past two years, however, the opposite has been the case: steeply falling income from asset management and investment banking, with large cutbacks as a result, has been accompanied by comparatively good growth for income from deposits and loans. Deposits are again a relevant alternative for household saving and many companies have found that bank borrowing is a complement to the debt markets, which at times are volatile. For the banks, asset management and investment banking are clearly less attractive operations at present, with over-establishment and the prospect of depressed margins. Still, it is important in this context not to lose sight of the structural factors that nonetheless point to continued disintermediation in the European financial market: the emergence of a European fixed-income market with the introduction of the euro and the need for increased pension saving on account of demographic changes in Europe. All in all, these factors point to a renewed growth of commission income in the long run, even though it will be a long time before the levels in 2000 are surpassed.

Net income from financial transactions, which reflects the change in the value of the banks' marked-to-market assets, was halved in the reporting period (see Figure 3:9). Gains on equity were weak but falling market interest rates during the period led to some improvement in the gains on fixed-income securities. The main explanation for the weak outcome is, however, that the banks´ previously large foreign exchange gains have become considerably smaller and in certain cases even turned into losses. This mostly concerns effects of the US dollar's depreciation on the banks' borrowing in the US market. The banks continuously hedge the exchange risk on this borrowing by buying dollars in the forward market. If the dollar depreciates, as it has during the past year, the value of these forward contracts becomes negative in that the contracted price is lower than the current market price. To some extent, therefore, the positive effect of the US dollar's depreciation on net interest income (see above) has its counterpart in a negative effect on net income from financial transactions. The combined effect of exchange rate movements on profits will be limited.

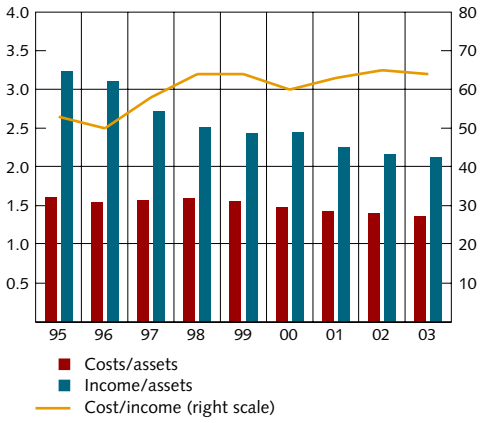
COSTS

Rapidly rising costs in the major banks during 2000–01 have been followed in the past year by various degrees of cost-cutting. At end 2002 the number of employees was almost 4000 or 5 per cent lower than a year earlier. The cuts have been made in a number of activities but mainly in asset management and investment banking. IT-related costs fell more than 7 per cent after a 10 per cent increase in 2001. All this has meant that in the most recent reporting period the total costs of the major banks fell by 3 per cent. The apparently modest figure is partly explained

by the simultaneous restructuring costs associated with the cuts. Of greater importance is the rigidity of banks' costs – there is a lag before staff cuts and other rationalisation show up in lower costs.

In the year ahead the major banks are aiming for unchanged costs or further cuts, depending of course on market developments. In the longer run the challenge is to combine cost reductions with unchanged levels of income, something that has proved difficult to date. Although the ratio of costs to assets has fallen since the mid 1990s, which by itself indicates that there may be economies of scale in costs, the corresponding ratio for income has fallen considerably more (see Figure 44). This trend has been accentuated even more by the weak development of income in the past two years and cost effectiveness (the cost/income ratio) has not changed despite the reduction of costs.

Figure 3:10. The ratios of costs and income to assets and of costs to income.
Per cent



Note. The data for 2003 refer to the latest reporting period (the four most recent quarters).

Sources: The banks' reports and the Riksbank.

Assets – credit risk

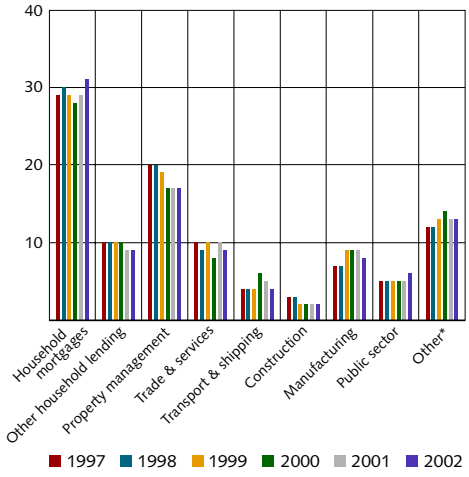
In March 2003 the assets of the major banks totalled almost SEK 6000 billion, which means that in the most recent reporting period they rose 5 per cent. Although their growth has continued, the rate is less than half the figure for 2001, largely due to the lower growth of lending.

LENDING

Historically, credit problems in the banking sector have often arisen after a rapid expansion of lending. Lending growth is therefore often used as an approximate indication of bank risk.[28] During the past year, lending by the major banks to the general public rose less than 5 per cent. The Nordic home market was characterised in general by an increase of 8–10 per cent in lending to households, while lending to companies fell slightly.

The degree of diversification can be measured approximately by the sector breakdown of the loan portfolio. At end 2002 loans to households, three-quarters of which were house mortgage loans, made up 40 per cent of lending by the major banks (see Figure 3:11). In recent years the distribution by sectors has not changed much. On the corporate side, exposure is still clearly largest in property management, with a portfolio share of 18 per cent.

Figure 3:11. Lending by the major banks by sector.
Per cent



*Includes e.g. forestry, agriculture and non-bank finance.

Source: The banks' reports.

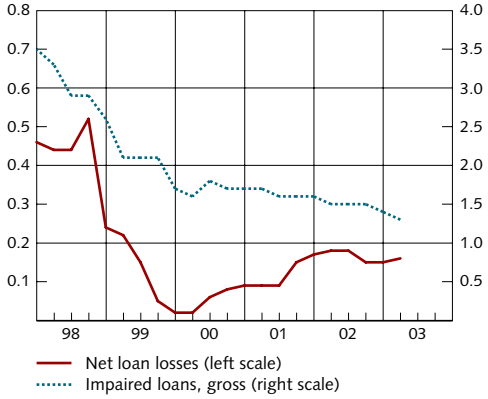
CREDIT QUALITY

Impaired loans and loan losses as percentages of total lending are indicators of a bank's credit quality.[29] In both cases the deterioration in credit quality has already occurred, so there is no information about the probability of further losses.

In the past two years the proportion of impaired loans in lending by

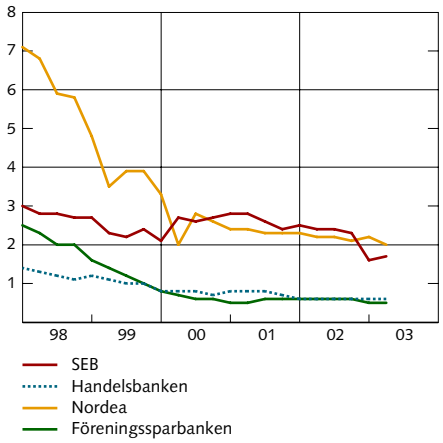
28 See "Credit expansion as an indicator of financial instability", Financial Stability Report 2002:2.
29 Impaired loans are gross before accumulated provisions; loan losses are net provisions for incurred and probable loan losses after recoveries and reversals.

Figure 3:12. Impaired loans, gross, and net loan losses, accumulated over four quarters.
Per cent of lending



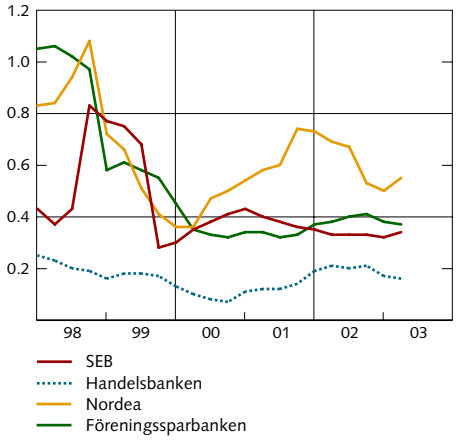
Sources: The banks' reports and the Riksbank.

Figure 3:13. Impaired loans, gross.
Per cent of lending



Sources: The banks' reports and the Riksbank.

Figure 3:14. Provisions for incurred and probable loan losses accumulated over four quarters.
Per cent of lending



Sources: The banks' reports and the Riksbank.

the major banks has followed a slight downward trend (see Figure 3:12). Loan losses reached a low at the beginning of 2000 and then rose gradually up to mid 2002. Since then there has been some renewed fall but it is only Nordea's loan losses that have decreased; loan losses in the other major banks went on rising during the most recent reporting period but the levels must still be regarded as very low.

During this period, however, provisions for incurred and probable loan losses fell in relation to total lending by the major banks, which shows that the increase in loan losses has to do with decreased recoveries and reversals of earlier provisions (see Figure 3:14). To sum up, there is nothing in the accounting to indicate that credit quality has deteriorated in recent quarters.

A development in line with the Riksbank's main scenario, with accelerating growth towards the end of the year, does not point to any marked future increase in loan losses. But as loan losses are usually lagged in relation to the business cycle, a minor increase during the year cannot be ruled out. Expected default frequencies (EDF) indicate an increased credit risk during 2003.[30] Given an unchanged quality in the household portfolio, an illustrative calculation, where EDF are assumed to represent the actual frequency of bankruptcies in the major banks' corporate portfolios, shows that provisions would rise by around 40 per cent in the coming year. In relation to total lending, this would result in a level just above 0.5 per cent, which is marginally higher than the levels of provisions in the second half of 2001.

COUNTERPARTY EXPOSURES

The central role of the major banks in the Swedish markets for currency, deposits, securities and derivatives creates considerable exposures to counterparties and settlements.[31] As these exposures are primarily to other financial institutions and large non-financial companies, the risk of default is admittedly small as a rule. But if it were to occur, a default would have serious consequences for systemic stability because the exposures are so large. From the viewpoint of stability, these risks are of particular interest when the counterparty is a bank or some other financial institution since that entails a risk of a problem in one of these institutions spreading to the others. The analysis of counterparty exposures therefore focuses on assessing whether a bank can cope with the default of its largest counterparty.

The level of the four major banks' counterparty and settlement exposures in the second half of 2002 was unchanged from the first half. It is worth noting that there was no change from the third to the fourth quarter, which breaks the clear seasonal pattern in earlier years, when levels have been definitely lower in the fourth quarter. Neither was there any distinct trend in the credit ratings of the counterparties.

30 See the discussion on p. 25. EDF is based on information about listed companies; as the composition by industries differs from that of the banks' corporate portfolios, it should be interpreted with caution.

31 For a more detailed account of the Riksbank's work on counterparty and settlement exposures, see Financial Stability Report 2002:2 and Blåvarg, M. & Nimander, P., "Inter-bank exposures and systemic risk", Sveriges Riksbank Economic Review 2002:2.

If one of the major banks were to lose the whole of its exposure to its largest counterparty, it would probably have problems with solvency. The magnitude of the solvency problem from a counterparty failure would depend in practice not just on the size of the exposure but also on how much of the original claim the bank finally manages to recover.[32] Given that the bank recovers 25 per cent of the exposure, it would be exceptional for a counterparty failure to lead to the Tier 1 capital ratio falling below the statutory requirement of 4 per cent (see Figure 3:15). Default risks have risen to some extent in the past year but the levels of Tier 1 capital ratios would be generally higher after the failure of the largest counterparty.

The risk of contagion between the major banks must be said to be moderate. Just a few of the reported exposures would lead to the insolvency of the exposed bank if one of the major banks were to suspend payments (see Figure 3:16).

All in all, the relatively good credit quality of the counterparties indicates that the probability of a sudden failure is low. In the event of a failure, there are only a few cases where the problem would spread from one bank to another and even this assumes low recoveries. An important caveat when interpreting the calculations above is that, as exposures tend to be reduced for the end of quarters, the banks' counterparty risks are probably larger in the periods between quarter ends.

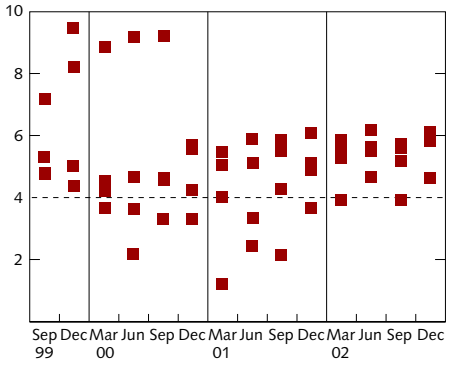
Funding – liquidity risk and capital

The banks' combination of predominantly illiquid assets (loans) and liquid liabilities (short-term deposits and borrowing) makes them vulnerable to problems with funding. The structure of the banks' funding is therefore a central issue for stability.

Interest-bearing liabilities make up approximately 80 per cent of the major banks' funding. Deposits from the general public and issued securities make up about 40 per cent each of this component and 20 per cent is borrowed in the interbank market. The remaining funding consists mainly of derivatives, while the other items include liabilities in insurance operations and the shareholders' equity.

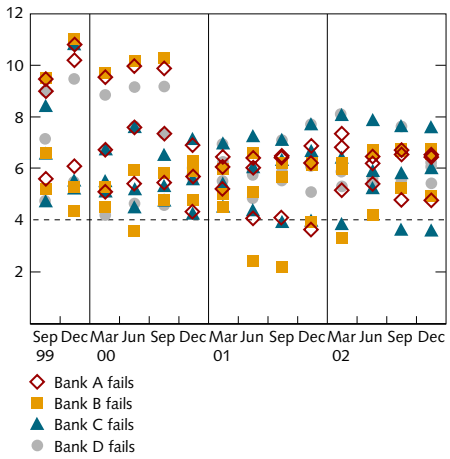
For a long time now the Swedish major banks have had a deficit on home market deposits – deposits from the general public have not been sufficient to finance lending to the general public (see Figure 3:17). The banks finance this deficit mainly by issuing securities (bonds and certificates) but also by borrowing in the interbank market. But whereas almost 90 per cent of the deposits are denominated in Nordic currencies or the euro, other currencies are used for almost 40 per cent of the securities and interbank funding. More than 70 per cent of certificates, the funding instrument that has grown most in recent years, are purchased by foreign investors (see Figure 3:18). All this means that to some extent

Figure 3:15. Tier 1 capital ratio in the four major Swedish banks after a default of their largest counterparty. Recovery 25 per cent. Per cent



Source: The Riksbank.

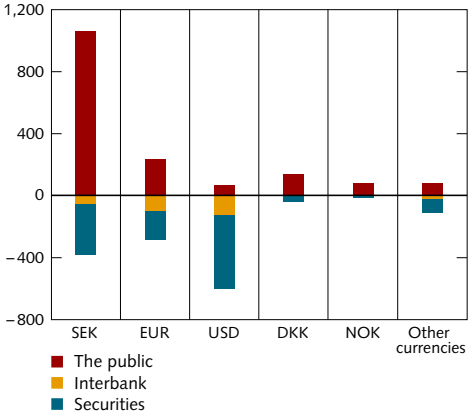
Figure 3:16. Tier 1 capital ratio in the four major Swedish banks after the default of a major Swedish bank. Recovery 25 per cent. Per cent



Note. Given that Bank A fails, the tier 1 capital ratio is calculated for banks B, C and D at the end of each quarter. This enables tier 1 capital ratios in each period for the three surviving banks to be observed after a specific bank has defaulted.

Source: The Riksbank.

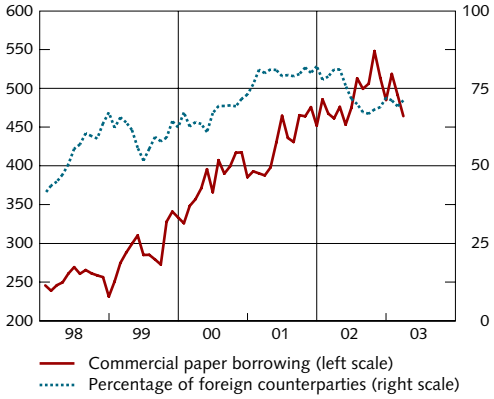
Figure 3:17. Major banks' interest-bearing assets and liabilities broken down by type of counterparty and currency. December 2002. Net position, SEK billion



Source: The banks' reports.

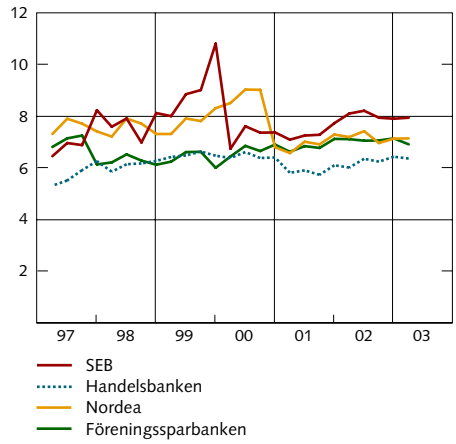
32 The proportion recovered depends primarily on the bank's collateral. It also differs between sectors.

Figure 3:18. Commercial paper borrowing by the major banks' Swedish banks and mortgage institutions. SEK billion and per cent



Source: The Riksbank.

Figure 3:19. Tier 1 capital ratio. Per cent



Sources: The banks' reports and the Riksbank.

the major banks fund lending to the home market by borrowing in the international debt market. But as swap agreements are used to match the loans and the currency composition of the assets, neither the banks nor their borrowers are exposed to exchange risk.

For stability, the increased exposure to the international debt market can have advantages as well as drawbacks. The international interbank and certificate markets can be assumed to be the most liquid source of financing for the major banks. Financing on these markets is mostly at short maturities and the investors are sensitive to changes in credit ratings and confidence. If for some reason a bank's solvency were to be questioned, it is these sources of funding that would probably disappear first. At the same time, the increased international borrowing gives the major banks access to a large and liquid market, which enables them to diversify their financing base.

CAPITAL

A bank's equity serves as a buffer against unexpected losses and is thus the ultimate protection for the bank's creditors. In March 2003 the capital adequacy and Tier 1 capital ratio of the major banks were 10.1 and 7.1 per cent, respectively (see Figure 3:19). Both these figures are marginally above the average level in the past two years. All in all, the levels of capital in the major banks and their mutual relationship have changed only marginally in the past year.

As a buffer against unexpected losses, the amount of capital should mirror the risks in a bank's operations. It is therefore of interest to consider the relationship between the Tier 1 capital ratios of the major banks and their credit ratings and implicit volatilities.[33] For the major Swedish banks, a lower credit rating and a higher implicit volatility seem to be associated with a higher Tier 1 capital ratio. So it seems that the levels of the major banks' equity have been influenced by the risk assessments of credit rating institutions and the market rather than vice versa. The relationship is clearer between the Tier 1 ratio and credit ratings and there is also some difference between the assessments by credit rating institutions and the stock market. The assessments differ most in the case of Nordea, which has one of the highest credit ratings but is nonetheless considered by the stock market to have the highest risk.

33 Credit ratings from Moody's, Standard & Poor's and Fitch have been weighted together for this purpose. Standard & Poor's credit scale has been used.

Summary assessment

The profitability of the major banks has stabilised since the time of last autumn's report. After the gradual deterioration since the end of 2000, both underlying earnings and loan losses have been virtually unchanged since mid 2002. But without a marked recovery in economic activity, there are few indications that profitability will improve appreciably in the year ahead. The downward trend for profitability since the mid 1990s has weakened the capacity of the major banks to absorb unexpected losses. Still, the Riksbank considers that the major banks are well-equipped to cope with a deterioration of economic activity if that were to occur.

The financial infrastructure

From this report onwards, one chapter will be devoted to the analysis and evaluation of the Swedish financial infrastructure, that is to say, the payment system and the financial markets. This chapter discusses how the infrastructure in Europe is undergoing rapid changes, with cross-border mergers and an increased degree of automation. Integration and harmonisation will probably make the infrastructure more efficient, while reducing costs and certain risks. However, the dependence on a smaller number of systems could also contribute to an increase in other types of risk.

The Riksbank's analysis of financial stability concentrates on systemic stability and comprises two parts.[34] The first of these is an analysis of the financial companies; primarily the four large banking groups which are the focus of the first part of this report. The second part of the analysis concentrates on the financial infrastructure, which is defined as the various payment instruments and the systems required to enable trading, payments and the delivery of financial products.[35] In future, and starting with this issue of the Financial Stability Report, there will be a separate chapter commenting on the financial infrastructure. Analysis of the infrastructure differs from that of banks in so far as infrastructure vulnerability does not change continuously as a result of, for instance, macroeconomic fluctuations or corporate financing conditions. Oversight of the stability of the infrastructure is more a question of identifying structural weaknesses that can cause contagion risks via the payment system. This means that this chapter takes a different approach. Instead of monitoring a number of indicators, the Riksbank will comment on events and trends that are currently of central importance to the infrastructure.

One important current trend is the ongoing transformation of the financial infrastructure as companies merge – consolidate – and the infrastructure becomes increasingly automated. The first part of this chapter describes this transformation and analyses the driving forces behind these changes in the securities and payment markets.

As part of its oversight, the Riksbank assesses central parts of the Swedish financial infrastructure according to international principles for payment and settlement systems. The second part of the chapter contains a summary of the Riksbank's most recent assessment of the central settlement system[36] for large-value payments (RIX) and of the central clearing system[37] for retail payments (BGC).

34 See the box on the Riksbank's view of financial stability, p. 12.
35 A more detailed discussion of the oversight responsibility can be found in "The Riksbank's oversight of the financial infrastructure", Sveriges Riksbank Economic Review 2001/3.
36 Settlement refers to the final discharging of claims in the RIX system through the banks' accounts with the Riksbank.
37 Clearing refers to the actual summary and control of transactions and the calculation of obligations between two (bilateral clearing) or more (multilateral clearing) parties.

The chapter concludes with an account of the start of Continuous Linked Settlement (CLS), the global system for settlement of foreign exchange transactions, which is one of the largest changes in the payment area over the past year.

Consolidation trends in the financial infrastructure

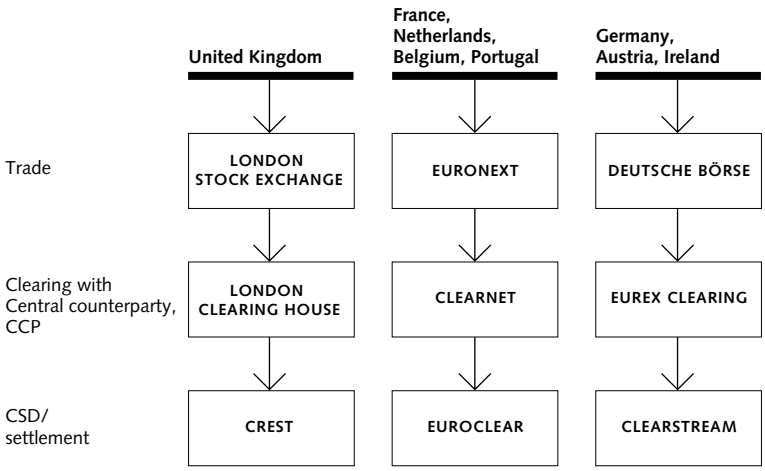
THE SECURITIES MARKETS

Historically, Europe's financial markets have been fragmented and largely followed national boundaries. Integration of the markets has been made more difficult by the fact that other parts of the infrastructure and the institutional framework have been country-specific. This applies both to securities depositories where holdings and changes in holdings of securities are registered, known as Central Securities Depositories (CSD), and to clearing and settlement institutions. Regulations and market practices have also followed national boundaries and in many cases favoured trade in domestic securities.

Today, however, the map of the European securities market is changing at a rapid rate. Consolidation of the financial infrastructure, combined with rapid developments in technology and an increased degree of automation, are some elements of the transformation in progress. Harmonisation of regulations and standardisation work are reinforcing this development.

The first consolidation wave came in the early 1990s when the cash and derivative markets in several countries merged. In recent years consolidation has become more intensive again, this time through cross-border mergers of both stock exchanges and settlement institutions. This second wave of consolidation has transformed the European securities market, with a number of large market centres emerging. The figure below illustrates how these centres are built up in the various stages of a transaction; trading, clearing and settlement.

EUROPE'S SECURITIES MARKET
– some major centres



In principle, consolidation can occur in two different ways, with varying consequences for efficiency, competition and systemic risk. Horizontal integration creates consolidation in each stage of transactions management. Markets merge with other markets, clearing and settlement systems merge with other clearing and settlement systems. This type of consolidation does not result in such a high degree of concentration of the infrastructure, but neither does it make full use of economies of scale and synergies. Vertical integration entails complete merging of marketplace, clearing and settlement systems within one and the same group, known as a *vertical silo*. However, this type of concentration can lead to increased vulnerability and problems of monopoly power. The consolidation that has taken place so far has elements of both horizontal and vertical integration.

On the trading side, the stock markets in Paris, Amsterdam, Brussels and Lisbon merged to become Euronext, which later came to incorporate the London International Financial Futures and Options Exchange (LIFFE). With regard to settlement, the central securities depositories in the respective countries have merged with Euroclear[38] and on the clearing side Clearnet acts as central counterparty for the whole of Euronext. This is not merely a question of horizontal integration; there was also some element of vertical integration, as Clearnet is owned to a large extent by Euronext. In 2002 a merger was announced between British settlement system Crest and Euroclear. The aim was to create a single settlement system for Euronext and the London Stock Exchange, which is expected to be in place in 2005. At present, there are also far-reaching plans for a merger between Clearnet and the London Clearing House. If these plans are realised, Euronext and the London Stock Exchange will share a single settlement system and also a single central counterparty system.

Germany has chosen a vertically-integrated model, where marketplace, central counterparty clearing and the settlement system are within one and the same corporate group. Countries which have not joined one of these large centres appear to opt for domestic, vertically-integrated solutions, which has been the case in Italy and Spain.

The consolidation trend is not as evident in the Nordic markets. The creation of Norex established cooperation between Stockholmsbörsen and the stock market in Copenhagen, which the stock markets in Oslo and Reykjavik later joined. This cooperation entails the stock markets using the same trading system, while the systems for clearing and settlement are still domestic, though Swedish and Danish derivatives are cleared in the same system. In May 2003 a planned merger between OM and the Helsinki stock exchange was announced.

However, technological developments and the degree of automation are well advanced in the Nordic countries. In Sweden, a large part of the infrastructure necessary for Straight Through Processing (STP) is already in place. This means that all of the necessary systems are integrated and that the processing of a transaction – from initiation to settle-

38 This merger did not include Portugal's CSD.

ment – has been automated. Stockholmsbörsen's trading system is completely electronic and it is possible for the customer to use the Internet to place an order directly in the order-book via the broker's computer. However, complete STP is not possible as long as the clearing and settlement routines are not integrated. Stockholmsbörsen also has plans to extend the central counterparty system on the derivatives market to include stock market transactions. Developments in Europe and the USA indicate that clearing through a central counterparty[39] has in practice become the standard. The Riksbank takes a positive view of central counterparty clearing on the cash market. If suitable risk management mechanisms exist, such a development can lead to considerable efficiency gains.

THE PAYMENT MARKET

In addition to the securities markets, the payment systems in the EU are also undergoing a consolidation process. This applies in particular to cross-border payments as the consolidation of domestic systems is already at an advanced stage. The consolidation efforts comprise the design of an integrated system for large-value payments (TARGET2) and the creation of an internal payment area for retail payments.[40]

The TARGET system[41] was developed prior to the introduction of the single EMU currency in 1999. The system is necessary for transferring and balancing liquidity within various parts of the euro area and thus an important instrument for the operational single monetary policy. A further objective for the system is that it shall promote a safe transfer of large-value payments and offer an alternative for small banks without established correspondent bank arrangements to enable the direct transfer of cross-border euro payments. The system is based on the interconnection of the national central banks' settlement systems.

The development of TARGET has meant that central banks in Europe offer settlement systems with efficient liquidity management and strict requirements for availability. TARGET has also led to quicker acceptance of standardised messages, which provide support for a more streamlined payment process. In recent years, country-specific communications have been abandoned in favour of SWIFT communication, which has become established as standard.[42] This, combined with the fact that new message types have been introduced, has contributed to the development towards STP settling. The collateralisation procedure has also been automated, which means that important central bank facilities such as intraday credit can be mediated simply and quickly to participants.

However, these developments have also demonstrated weaknesses in the TARGET structure. TARGET has a decentralised system structure, where each central bank offers its country's banks access via its own

39 A central counterparty (CCP) mediates between buyer and seller in a financial transaction and thus takes on the counterparty risk. The issue of CCP in the securities markets was analysed in the previous Financial Stability Report.

40 A large-value payment is normally an urgent payment of a significant sum, mainly exchanged between banks or other participants in the financial market. Retail payments are defined as less urgent payments of relatively small amounts, often between households and companies.

41 TARGET stands for Trans-European Automated Real-Time Gross Settlement Express Transfer system.

42 SWIFT stands for Society for Worldwide International Financial Telecommunications and is a bank-owned global message network.

system. The integration of systems that use different technologies with many components has made the structure sensitive to disruptions. The decentralised system structure has led neither to increased safety in relation to a central system structure nor to lower costs. Strict requirements for opening hours and availability have meant that the costs for the system have increased. This fact has been reinforced even more in the light of the coming EU enlargement. Given this, the ECB Governing Council has recently taken a decision in principle to move over to a more centralised and harmonised system structure, TARGET2.

Parallel to TARGET, commercial centralised settlement systems have been developed within the euro area. The establishment of new systems is a positive development from a central bank perspective, as it creates alternative paths for payments and increases competition. The commercial systems can also offer payment transfers at a much lower transaction price. One example of this is Euro 1, which is owned and run by the Euro Banking Association, EBA, an association of European banks. During 2003 EBA plans to introduce a system called STEP 2, which will enable even small-value payments in euro to be made quickly and efficiently.

The consolidation and automation trends are not as evident on the European retail payments market. The European Commission's objective is that cross-border payments in euro shall function as simply and efficiently between EU countries as domestic payments do now. Differences in charges or time taken between cross-border and domestic payments shall disappear.[43] There is also work in progress within the European Commission on producing a new legal framework for the whole retail payment area.

In the light of the current inadequate standardisation and the considerable fragmentation of the payment systems in Europe, the Commission's objectives demand considerable efforts in terms of both standardisation and the design of a consolidated cross-border infrastructure. The European Commission is cooperating with the relevant market participants to bring about such a change.

The market participants have established their own forums for cooperation within the framework of the Single European Payment Area (SEPA). The purpose of this work, which started in June 2002, is to develop the regulations and standards required to create a joint payment area.

DRIVING FORCES BEHIND THE CONSOLIDATION PROCESS

Both of these trends – consolidation and automation – have been brought about by a combination of market-led efforts and action by the authorities. The underlying motives are both economic, due to the efficiency gains connected with consolidation and automation, and political, as part of the endeavour to achieve a single market within the EU.

43 See Directive of the European Parliament and of the Council (EC) 97/5 of 27 January 1997 on cross-border credit transfers, and Council Regulation (EC) 2560/2001 of 19 December 2001 on cross-border payments in euro.

Lower risks are also an important motor behind the ongoing transformation. Fragmented systems become more technically complex, which results in greater operational risks in connection with cross-border transactions and longer settlement cycles.

Efficiency gains from consolidation can be considerable. The costs arising from the European securities trading are estimated to be three times higher than the corresponding costs in the USA. Moreover, the costs arising in connection with the settlement of these transactions are calculated to be 7–10 times higher. According to the London Stock Exchange's estimates, the costs for cross-border transactions are 46 times higher than in the USA.[44] However, it is difficult to say exactly how much higher the transaction costs are, as they are defined in different ways. Even taking into account differences in the various estimates, it is clear that the financial markets in Europe are less efficient.

Why does consolidation of the infrastructure lead to such efficiency gains? Economies of scale and network effects are important elements in this context. High fixed costs and low marginal costs mean that joint or compatible trading, clearing and settlement systems lower the participants' operational costs. Cost savings also arise thanks to standardised formats and because the participants need to link to fewer systems. The network effects work through consolidation's positive effect on market liquidity. As a result of consolidation, each marketplace handles larger trade volumes. This in turn attracts new investors to the market and thereby increases trade volumes. Consequently, market liquidity increases even more.

The existence of economies of scale suggests that the efficiency gains can be considerable when the trade volumes, and thereby also the driving forces for consolidation, become sufficiently large. These volumes have shown a clear rising trend on the European markets.

Economies of scale and network effects have always existed in the financial infrastructure. However, cross-border participants have not been able to exploit these to any great extent. Developments in technology have only recently been able to provide the computer capacity and communications solutions necessary for consolidation. In this way technological developments have been both a driving force and a necessary condition in the transformation of the infrastructure. IT developments coupled with the lower communications costs following on from the liberalisation of the telecommunications markets have contributed to the automation and consolidation trends as proximity to the physical infrastructure has become less important. Securities transactions pass through a number of computer systems in the banks, marketplaces and clearing organisations. Automation and standardisation of the information flow reduce the number of times each transaction must be processed or checked manually. This contributes both to reducing operational costs and to reducing the length of the settlement cycle and thereby lowering certain risks.

Efficiency gains are important driving forces behind the consolida-

44 London Stock Exchange, 2001. "Revised and Updated Response to European Commission Request for Information on Clearing and Settlement." June 11.

tion process. However, continued integration requires that market practices and the legal framework are also harmonised. A comparison with the corresponding consolidation process in the USA during the 1900s shows that the establishment of a new regulatory framework made an important contribution to development.[45]

Intensive work on harmonisation is currently in progress within the EU. The Financial Services Action Plan (FSAP) has as its ultimate aim to create a completely integrated financial market in the EU by 2005.

The Lamfalussy Group – a group of experts appointed by the ECOFIN Council – provides a number of proposals in its report with regard to enabling a more rapid decision-making process in the securities market through the delegation of decisions and initiatives to authorities at different levels.[46] The aim is that this approach will in future apply to all appropriate areas in the financial sector.

The Lamfalussy Group's report identifies the clearing and settlement infrastructure for cross-border securities transactions as a central area in which further restructuring is needed. The same conclusion is reached by the Giovannini Group, which was appointed by the European Commission and consists of market experts. The group's first report identified a number of different obstacles to more efficient cross-border clearing and settlement.[47] Most of these obstacles arise as a result of differences in technical requirements and market practice. As with the Lamfalussy Group's recommendations, the report proposes a market-led approach to remove these obstacles. In addition to these, differences in national tax legislation and in legal security matters are identified as being more suitable for management through coordinated ventures by the authorities.

The Giovannini Group's second report[48] assesses various alternatives for continued consolidation. It contains a plan as to how, by whom and when the identified obstacles to integration shall be dealt with. The report provides suggestions for the order in which the obstacles shall be removed.

The driving forces behind continued consolidation are thus strong, but there are also forces operating in the opposite direction. National considerations are delaying the process, but it might also be delayed by the fact that financial companies can profit from a fragmented market, particularly in the custody and correspondent bank area.[49] The creation of a consolidated single market for securities trading and payments has therefore begun, but a considerable amount of work still remains to be done.

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45 See, for instance, J. McAndrews, C. Stefanides, "The Consolidation of European Stock Exchanges", Federal Reserve Bank of New York, Current Issues, Volume 8, June 2002.

46 Final Report of the Committee of Wise Men on the Regulation of European Securities Markets, Brussels 15 February 2001.

47 "Cross-border Clearing and Settlement Arrangements in the European Union" – Report by the Giovannini Group, Economic Paper No. 163 (February 2002).

48 The Giovannini Group, Second Report on EU Clearing and Settlement Arrangements, Brussels, April 2003.

49 Custody is the safekeeping and administration of securities and other financial instruments on behalf of others.

EFFECTS AND POLICY IMPLICATIONS OF THE CHANGES IN PROGRESS

The consolidation and automation trends could contribute to creating a more stable financial structure. At the same time, these trends are expected to make both the payments system and the securities markets more efficient. The increased elements of STP settlement reduce both the operational risks and the time taken for processing payments. Better utilisation of economies of scale, combined with fewer systems will reduce the participants' costs.

On the securities markets, the consolidation of clearing systems contributes to this trend. Netting reduces the number of transactions to be settled, which leads to lower settlement costs. The consolidation of systems offering central counterparty clearing also contributes to a simplification of risk management and reduces counterparty risks. The netting effect, combined with increased automation, reduces the risk of settlement failures, that is to say, the risk that a transaction cannot be settled due to the seller not having the security or the buyer the money. Automation also enables a shorter settlement cycle, which reduces the replacement cost risk.[50]

From a policy perspective, this development is mainly positive. Market initiatives which contribute to making payments more efficient are welcome. However, the intensive work now in progress within the EU with the aim of harmonising practice and regulations and of removing the barriers to continued consolidation of the payments and securities markets requires considerable commitment from the central banks. To some extent the central banks are also expected to act as catalysts in the market-led development; this applies in particular to the standardisation work.

This development is not unambiguously positive, however. It can also contribute to increased risks. The consolidation trend means that the functioning of the financial markets becomes dependent on fewer systems. System concentration leads to greater vulnerability from an operational perspective. The more consolidated the infrastructure becomes, the greater is its vulnerability – a disturbance to the system can cause problems for several markets within a large geographical area. If the vulnerability of the financial markets is excessively concentrated to a few systems, the question of being "too big to fail" also arises. Market participants may then increase their risks in the belief that the authorities will always rescue the system from a failure, regardless of the cause. However, the financial infrastructure providers do not take active risks in the same way as the banks do. It is more a question of a risk that they will not invest sufficiently in risk management. Moreover, the infrastructure's dependence on increasingly technologically-advanced systems makes greater demands on oversight to carry out analysis and assessment of the systems' operational risks.

Consolidation and automation give rise to other new issues with

18 Replacement cost risk is the risk that arises if a party in a transaction fails or for some other reason does not meet its obligations before the transaction is settled. In this case the non-failing party may be forced to make a replacement transaction to secure the necessary security or money. If the market value has changed so that the replacement transaction is more expensive than the original transaction, the non-failing party has made a loss.

regard to central bank oversight. For instance, cross-border systems make demands on cooperation between the central banks in the countries affected. This assumes a basic agreement with regard to how the oversight responsibility should be carried out. The development of global standards for assessing the financial infrastructure shows that this type of harmonisation has already begun. However, organisational co-operation forms for essentially joint areas of responsibility still need to be developed.

The Riksbank's assessment of the Swedish infrastructure

The promotion of stability and efficiency in the financial infrastructure and the central bank's role in this endeavour have been given greater focus in recent years. The "Core Principles for Systemically Important Payment Systems"[51] which were developed within the framework of the G10 are intended for use as guidelines for designing efficient and safe payment systems. A summary of these principles can be found in the box. They also establish the central banks' responsibility for oversight to ensure the relevant payment systems observe these standards. The relevant systems are the systemically-important ones. These are said to cover primarily systems for large-value payments, but can also be considered to include other systems, for instance, retail payments systems, if these are used very extensively and there are no alternative systems. The principles have been given a general wording as the aim is that they can be used by many countries, regardless of their degree of development. They should thus be perceived as minimum standards. Given the fact that Sweden is one of the more developed countries, the Riksbank has in some cases chosen to sharpen the requirements above what can be regarded as the specified minimum level.

During 2002 the Riksbank has assessed parts of the Swedish infrastructure according to these principles. The assessments cover the central payments systems, namely RIX, which is the settlement system for large-value payments, and BGC, which is the clearing system for retail payments. The complete assessments can be obtained from the Riksbank's website. The assessments of the clearing and settlement systems for securities transactions will be presented in the next issue of the Financial Stability Report.

With regard to RIX, the Riksbank, like other central banks, plays a number of different roles as operator, overseer and participant in the system. To deal with this potential conflict, the Riksbank has chosen to make a clear organisational distinction between these tasks. The Riksbank's operational responsibility is related to the operation of RIX. The assessment of the RIX system falls within the Riksbank's oversight responsibility for the payment system. Below follows a summary of the assessments of RIX and BGC.

51 Core Principles for Systemically Important Payment Systems, Committee on Payment and Settlement Systems, BIS, January 2001.

Core Principles for Systemically Important Payment Systems

I. The system should have a well-founded legal basis under all relevant jurisdictions.
II. The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
III. The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.
IV. The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
V. A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event on an inability to settle by the participant with the largest single settlement obligation.
VI. Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
VII. The system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.
VIII. The system should provide a means of making payments which is practical for its users and efficient for the economy.
IX. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
X. The system's governance arrangements should be effective, accountable and transparent.

ASSESSMENT OF RIX

RIX is the central settlement system in Sweden, used primarily for the settlement of large-value payments.[52] It is a real-time gross-settlement system (RTGS), which means that final settlement occurs as soon as the transaction is received. The Riksbank owns and operates RIX. The system consists of two parallel but separate systems; one for settlement of payments in Swedish kronor (K-RIX) and one for settlement of payments in euros (E-RIX). E-RIX is part of the joint EU payment system known as TARGET.

As RIX is the central settlement system in Sweden and primarily settles large-value payments, it should be regarded as a systemically important system. The Riksbank has therefore assessed RIX against the Core Principles during spring 2003. The Core Principles have formed the basis for the assessment, but the Riksbank has also tightened some of the requirements.

The Riksbank's assessment is that RIX to a large extent lives up to the Core Principles. The system has a well-founded legal basis and the contracts entered into are complete and compatible with existing legislation. The rules and regulations, which are based on the TARGET Guideline, define the procedures and specify the responsibilities of the operator and participants and are available to all. The entry requirements for the system are fair and open. Pricing has been changed to better reflect the use of the system and to achieve total cost coverage (K-RIX). Settlement in RIX occurs in central bank money. As long as the participants have funds available in their settlement accounts, final settlement takes place as soon as the payment order is received. The system has a high level of security. Its design and procedures reduce financial risks. During 2002 RIX had an accessibility rate of 99.76%,[53] which is comparable with other central settlement systems in the EU. A reserve system can be put into full operation within two hours. Emergency drills are held regularly with participants in the system.

RIX does not completely meet the efficiency criteria (VIII). The system has relatively small volumes and few participants in relation to the cost of operating it. Achieving full cost coverage would require high charges, which would in turn affect participation in the system. It is not possible to attain lower costs through full utilisation of economies of scale with the payment volumes that exist in Sweden. In addition, a large number of the payment orders are implemented during a short period of the day, which requires a high level of liquidity.

There are two further problems that need to be followed up. Firstly, there should be a regular follow-up as to whether the participants meet the entry requirements for the system. Secondly, the disturbances that have occurred repeatedly in connection with production launches need to be resolved. The back-up site also needs to be tested in a live environ-

52 The RIX system provides more services than this, but the assessment refers only to payment settlement.
53 Accessibility is measured as the time the system functions normally in relation to the total opening hours. The measurements are based on the ECB's standardised calculation formulae.

ment. These problems have not led to any failure to meet the Core Principles, but fall below the Riksbank's requirements.

ASSESSMENT OF BANKGIROCENTRALEN

Bankgirocentralen (BGC) is the Swedish clearing system for retail payments, which was started up in 1959 by the Swedish banks. The payments passing through BGC's system are mainly giro payments and transfers, although it can also process direct debits, cheque payments and card payments. The system has undergone many changes over the years. When it first started, all of the transactions were paper-based. Today, however, it only processes electronic transactions. Paper-based giro payments are processed by Privat Giro[54] which functions as a pre-system to BGC. The system is an open one and based on bank giro numbers, which are addresses to bank accounts. Notification and sorting of payment orders are managed centrally. BGC operates under the supervision of Finansinspektionen, within the framework for the Swedish Competition Authority's exercise of authority and under the oversight of the Riksbank.

There is no wide-scale alternative to BGC's system, and it is therefore used extensively. As a result of this central position in clearing and settlement of retail payments, the Riksbank has chosen to assess BGC in accordance with the Core Principles. All of the principles have been taken into account. The assessment of BGC took place in 2002.

The Riksbank considers that BGC to a large extent complies with the requirements of both the Riksbank and the Core Principles. Its operations have a well-founded legal basis and well-defined rules and procedures. The agreement structure, including annexes and instructions, descriptions of the company's governance are clear, transparent and effective. The chosen clearing and settlement routines provide a relatively low risk exposure and enable relatively rapid payment processing. Settlement takes place in all cases on the same day as the system accepts the payment instruction for settlement. There are contingency routines and capacity, which are adequate for the probable risks. The design and organisation of the operations are compatible with the efficiency requirements of both the participants and the economy as a whole. The entry requirements provide for fair and open access to the bank giro system.

In its assessment the Riksbank identified a couple of areas where the assessment principles were not completely fulfilled. Firstly, there was no regular follow-up of participants' fulfilment of the entry criteria. This could mean that the financial risks to which participants are exposed are not fully known or that the participants do not have the proper incentive to continuously manage these risks. The other problem identified is connected with situations where a participant is unable to meet its commitments. Participants in the bank giro system make an individual choice as to how their payments to the failing participant shall be managed. Either the payment is postponed until the next round of settlements, or these

54 Privat Giro is a separate company. Payment information is read by machine, checked and transformed into data files before being sent on to BGC.

payments are unwound, i.e. they will not be implemented. This choice is not known to the other participants, which makes it difficult for them to assess risks. BGC has informed the Riksbank that the identified shortcomings will be remedied.

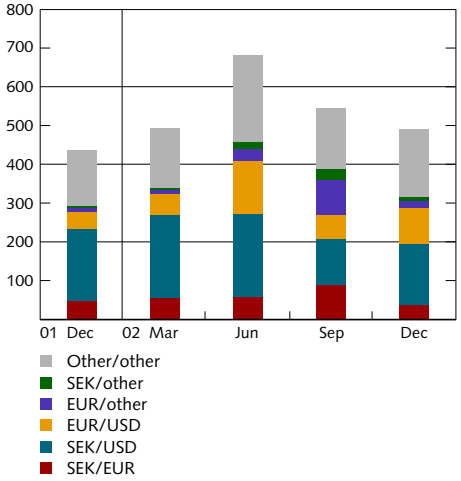
Improved settlement of foreign exchange transactions

The central banks in the G10 have long pointed out the risks that arise when settling foreign exchange transactions.[55] The reason for this is that the two parts of a foreign exchange transaction have traditionally been settled separately by using correspondent banks in the respective countries. This leads to a time gap arising, which causes large exposures between the banks. In response to the central banks' criticism, Continuous Linked Settlement (CLS) started up in September 2002. CLS enables foreign exchange transactions to be settled on a payment-versus-payment basis, with both legs of the transaction being settled simultaneously. This eliminates the credit risks that previously arose in settlement of foreign exchange transactions.

The system is operated by CLS Bank (CLSB), which is an American bank under the supervision of the Federal Reserve Bank of New York. At present, 52 of CLS Bank's 66 shareholders use the system. Turnover in January 2003 amounted to around USD 600 billion a day. CLS manages almost 20 per cent of the global foreign exchange trade; its objective is to manage 85 per cent.

Two Swedish banks have already begun to use CLS for the currencies included in the system; euros, US dollars, Canadian dollars, British pounds, Swiss francs, Japanese yen and Australian dollars. During the second half of 2003, four new currencies will be added; Swedish, Norwegian and Danish kronor and Singapore dollars. Preparations are currently under way to include the Swedish krona in CLS in cooperation with the Riksbank and the banks involved. The details regarding handling of the new currencies are not yet clear. All of the major Swedish banks will use CLS in some form, which will probably lead to reduced risks in connection with the settlement of foreign exchange transactions. The Swedish banks' exposures as a result of risks in foreign exchange settlement are one of the most comprehensive remaining risks in the financial system.[56] The distribution of exposure to different currency pairs (see Figure 4:1) shows that the Swedish banks will attain considerable risk reduction with CLS, particularly when the Swedish krona is accepted. This is because the overwhelming majority of the banks' exposures is in currencies that are already, or soon will be, included in CLS. This development is thus positive for the stability of the Swedish financial system.

Figure 4:1. Foreign exchange settlement exposures, broken down by currency pairs. SEK billion



Source: The Riksbank.

55 See "Settlement Risk in Foreign Exchange Transactions", BIS, 1996 and "Reducing Foreign Exchange Settlement Risk – A Progress report", BIS, 1998. See also Financial Stabillity Report 2001:2.

56 See also the chapter on the banks in this report for quantitative data on the Swedish banks' exposures.

PART 2. ARTICLES

Can a bank failure threaten the payment system?

Many participants in the financial markets probably expect that the central government will prevent a major Swedish bank defaulting. This expectation is based on the banks playing such a central role in the payment system that there is a risk the system would cease functioning if a default occurred. This article discusses to what extent the payment system would actually cope with a default. The conclusion is that under certain circumstances it would be possible for a major bank to fail without fundamentally threatening the functioning of the payment system.

The functions of the payment system comprise the essence of what the Riksbank means by financial stability and the Riksbank's explicit objective is to promote the system's safety and efficiency. The banks are the central participants in the payment system and the failure of one bank could, under certain circumstances, cause the system to cease functioning, which would have very negative effects on the economy as a whole. The banks are also central to other functions performed by the financial system, such as capital supply and risk management. The importance to society of the functions performed by the banks, particularly in the payment system, combined with the special systemic risks in the banking system, create a need for society to apply special regulations and supervision to the banks. This is also why the Riksbank is entitled to provide emergency liquidity assistance to banks suffering problems and why the Riksdag may feel obliged to support banks financially, as was the case during the bank crisis in the early 1990s. The significance of the banking system and the previous government actions, combined with the fact that the Swedish banking system is very concentrated to the four major banks, has probably contributed to a broad impression in society that these banks cannot be allowed to fail, at least not in an uncontrolled manner. In other words, there is an expectation that the central government will in some way support these banks if they risk defaulting.

This assumption of the major banks' systemic importance has never been investigated in detail, but is based on their evident size in relation to the payment system. The assumption risks leading to the banks and their financiers counting on the central government feeling obliged to intervene in some way to save the banks if they face financial problems. This in turn can lead to a higher level of risk-taking and to incorrect pricing of the risks in the banking system (known as moral hazard), a cost that society would ultimately have to bear.[57]

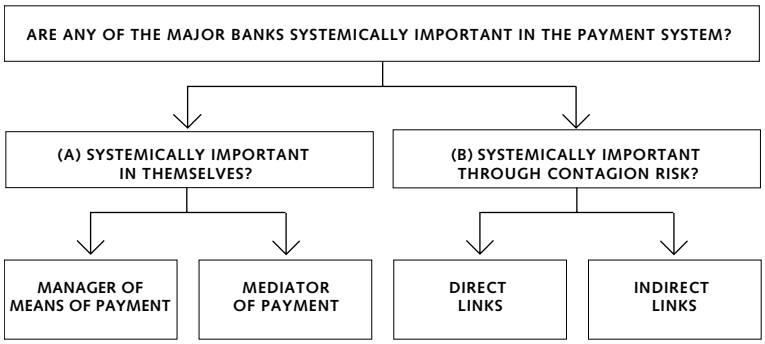
This article asks the question of whether, and if so, how, the major Swedish banks are individually of systemic importance to the payment system, as well as discussing how the Riksbank and other authorities can work to reduce their possible systemic importance.

For a bank to be systemically important to the functioning of the payment system, either (A) the bank itself must be necessary for the

57 This conclusion was reached by the Banking Law Committee in the report that forms a basis for the bill regarding new banking legislation currently being drafted by the Ministry of Finance, "Regulation and supervision of banks and credit market companies" (SOU 1998:160).

functioning of the payment system or (B) problems within this bank must be able to spread to the other banks and thereby risk putting the payment system out of function. This article analyses these two conditions for systemic importance in the Swedish payment system.

METHOD OF ANALYSIS



An important restriction in this analysis is that it is initially only one bank that is affected by problems, not the banking sector as a whole. Examples of this type of situation are the falls of Baring Brothers in 1995 and Bankhaus Herstatt in 1974. These banks failed due to losses caused internally; not to events affecting many banks at the same time. In the Herstatt case the problems spread to other banks through their exposures to Herstatt. The Swedish banks have to a large degree similar exposures and operations. This leads to the banks facing difficulties at the same time, which was the case in the bank crisis in Sweden at the beginning of the 1990s. Such situations are only indirectly covered by this analysis.

Another restriction in the analysis is that it is only the banks' systemic importance in the payment system that has been studied. In addition to being central participants in the payment system, the banks also comprise the core of the capital supply, that is to say, the banks contribute by financing companies' and households' investments and may be worth protecting for this reason as well. This requires closer study, but it is very doubtful that the banks would be systemically important from a capital supply point of view if one bank suffered problems initially. The reason is that capital supply is not as dependent on timeliness as the mediation of payments. Firstly, it is only the failing bank's new lending that would cease, as the outstanding loan stock would not immediately be called in if the bank failed. Secondly, other banks have some capacity to increase their credit granting even at short notice. In the long term, the other banks also have the opportunity to increase their capital for granting further credit. There are also other sources of capital than the banks. A well-developed bond and certificate market reduces the vulnerability of the economy to credit supply effects from a bank failure. The capital supply is thus less dependent on the banks than the mediation of payments, which further reduces vulnerability. The risk of a general credit crunch in the economy is thus lower when one bank initially faces problems than when the entire banking system simultaneously suffers unmanageably large loan losses.

Important participants in the payment system

In principle, the banks fulfil two functions in the payment system; they intermediate payments between various economic agents and they manage the means of payment on behalf of customers for future payment transactions. It is possible that a bank has systemic importance through its own significance in the payment system, even if it would not bring down other banks if it fell. When one bank fails, the bank's customers will not have access to the means of payment in their accounts with the bank and will thus be unable to use them for transactions. In addition, these customers will be unable – or unwilling – to receive payments into their accounts with the bank. If they cannot receive or make payments in some other way, they will be excluded from the economy. If this applies to many participants and to large sums of money, it can have considerable financial consequences for society.

An individual bank can thus be systemically important if it either manages considerable sums of means of payment or if it mediates a large share of the payments within the economy and is difficult to replace.

IS ANY INDIVIDUAL BANK SYSTEMICALLY IMPORTANT AS MANAGER OF MEANS OF PAYMENT?

Means of payment are funds intended for payments within the relatively near future and which have therefore been invested in such a way that they are available at a low cost and at short notice. The common means of payment for households and companies are banknotes and coins, assets in various forms of transaction accounts, credit through credit cards and charge cards and overdraft facilities.

Assets in savings accounts with withdrawal charges and securities that can normally be converted to cash at a low cost and with a relatively predictable value, can be regarded as means of payment reserves to be utilised for larger transactions. These reserves can possibly be also used in cases where the ordinary means of payment are inaccessible. In this article these assets are referred to as potential means of payment.

When a bank fails, it usually cancels all of its payments. Means of payment on account are then usually frozen until final settlement of the liabilities and assets. Deposits of up to SEK 250,000 per customer are protected by the Deposit Guarantee Board (IGN). Bank customers risk losing funds above this amount. IGN is unable to pay out any compensation until the bank has been declared bankrupt. However, bankruptcy would probably occur shortly after the payment default. If the bank opposes a bankruptcy declaration, for instance, by claiming that it is solvent and merely lacks liquidity, the bankruptcy proceedings could in theory become prolonged. A bank would be unable to oppose a bankruptcy for many days, as its capacity to retain customers and implement transactions would cease as soon as it began to default on payments. IGN is obliged to pay compensation no later than three months after bankruptcy is declared, but the aim is to pay within a few days.

Securities in custody with the bank will also initially be covered by the freeze. The owners of these securities do not risk losing their holdings, but may not have access to them for a period while their ownership is established. Customers who have the bank as their depository agent with VPC and customers of securities companies that have used the bank as settlement agent will not have access to their assets in securities accounts either. Access will not be possible until they receive a new depository agent or, in the latter case, their securities company has arranged a new settlement agent or they themselves change bank.

The Swedish general public, i.e. households and non-financial companies, had SEK 604 billion in actual means of payment deposited with the four major Swedish banks on 31 December 2002, which is shown in Table A. Overdraft facilities are included in the definition of means of payment. The major banks' percentage of the general public's actual means of payment on account with Swedish banks and securities companies is almost 80 per cent.[58]

Table A: Liability items for the four major banks (SEK billion, Q2, 2002)

	Four major	Other	Total
Deposits and lending	1 760	393	2 153
Counterparties in Sweden	947	260	1207
Swedish MFIs	236	45	281
Non-financial companies	329	74	403
Transaction accounts[a]	264	34	298
Households, etc.	382	142	524
Transaction accounts[a]	133	72	205
Unutilised overdraft facilities[b]	207	57[c]	264
Actual means of payment[d]	**604**	163	767
Percentage of the sector's actual means of payment	79%	21%	100%
Guaranteed by IGN	**336**	**55**[e]	**391**

a) Incl. overnight loans.
b) Figures for the entire group, however in Nordea's case the group figure is divided by 4. The figures also include financial and public sectors.
c) Estimate, same proportion as other deposits and lending.
d) Means of payment = non-financial companies' transaction accounts + other households' transaction accounts + unutilised overdraft facilities. These are the most liquid forms of account, which are probably intended for making payments in the near future. Other accounts may also be covered by IGN.
e) 31 December 2001.
Sources: The Riksbank, IGN and annual reports.

The SEK 604 billion corresponds to just over 6 per cent (604/(3299+6104+264)) of the general public's total financial assets, or around 21 per cent (604/(1836+985)) of their means of payment (actual and potential), which is shown in Table B.

Handelsbanken (SHB) is the bank which reports its deposits and borrowing in most detail in its reports. The analysis below therefore uses figures from SHB. The Riksbank has made a corresponding analysis for all

58 Financial institutions' means of payment deposited with one another will be analysed under a later heading, together with interbank exposures, as a contagion risk.

Table B: Households' and non-financial companies' financial assets (SEK billion, Q4, 2002)

HOUSEHOLDS			NON-FINANCIAL COMPANIES		
Financial assets	**3 299**	**100%**	**Financial assets**	**6 104**	**100%**
Banknotes, coins, deposits	631	19%	Banknotes, coins, deposits	419	7%
Banknotes and coins	*77*	*2%*	Certificates	159	2%
Bank deposits	*537*	*16%*	Loans, bonds, subordinated debentures	143	2%
Loans, bonds, subordinated debentures	111	3%	Financial derivatives	48	1%
Financial companies	*39*	*1%*	Group loans	1 354	22%
Shares, stocks, mutual funds	1 095	33%	Unlisted Swedish shares	1 273	23%
Insurance policy savings	1 444	44%	Other shares and mutual funds	1 287	22%
Other	19	1%	Other	1 421	20%
			Unutilised overdraft facilities [b]	**264**	**–**
Actual and potential means of payment [a]	**1 836**		**Actual and potential means of payment** [c]	**985**	

a) All items excl. insurance savings and other.
b) Estimates, 31 December 2002, including financial and public sectors' unutilised overdraft facilities.
c) Banknotes, coins, deposits, certificates, loans, bonds and subordinated debentures, unutilised overdraft facilities.
Sources: Statistics Sweden's Financial Accounts Q4, 2002, the banks' annual reports.

of the banks, using confidential data. All four banks have a similar size in their deposits and borrowing from the general public and the conclusion of the analysis, based on SHB's official data, can also be applied to the other banks. SHB manages SEK 220 billion in actual means of payment[59] corresponding to approximately 8 per cent (220/(1836+985)) of the general public's means of payment. Taking into account the fact that there are also potential means of payment in accounts at SHB amounting to a value of approximately SEK 74 billion, around 10 per cent ((220+74)/(1836+985)) of the general public's means of payment risks being locked in if SHB should fail.

The means of payment that risk being lost, which can be regarded as being permanently locked in, are those not covered by the deposit guarantee. At the year-end 2002, IGN guaranteed SEK 75 billion of the total of SEK 220 billion actual means of payment (Q2, 2002) in SHB. The non-guaranteed actual means of payment thus amounted to at least SEK 145 billion at the year-end 2002.[60] This corresponds to approximately 5 per cent (145/(1836+985)) of the general public's means of payment. If account is also taken of potential means of payment in accounts at SHB, the total percentage of non-guaranteed means of payment is approximately 8 per cent.

The potential means of payment that to some extent depend on the functioning of the banks for conversion to actual means of payment, but are not owned by the banks, should be added to the lock-in effect. These include the mutual funds managed by the banks, securities in custody with banks or in securities accounts for which the bank is depository agent, as well as securities accounts with the companies for which the bank acts as settlement agent. Large totals of this form of asset risk being locked in if any of the major banks should fail.[61] However, they do

59 Means of payment here refers to: deposits in Swedish kronor from the general public, payable on demand (assumed to be the same proportion as deposits in total) plus unutilised parts of overdraft facilities.
60 Other accounts than current accounts are covered by the deposit guarantee, as are deposits from financial companies.

not risk being lost, although it can take some time before they are available to be converted to actual means of payment. Bearing in mind that it can be a question of hundreds of thousands of customers who need to change their depository agent, there is a risk that it will take some time to implement such a change. In addition, VPC lacks routines for managing changes of depository agent in connection with a bank failure. Presumably the largest customers will be able to find a new depository agent relatively quickly and easily. The number of customers who will need a new settlement agent (i.e. certain securities companies) is limited, which indicates that they should immediately gain access to a new one. The securities not held in custodies with the failed institution could presumably be used within the course of a day or so with regard to the largest customers and a few days with regard to smaller customers. The time before the general public, particularly large and medium-sized companies, once again gains access to custodies is critical in this context. If it turns out that it is a question of a few weeks, rather than a day or two, there is a greater risk of serious disruptions to the economy. Finally, it should be mentioned that converting these assets into means of payment usually requires an account with a bank that has not failed, as discussed below.

Thanks to the fact that companies and households often have the opportunity to postpone their payments, the lock-in effects may be mitigated. As a rule, both companies and households can wait a few weeks to pay their bills and invoices without major financial consequences. Otherwise, those affected and society as a whole tend to show a certain amount of pragmatism in such situations, as demonstrated during the bank strike in 1990. Companies that are not affected by the problem should be able to pay small advances on wages to employees affected (i.e. those with a different bank from the company) and creditors should show some understanding for some delay in payments. Many people would have the possibility of borrowing small amounts from family and friends to manage necessary expenditures. In addition, many would have the opportunity to implement minor transactions by credit cards issued by other companies than the failed bank. Other banks would probably make an effort to attract as many of the failed bank's customers as possible. All in all, most of those affected should have the opportunity to obtain a respite to convert less liquid assets into means of payment or to await compensation from the Deposit Guarantee Board. Certain people and small companies, particularly those with only one bank or those dependent on overdraft facilities, would risk being hard hit and experience considerable problems themselves, although the consequences to society as a whole should not be so great.

The conclusion is that the lock-in effect from one of the four major banks defaulting would probably not in itself be on a scale to threaten the payment system. Given that these four banks entirely dominate the

61 A survey of the banks' annual reports over the past years leads to the conclusion that the amounts in custodies with the major banks owned by the Swedish general public amount to an estimated SEK 400 billion to SEK 1,000 billion per bank. The number of custodies is 100,000 and upwards per bank. What is important is not the exact sums or figures, but the conclusion that large amounts of money are involved and a large number of customers.

deposit market, one can also conclude that no other financial institution can be systemically important for this function. However, the central government should consider how this lock-in period could be reduced. Does IGN have the administrative capacity to pay out compensation within a reasonable time to a large number of depositors? Can VPC manage to meet a situation where many securities accounts lack depository agents and securities companies lack settlement agents? How do the banks manage custody accounts and customers' mutual funds in connection with a default?

IS ANY INDIVIDUAL BANK SYSTEMICALLY IMPORTANT AS INTERMEDIATOR OF PAYMENTS?

In addition to being managers of means of payment, the banks are also intermediators of payments. Customers have the opportunity to send and receive payments via their bank accounts. Without an institution to intermediate payments, for instance, in the case of all banks failing, the economy would be forced to rely on cash transactions, which would entail serious efficiency losses and thereby higher costs.

If a bank defaults, its customers become cut off from the payment system for a short or long period until they can arrange for another bank to intermediate their payments. Apart from the evident problems that arise for the customers who cannot implement account-based payments, customers whose means of payment become locked in may also have problems converting assets such as shares and mutual funds into means of payment if they lack an account to receive the liquidity.

The cost to society of a number of companies and households lacking an intermediator of payments would depend on how many were affected and how long it took them to replace their intermediator.

To obtain a picture of how dominant the major banks are as intermediators of payments for the general public, one can look at their percentage of the payment flows through Bankgirocentralen (BGC). The four major banks together have over 90 per cent of these payment flows and are thus entirely dominant as intermediators of payments between accounts. Each of the major banks accounts for between one-sixth and one-third of these flows. The banks' respective percentage of the transaction accounts can also be estimated with the aid of the banks' share of the bank card market. As shown in Table C, the four major banks together had 97 per cent of the number of outstanding bank cards in 2000 and 98 per cent of the transaction value. Looking at the number of bank cards, one of the banks has a much larger percentage of those outstand-

Table C: Bank cards per bank (year 2000)

	Bank card per bank			
	Number of cards (thousand)	share	Transaction value (SEK billion)	share
Four major banks	4 449	97%	140	98%
Others	121	3%	3	2%
Total	4 570	100%	143	10%

Source: The Riksbank.

ing than the other banks, while the banks are slightly more equal with regard to the size of the transaction value. Judging by these figures, one of the banks dominates the market for transaction accounts for households (although company cards are also included in the statistics, most companies probably use some form of charge card or credit card rather than a bank card if they make card payments).

The major banks are also involved in mediation of payments in other ways than transfers from their accounts. The most important is probably BGC, which is owned jointly by the banks. According to the Riksbank's assessments, BGC's system is constructed to administratively manage the failure of a large participant.

Probably the most important part of the infrastructure for payments that is an associated company to the major banks and thus at risk of being brought down if the parent company should fail, is Babs. Babs is 49 per cent owned by Föreningssparbanken and manages the authorisation, transport and exchange of just over 50 per cent of all card transactions. As there are alternative systems and substitutes to card payments, the possible failure of Babs would not comprise a threat to the payment system.

Most of the large and medium-sized companies probably have contacts with several banks, which means that those who do not already have transaction accounts with more than one bank could immediately arrange this. Nor would changing the intermediator of payments take too long for the other customers. However, the large number that would be trying to change bank at the same time could give rise to some delays. What could further complicate a change is that companies are to varying degrees locked in to the failing bank, for instance, through administrative routines, established account numbers and overdraft facilities. Although, it is possible to keep a bank giro number when changing bank.

The fact that a large part of all households would for some days lack the opportunity to make and receive payments to and from their own accounts need not constitute a serious threat to the economy, despite the fact that the payment system could not in this situation be said to function satisfactorily. Although many households would then be cut off from their own accounts, they would not be completely cut off from the payment system. They would still have the possibility to receive payment notifications which could be cashed at bank branches and would have the opportunity to make payments in the same way. This is, of course, very impractical and not appropriate with regard to large sums. As concluded for the lock-in effect, however, it is often possible for the general public to postpone certain payments for some time while they arrange an account with another bank.

The conclusion is that none of the four major banks can be regarded as systemically important in its role as intermediator of payments. As the mediation of payments in Sweden is entirely dominated by these four banks; no other financial institution, with the exception of the clearing and settlement organisations, can be considered systemically important to the mediation of payments.

Contagion risks

As there are direct and indirect connections between banks in a system, the failure of an individual bank risks leading to other banks experiencing difficulties and, in a worst case scenario, also failing. In a situation where several banks fail, the functioning of the payment system may be seriously damaged, even if they are not individually systemically important.

Direct links between banks participating in the same systems arise through the mediation of payments. If one of the banks is unable to implement its transactions in the payment system due to financial problems, other payment-mediating banks could suffer acute liquidity problems. Direct links between the banks can also arise as a result of other activities. These include pure credit risks, counterparty exposures in derivative contracts and settlement exposures in connection with foreign exchange and securities trading.

The indirect connections appear to work through three mechanisms. Firstly, outside financiers know that direct links may exist between the banks. Secondly, the financiers interpret problems in one bank as a sign of problems in other banks too, as the banks have similar business operations. As a result of these two perceptions, other banks than that originally affected may suffer confidence problems, which can in turn lead to financing difficulties and liquidity problems. Thirdly, other banks risk being affected in a second stage as a result of liquidity and credit problems when customers' means of payment are locked in at a defaulting bank or when economic agents do not receive payment according to plan due to disturbances in the payment system.

DIRECT CONTAGION RISKS

Imbalances in the payment system, exposures directly attributable to the banks' role as intermediator of payments

The hub of the Swedish payment system is the RIX system operated by the Riksbank. The participants in the RIX system are, in addition to the Riksbank, the major banks, the Swedish National Debt Office and a handful of other companies. The system is used for large-value payments between participants. Settlement in this system is based on the principle of real-time gross settlement, which means that payments are settled immediately, one by one, on condition that the sending bank has sufficient liquidity in its account with the Riksbank. These accounts are debited and credited as the payment orders flow in to RIX. In the case of a deficit arising on an account during the day, it is covered by the banks borrowing intraday from the Riksbank. These loans are interest-free, but must be covered by securities pledged to the Riksbank. When the bank covers its liquidity deficit by borrowing from the Riksbank, no credit or liquidity risk arises among other banks. The banks can also borrow from one another intraday, even if this does not occur in principle between Swedish banks. In these cases the credit-granting bank naturally bears the credit risk.

The banks implement payments in RIX both on their own account and on behalf of customers. A rough estimate shows that around half of the, on average, approximately SEK 450 billion a day that passes through RIX comprises payments on behalf of customers. Payments on the banks' own account are dealt with under the next heading.

It is when the bank makes payments on behalf of customers that it is actively playing the role of payment intermediator. Gross transfers in RIX are in many cases amounts that have been netted in other underlying clearing systems, such as BGC, VPC and Stockholmsbörsen. Approximately 6 per cent of the flow through RIX is comprised of these payments.

In those cases where the bank acts as intermediator of payments for customers, no credit risk arises for the bank. When the bank is to receive money on behalf of a customer, it is the customer who bears the credit risk and not the bank. The direct liquidity risk also lies mainly with the customer, as the customer's account is not credited the amount until the bank has received it from the sender's bank. However, the bank can utilise the inflow of liquidity to make its own payments, as the customers do not usually use them directly. The inflows from the defaulting bank would therefore be included in the recipient bank's calculations of liquidity requirement and when these fail to arrive, there is a risk of a liquidity deficit arising. As it is difficult for the banks to know how the payment flows will look, their liquidity planning contains a significant safety margin, although of course this may not necessarily be adapted to include the failure of a major bank. As the participants in RIX together intermediate approximately SEK 225 billion a day on behalf of customers and the major banks account for the major part of this, the lack of flows from one bank could nevertheless be difficult for the other banks to manage. Purely theoretically, the flows between the major banks should cancel out one another – one bank's outflows must correspond to inflows sooner or later – but the flows differ in size from day to day and it is possible that the outflows go via one bank and the inflows via another.

One factor contributing to reducing the effects of inflows that fail to appear is that the recipient bank would respond to the failure of the sender bank by stopping the transfer of payments to that bank. In addition, a number of customers in the recipient bank would not have the necessary coverage in their accounts to make payments, as a result of not receiving any transfers. The customer payments that will not be implemented were also included in the recipient bank's liquidity calculations as an outflow, which thus further reduces the effect of the inflow that failed to arrive.

All in all, there appears to be a need to gain greater knowledge of the payment flows in RIX to be able to draw any clear conclusions regarding if, when and how often payment mediation risks causing liquidity imbalances in the event of a bank defaulting. The most important question needing to be answered is how large are the imbalances that risk arising between the various participants on one and the same day? However, a general conclusion is that the problems could be very widespread, depending on the size of the net flows on the day the default

occurs. If and when problems materialise, they will be expressed in the form of liquidity deficits and not as direct solvency problems.

Counterparty and settlement exposures, exposures not directly attributable to the role of the banks as payment intermediators

Another direct link between the banks is the counterparty and settlement exposures that are not directly attributable to the banks' role as intermediators of payments. Since June 1999, the Riksbank has collected quarterly information from the four major banks on counterparty and settlement exposures. This covers derivative exposures, holdings of securities issued by private issuers, deposits and settlement exposures in foreign exchange trading, i.e. the exposures that lack collateral.[62]

The statistics show that the risks of direct contagion effects vary, depending on where the problems have originated. There is a risk of contagion between the four major banks in the form of solvency problems, although this risk must be regarded as relatively slight. It is only in a few of the reported exposures that a default by one bank would lead to losses that reduced the exposed bank's Tier 1 capital ratio to below four per cent, if the final loan loss was assumed to be 75 per cent of the exposure. No observation leads to negative capital, not even if recovery is assumed to be zero per cent. Direct exposures to other Swedish financial institutions are much lower than the exposures between the major banks. Failure of one of the other financial institutions is therefore unlikely to lead to solvency problems among the major banks. However, it should be observed that the statistics to which the Riksbank has access are from the end of the quarter. Exposures between the quarter ends are probably greater.

The Riksbank has also made an attempt to study the liquidity effect by studying how the counterparty exposure between banks related to the banks' liquidity scope in RIX on 30 September 2001. The assumption was that if a bank loses its counterparty and settlement exposures to one of the other banks, it will at least be able to utilise the unutilised capacity for borrowing it has remaining in RIX. This resulted in twelve exposures (each respective bank's exposures to each of the other banks). Four of these exposures would have led to losses exceeding the bank's remaining liquidity scope in RIX. One of these exposures was of a size that would probably have entailed substantial liquidity problems for the bank affected. In practice, the banks have the opportunity to create further liquidity than is offered at a particular point in time in RIX. If the banks, for instance, have securities that are not pledged to the Riksbank, they can quickly register them as pledges with the Riksbank. In addition, they usually have back-up facilities for liquidity with other banks. However, the accessibility of these in a crisis situation is uncertain. There is also a possibility that indirect contagion risks will also materialise (see below), which puts further pressure on a bank's liquidity.

62 These statistics are analysed and presented regularly in the Riksbank's "Financial Stability Report". See also Blåvarg & Nimander, Sveriges Riksbank Economic Review, 2002:2.

In the near future, a significant part of the foreign exchange exposures, which are often the largest exposures between the banks, will decline considerably when the Swedish banks join the payment-versus-payment settlement in CLS bank.[63]

VPC (Newclear) and Stockholmsbörsen

The banks also have direct exposures to one another via clearing in VPC (the analysis below is of VPC's new system, Newclear, which is planned to come into operation in November 2003).

VPC manages the transfer of securities from the seller's account to the buyer's account in connection with securities transactions, while the financial settlement is through the RIX system. Payment and delivery are made in accordance with the DvP (delivery-versus-payment) principle, on a gross settlement basis on the settlement day. The DvP system reduces credit risk between the participants. The only remaining credit risk is the replacement cost risk. If one of the four major banks fails, the credit risk through securities trading would be limited.

Newclear enables VPC to check on the settlement date that the seller has the securities sold in its account and that the buyer has the necessary liquidity. VPC then locks these positions pending settlement. This means that there is no risk of unwinding after the transaction has been marked as complete. If one of the banks should default, these transactions that have been marked as complete would be implemented, while other transactions would be eliminated.

Elimination of transactions risks giving rise to liquidity problems in the event of a failure. The other banks and their customers who have sold securities to the defaulting bank, to one of its customers or to the customers' customers[64] will not receive the inflow of liquidity they had expected. These may in turn face problems in making the payments where they intended to use this liquidity. An imbalance in liquidity risks spreading through the economy, i.e. certain participants will have more liquidity than they wish to have, others will have less. On individual days the net exposures between the banks can amount to more than ten billion kronor. Eliminating this liquidity risk would require a system where trading, clearing and settlement took place simultaneously.

However, there are at least two factors that mitigate liquidity problems considerably. Most of the turnover at VPC comprises securities that the banks can pledge with the Riksbank. The banks can thus convert the securities that were not sold into means of payment. This only applies to participants in RIX. However, other large players should have an opportunity to use repos to obtain liquidity through these securities. The other factor is that transactions where the defaulting bank was seller will also be eliminated. These incomplete transactions to some extent cancel out those where the bank was buyer. In a situation where a bank is facing

63 For further information on CLS bank, see the Financial Stability Report 2001:2.

64 The banks are depository agents, which means that they make registrations in the VPC system on behalf of others and they also act as settlement agents for securities companies. If a default occurs, it is not certain that the bank would be able to continue this work, which would prevent its customers from making transactions until they had arranged for a new depository agent and new settlement agent. This could lead to disruptions in the market.

failure, it is probable that it will make net sales of securities in an attempt to create liquidity, i.e. other market participants will supply the bank with liquidity and they could find themselves with a surplus of liquidity.

The assessment is that the banks only bear limited direct credit and liquidity risks if one of the other banks fails. On the other hand, securities trading risks giving rise to indirect effects, i.e. other market participants than the banks will suffer liquidity problems and this will in the second stage affect the banks. It is very probable that there will be a momentary effect on the functioning of securities trading.

Stockholmsbörsen is responsible for clearing standardised derivative contracts. After clearing, any exchanges of securities take place in the VPC system while final financial settlement is made through the RIX system. Stockholmsbörsen is a central counterparty (CCP), which means that it guarantees the implementation of the transactions.[65] The assessments made by the Riksbank indicate that Stockholmsbörsen would be able to manage the failure of one of the major banks.

Conclusion regarding direct contagion risks

As solvency problems, direct contagion risks are limited, but not negligible. Liquidity risk is less clear and probably varies from day to day, as a result of the constant changes in payment flows and counterparty and settlement exposures. However, some days the liquidity risk is probably of such magnitude that it could be difficult for individual banks to manage if it should materialise. In cases where liquidity problems arise, the Riksbank has the opportunity to reduce the problems in the banks affected by another bank's failure by granting emergency liquidity assistance to these alone. Contagion of solvency and liquidity problems from other financial institutions than the four major banks is unlikely.

INDIRECT CONTAGION RISKS

The three mechanisms behind the indirect contagion risks; that financiers know direct exposures exist, that financiers see problems in one bank as a sign of possible problems in other banks because of similar exposures and that the economy is exposed to a liquidity and loan loss shock, are largely a consequence of the other systemic risks.

It was demonstrated above that there can sometimes be direct links between the banks which result in threats to other banks' solvency or liquidity in the event of an individual bank defaulting. This means that financiers, unless they have information to the contrary, will probably act as though these direct contagion risks threaten the other banks. This will make it difficult for the remaining banks to take in new financing and liquidity and there is a risk of an outflow of liquidity. As the direct contagion risks from other financial institutions than the four major banks are limited, the default of one of these would not need to cause an indirect spread if the external financiers knew of this situation.

65 For more information on risk reduction via central counterparty clearing, see the Financial Stability Report 2002:2.

Financiers have little knowledge of the banks' counterparties. If the problems in the defaulting bank are triggered by loan losses, financiers may very well suspect that one or more of the other banks has similar exposures. Therefore, even if they believe that the bank will be able to manage the direct losses from the defaulting bank, there is also a risk that this bank is exposed to the same risks as the first bank.

In this situation, the external financiers' perception of the reason why the first bank failed is an important factor in determining how strong the contagion effect will be. If they perceive that the bank has failed as a result of events specific to that bank, there is little risk that contagion will occur because they suspect the other banks have similar problems. On the other hand, if the failure is due to extensive loan losses, for instance the default of one or more counterparties to the bank, in a particularly problematic industry towards which other banks are also exposed, the situation is more critical. There is then a risk that the combination of the failure of bank and counterparty will bring down other banks. The financiers' concern is then well-founded. In this situation it is largely a question of a correlation between the banks that is reinforced by the contagion effects. As the banks in this case have been affected by the same problem at the same time, it is a situation that falls outside the restrictions for this analysis, as discussed at the beginning of the article.

Liquidity and credit problems can spread through the economy to a large number of households and companies which will not receive the payments they have counted on. These can in turn experience problems in meeting their obligations. Even the banks risk being affected somewhere in this chain as their borrowers may experience problems in paying interest and loan instalments or in meeting other obligations. In addition, companies may utilise credit lines with the remaining banks to meet any liquidity problems they might be experiencing.

However, we have seen that both the lock-in effect and the payment mediation effect appear to be relatively limited and should not provide any major indirect effects threatening to result in systemically-damaging loan losses or liquidity shocks. The indirect effects instead risk arising through securities trading. As discussed in the section on direct contagion risks, the banks will probably be able to manage the direct contagion risks to a great extent through securities trading. Those customers who do not have the opportunity to pledge unsold securities with the Riksbank may find the liquidity problem more difficult to manage. It is difficult to say how much of these disruptions can be absorbed by the companies and households affected and how much will spill over to the banks, for instance, in the form of an increased demand for liquidity and delayed payments, without making a more in-depth analysis.

All in all, the indirect contagion risks constitute a clear danger to system stability, particularly when there is uncertainty over the background to the initial failure and the direct exposures between the banks. It is therefore important, in order to reduce this risk, to clearly communicate the cause of the failure. In addition, the indirect contagion is mainly expressed in the form of liquidity problems, which gives the Riksbank good possibilities both to reduce the risk of these and to mitigate them

when they arise, through its ability to provide emergency liquidity assistance to the remaining banks.

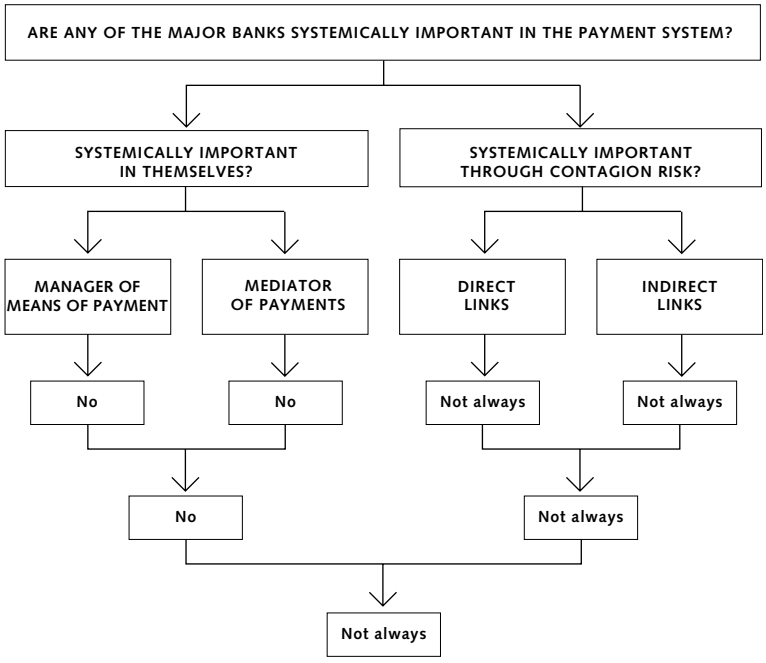
Conclusions

There are two conditions for an individual bank to be regarded as systemically important from a payment system perspective: (A) the individual bank is necessary for the functioning of the payment system. (B) There are direct or indirect contagion risks from the bank to other banks of such a scope that its failure risks causing other banks to fail. Most indications are that no Swedish bank is systemically important according to the first criterion, as the lock-in effect is relatively limited and as it is probably possible for most of the bank's customers to fill the gap in payment intermediation left by a defaulting bank without too much delay. On the other hand, there is greater uncertainty as to whether any of the banks is systemically important according to the other criterion. The Riksbank's statistics indicate that the contagion risk between the banks is at times manageable, but that in certain situations there may be direct exposures that could result in contagion. These take the form of counterparty and settlement exposures, as well as liquidity exposures from the mediation of payments. The indirect contagion risk can also be considerable in cases where the cause of a bank failure is uncertain or there is uncertainty as to whether other banks have direct exposures to this bank or exposures similar to the bank's.

All in all, three conclusions can be drawn from this analysis:

1. None of the four major banks is systemically important in itself from a payment system perspective, that is to say, if contagion risks are not taken into account.

SUMMARY OF ANALYSIS



2. The contagion risk is not always so great that the failure of a major bank would result in one of the others failing.
3. Thus, none of the four major banks is always systemically important from a payment system perspective.

The analysis also implies that it is unlikely that any other financial institutions than the four major banks would be systemically important. However, it is important to remember that the above analysis has only analysed a situation where *one* major bank was initially affected by problems. As the banks have similar exposures and operations, they risk in some cases being affected by problems at the same time. Together the four major banks are systemically important, which motivates supervision and regulation, even if they are not systemically important individually.

THE ROLES OF THE RIKSDAG AND THE RIKSBANK

It is the banks' importance for the functioning of the payment system that is the main reason for the special regulation and supervision of the banks,[66] and the reason why the Riksbank has the possibility of providing emergency liquidity assistance and why the Riksdag has in certain cases decided to provide solvency support. This means that the direct and indirect costs of saving a bank suffering problems for the purpose of preserving the payment system are usually perceived as lower than the cost to society of the payment system being put out of function. In line with this reasoning, banks that are systemically important to the payment system and are at the same time solvent, could be given emergency liquidity assistance by the Riksbank, if no other solutions to save the payment system were on offer. If they were not solvent, there might also be a possibility of other support from the central government. In cases where the banks are not systemically important to the payment system, this support is not a matter of course, either from the Riksbank or from the Riksdag. As the analysis above illustrates, the Swedish banks are not always systemically important to the payment system individually and it is thus not necessarily the case that the banks would always qualify for support from the central government.

When a bank fails, other costs arise in addition to those stemming from disruptions to the payment system. The banks are important for the supply of capital in the economy and if this is disrupted it can have repercussions for growth. The banks also play an important role in companies' and households' capacity to manage risk and thus their willingness to invest, save and implement other transactions. In addition, a bank failure risks resulting in general economic uncertainty. A further aspect is that there is a risk of some capital destruction when a bank fails, in that built-up investments risk being lost. For banks the capital destruction will probably mainly consist of information costs, such as, the information the bank has on individual borrowers' creditworthiness, which may have been built up over a long period of time. However, it can be debated

66 This view is shared by the Banking Law Committee's report.

whether bank failure would really give rise to greater costs than other company failures of comparable size, particularly as the information need not be lost if credit portfolios, personnel and information systems can be taken over by other institutions during crisis management.

When a bank fails, the Riksbank and the Riksdag thus need to consider factors for and against emergency liquidity assistance or solvency support respectively. One factor in favour of granting liquidity assistance or solvency support is the assessment of the costs of disruptions to the payment system and capital supply, which could vary from efficiency losses to a total breakdown. It will often be difficult to determine with any certainty how great these disruptions will be. The degree of uncertainty of the assessment will therefore also become a factor that needs to be taken into account in the decision. Factors against granting emergency liquidity assistance and solvency support are the uncertainty regarding the bank's solvency now and in the long term, the distortion in competition and the difficult-to-define cost of moral hazard. These assessments are also connected with considerable uncertainty.

In this type of situation, the Riksbank would also have to consider alternative means of managing the problem. As the analysis showed, one bank in itself is probably in no case essential to the functioning of the payment system. It should therefore be possible to allow the bank suffering problems to fail and to aim any measures at assisting the banks suffering contagion effects from the defaulting bank. The corresponding possibility should exist for the Riksdag, if it considers itself obliged to provide financial support to the bank sector.

POSSIBILITIES TO REDUCE SYSTEMIC IMPORTANCE

The more clearly it can be shown that individual banks are not always systemically important and credibly claimed that support need not be aimed at institutions suffering problems, the lower the moral hazard and indirect contagion risks in the system. One of the most important measures the authorities can take to reduce systemic importance among individual institutions is to have carefully-prepared crisis regulations. The structure of these crisis regulations should be such that one can quickly resolve a bank failure and release locked-in funds.[67] In addition, the authorities should be well-prepared to manage a bank failure. There would probably be little time available for making decisions in the event of a bank failure. It would thus be easy for the authorities to choose to support the afflicted banks as the negative consequences of allowing a bank that qualifies for support to fail are much more tangible than the negative consequences of rescuing a bank that does not actually qualify for support. It is therefore important that the authorities have a carefully-planned analysis and policy assessment for as to whether a bank qualifies for support. This applies to the Riksbank, Finansinspektionen and the Ministry of Finance.

67 There is a commission proposal in this field being considered up by the Ministry of Finance, concerning special regulations for crisis management; "Public administration of banks in crisis" (SOU2002:66).

In addition to having structures for managing a bank failure, the authorities can also work to reduce the contagion effects before a failure occurs. The Riksbank, for instance, works on continuously assessing the financial infrastructure, which includes examining how it would manage the failure of an individual operator. Another project that the Riksbank has pursued for several years now is to convince the banks to reduce their counterparty and settlement exposures by, for instance, illustrating the risks they entail. One important change that will take place this year is that the krona will be included in the CLS bank currencies, which should significantly reduce the banks' foreign exchange risks.

The Riksbank can also establish clearer routines in the event of a bank failure for rapid communication of interbank exposures, joint counterparties and the reason for the failure. This could reduce the indirect contagion risk and thereby reduce the systemic importance of the individual banks. In order to reduce the risk of contagion via the securities markets in connection with a bank failure, the advantages and disadvantages of a shorter settlement cycle could be studied more closely.

Although the analysis indicates that the lock-in effect in itself does not comprise a systemic threat, any possible measures should be taken to reduce its duration. Reducing the lock-in period would reduce its effects and this is an area that requires further work. One possibility is to review the IGN's administrative capacity to pay out compensation within a reasonable time to a large number of depositors. Another is to establish routines for transferring custodies and the role of depository agent and settlement agent from the defaulting bank to other institutions in connection with a bank failure. Responsibility for drawing up such routines lies primarily with VPC and its members. The more customers with more than one bank contact, the lower the lock-in effect. At the same time, the system of a deposit guarantee as well as the general public's expectation that the central government will rescue banks suffering problems mean that they do not see a need for more than one bank contact. Further analysis is required as to how the authorities should handle this.

The Riksbank can also adapt its emergency liquidity assistance facility to support the banks and other payment system participants afflicted by the failure of another bank. One project that has been started up at the Riksbank is to survey the payment flows in RIX to increase knowledge of system-threatening imbalances in the payment system. This information is useful in particular when drawing up potential rescue measures aimed at other institutions than the one initially affected.

All in all, no individual Swedish major bank is always of systemic importance to the payment system at present. It is therefore not certain that it would be offered support by the central government, either in the form of emergency liquidity assistance from the Riksbank or solvency support from the Riksdag, if it should suffer financial problems. There are also a number of areas that can be developed to reduce the banks' systemic importance even further. A lower level of systemic importance means a lower risk that problems will spread between the banks, will reduce the moral hazard problem and ultimately lead to a lower risk of costs to society in connection with possible future rescue operations.

Financial stability in Sweden and the euro

The risks in the financial system would be affected in a number of ways by a Swedish changeover to the euro. This article discusses how the banks and payment system would be affected, the extent to which systemic risks would be influenced, and how the government's ability to manage financial crises would change in the event of Sweden joining the Eurosystem. The effects are numerous and often difficult to distinguish from the general integration of financial markets that has taken place in the EU over the past decade. They also involve different developments, which is why it is not possible to give an unequivocal answer to whether the euro would entail an improvement or deterioration in the stability of the financial system.

A Swedish decision to adopt the euro[68] would change the economic map in several respects. The public debate thus far has mainly focused on the consequences of reduced exchange rate risk and the effects on factors such as economic activity and macroeconomic stability. The significance of joining EMU for the stability of the financial system has not been discussed in detail, however. The aim of this article is to analyse the consequences of potential Swedish participation in EMU for the stability of the financial system in Sweden.[69]

Almost all financial transactions are dependent on some exchange of payment. The availability of a safe and efficient payment system is therefore important for the functioning of the economy. Essentially, financial stability activities aim to prevent crises that threaten the payment system and thereby also economic growth in the long run. This preventive work is carried out in a number of ways which include ensuring the safety and efficiency of vital systems and making sure that important participants are given the incentive to manage risks in a safe and efficient manner. In addition to the preventive work, it is important to establish routines in good time for managing a potential crisis that could threaten the payment system, in the event such a crisis should occur.

The discussion in this article of the effects of the euro on stability in the financial system has been broken down into four questions. How will a Swedish changeover to the euro affect the individual financial institutions, the systemic effects and contagion risks between the institutions, the financial infrastructure, and the possibilities and tools for managing a crisis should one occur? An additional aspect concerns how supervision and oversight of financial stability should be organised in the EU. This is discussed in a separate box.

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68 Technically, the issue at hand is whether Sweden will participate fully in Stage Three of EMU. The first stage was initiated with the abolition of all obstacles to the free movement of capital in the EU. The second stage, which began in 1994, involved a number of steps including the establishment of the EMI (the forerunner to the ECB), stricter requirements for the public finances of Member States and greater independence for the national central banks. Stage Three began in 1999 with the formation of the European System of Central Banks (ESCB), the introduction of the euro in eleven EU Member States, and the formulation of a single monetary and exchange rate policy by these Member States. Twelve countries currently participate fully in EMU. The following discussion does not distinguish between the different stages of EMU.

69 The discussion focuses on how Swedish participation in EMU would affect stability in the financial system. Thus, the analysis is not a complete study of the consequences of a Swedish changeover to the euro. In 1994 and 1997, the Riksbank considered the economic advantages of participating in EMU to outweigh the disadvantages. The Riksbank will not be participating in either campaign ahead of the coming referendum.

The article ignores the immediate practical effects that can arise in the transitional phase, i.e. before and during the actual introduction of the euro. Instead, the article presupposes that the euro has been introduced and focuses on the long-term effects of this. One problem when analysing a Swedish changeover to the euro is that several of the consequences are only indirect and discernable over the long term. This renders comparisons with other countries that have already introduced the euro more difficult. While the effects on these countries can already be seen in certain areas, e.g. foreign exchange trade, fixed-income markets and asset management, the adjustment process is still in progress in others. The lack of distinct effects in these countries does not necessarily imply, however, that the forces driving long-term changes are insignificant. In several important areas, the adaptation process could take many years. This applies in particular to issues concerning competition, payment systems, contagion risks, etc. As a result, there are no clear boundaries defining immediate adjustment effects and long-term, permanent consequences.

A common risk involved in forward-looking analyses is that the discussion becomes speculative and the results are interpreted as a description of the situation in, say, five years' time. That is not the purpose of this article. The purpose instead is to describe the economic driving forces and trends that will arise from Swedish membership in EMU and thereby also the expected *direction* of these changes. Although a monetary union entails the removal of obstacles to cross-border activities, there are other obstacles – e.g. legal, technical and cultural differences – which could be of great importance for individuals' behaviour. Consequently, the scope and time horizon for the changes are uncertain.

However, it is not simply EMU alone that will determine how the economic map will change. Other determinants include globalisation, the development of new technical and financial services, the increasingly efficient and liquid securities markets, and amendments to regulations, not least due to the work on the EU internal market. Sweden will be affected by all these trends – including EMU – whether or not we adopt the euro. Although the article is focused on the consequences of Swedish membership in EMU, it is not always possible to separate these effects from more general trends.

The financial institutions

The participants that are most important for financial stability – primarily the banks, marketplaces and clearing institutions – would be affected in several ways by Swedish membership in EMU. The following section discusses the effects on the individual institutions.

- *Changed market conditions run the risk of increasing vulnerability.* Internationalisation and the work on the internal market will lead – regardless of the euro – to stiffer competition. A single currency is likely to intensify the pressure of competition in some product segments, however, e.g. through better price transparency. In addition,

EMU would result in a reduction in the sales of certain services. Some foreign exchange trade would disappear. The opportunities to act as correspondent bank for foreign banks are likely to diminish. Services such as asset management and trading in securities, particularly in fixed-income securities, would be exposed to stiffer competition. For the banks, these effects should in all likelihood lead to both weaker earning capacity and squeezed profit margins. It is not certain that the banks would be able to compensate themselves through increased income from other services, e.g. international investment banking or through higher margins on services to other customers such as households and small and medium-size businesses. If Swedish participation in EMU also results in a lower level of interest rates, in particular long-term rates, this could reduce net interest income, thereby squeezing the banks' profit margins further. Lower long-term interest rates could partly be explained by the disappearance of exchange rate risk premiums. At the same time, a changeover to the euro could make it easier for the Swedish banks to compete internationally. While they may not be large by international standards, they are relatively efficient. Participation in EMU should also lead to a reallocation of various securities portfolios, which should enhance the possibilities of generating greater income for the banks during a period of adaptation. All in all, however, the assessment is that the euro, as a result of stiffer competition and a reduction of certain services, would lead in the long term to poorer earnings and lower profits for the Swedish banks. Consequently, this is likely to increase vulnerability and somewhat weaken the banks' capacity to absorb different kinds of risks and shocks.[70]

- *Greater liquidity in securities markets may reduce dependence on bank financing and entail lower borrowing costs and greater opportunities for reducing risks.*
  EMU would encourage the trend towards efficient and liquid securities markets. In addition, the Swedish securities markets would become a more integral part of the European markets. On the whole, this should reduce premiums for liquidity and exchange rate risk and thereby also the costs of borrowing in the securities markets. As the proportion of corporate borrowing via the securities markets increases, the economic costs of a bank failure would decrease. Furthermore, borrowing costs for the Swedish banks should decline. Although the Swedish banks may lose the advantage they currently enjoy when borrowing in the Swedish krona market, it is likely that they would retain their advantageous borrowing position with private customers in the foreseeable future. Borrowing costs could therefore fall somewhat. As participants in a larger, more anonymous market, however, it is probable that the banks' credit ratings

70 This indicates a conflict between stiffer competition (positive) and greater risk of financial instability (negative). Healthy competition is a prerequisite for efficient institutions, however, and a system will only be stable in the long term if it is efficient. A protected sector, on the other hand, tends to become inefficient and thereby also sensitive to financial disturbances.

would play a significant role for these borrowing costs. Changes in borrowing costs may therefore vary between the Swedish banks. Greater liquidity in securities markets would also facilitate the use of securitisation and credit derivatives. Swedish membership is likely to improve access to these markets. This would afford the banks greater opportunities to both capitalise on new sources of financing and eliminate different kinds of risk, which should improve the conditions for maintaining stability in the financial system. On the whole, somewhat lower borrowing costs and better capabilities for managing risk should reduce the banks' vulnerability, even if the size of this effect is uncertain.

- *Structural transformation may accelerate in the long term.* Due to factors such as EMU, cross-border integration has already begun in the securities and payment area.[71] For the banks, structural transformation in Europe thus far has mainly entailed national rather than international consolidation.[72] There are exceptions, however, e.g. Nordea. In many countries a number of banks have become so dominant that cross-border structural transformation is the only remaining step. Although numerous obstacles exist, e.g. of a legal nature, EMU could in the long term facilitate further structural changes in the banks. The integration of payment systems and securities trading could increase international economies of scale and reduce the number of national barriers. The short-term effect should not be exaggerated, however.[73] The structural transformation itself would also entail strategic uncertainty for many producers of financial services. The need for new strategic choices together with greater competition would increase the risk of strategic errors in coming years, which could have implications for financial stability. At the same time, the structural transformation would create opportunities to both rationalise the production of financial services and render them more efficient.

The effects described above show that Swedish membership in EMU can be expected to affect individual institutions in several ways. Although it can be difficult or impossible to discern the effects of EMU separately, the overall analysis here indicates nevertheless that the individual institutions could be exposed to more intense competition, at least within certain segments, and that this could increase the vulnerability of the banking system. A changeover to the euro should also be capable of reducing borrowing costs somewhat and enabling better risk management, while also facilitating cross-border structural transformation between the concerned institutions in the long term.

71 See Chapter 4 for a further description.

72 See, for example, Boot, A. (2003). "Consolidation and Strategic Positioning in Banking with Implications for Europe", Working Paper.

73 The clearest examples of cross-border bank mergers are found in the Nordic market, between countries with highly different strategies as regards the EU and the euro.

Systemic effects and contagion risks

In addition to the direct impact on financial institutions, a Swedish changeover to the euro could affect stability in the financial system in a wider sense. Systemic risks in the financial system can arise in two ways.

Firstly, there are macro risks, e.g. if several banks encounter problems simultaneously. If many banks have large exposures in one company or sector, such as the property sector, and this company or sector experiences financial difficulties, the effects on financial stability could be significant. Secondly, there are direct contagion risks. Problems in one bank can spread quickly and easily to other banks through the extensive commitments they normally have with one another.

SYSTEMIC EFFECTS

Swedish participation in EMU would affect macroeconomic development in several ways. The discussion here is confined to three effects: the effect on the risk of loan losses, on cyclical fluctuations in the economy, and on industrial structure.

- *The risk of loan losses may be affected.*
  One of the aims of EMU and the internal market is to provide companies in all sectors with a larger domestic market. While this is positive, it is also likely to make it more difficult to assess market potential and competitive conditions for many companies. Some companies would become successful while others may run the risk of encountering problems with profitability. The problem would be most evident among small and medium-size companies, as well as during the period when companies are required to adapt to new market conditions. From the banks' perspective, it could also become more difficult to assess credit risk in a larger, more integrated market. This could lead to an increase in loan losses. While a large part of this effect is due to the internal market rather than EMU, the latter also contributes to this integration and thereby to the effect. At the same time, a monetary union is likely to entail smaller fluctuations in interest rates and exchange rates. This would provide households and companies with the opportunity to operate in a more stable macro-environment, which could reduce the risk of loan losses. In other words, the risk of loan losses should be affected to a relatively smaller degree by macro-variables such as interest rates and exchange rates, and to a relatively larger degree by sector- and company-specific factors. Even if the net effect is uncertain, this indicates that loan losses may become less systemic in nature if Sweden joins EMU.

- *The effects of large macroeconomic shocks may be aggravated.*
  A single monetary policy may entail less scope for managing certain shocks in the real economy, in particular asymmetric shocks. Although a currency union fosters a stable macro-environment under

normal conditions, thus reducing the risk of shocks, there is a danger that the inability to conduct domestic monetary policy would make it more difficult to prevent large macroeconomic shocks from giving rise to financial disturbances of a systemic nature.

- *Specialisation may increase.*
  The integration of markets in the euro area could lead in the longer term to a structural transformation with increasing specialisation in the real economy. Therefore, exposure to individual companies and sectors may increase. This could result in larger and larger companies that would become increasingly significant for the risks in the national banking systems. Even if the companies do not become larger, there are theoretical arguments to support the view that corporate structure in certain regions and countries could be concentrated to a greater extent to certain sectors as a result of EMU. While there are no clear signs of this as yet, it could reduce the degree of diversification in the banks if a significant part of their borrowing was to remain domestic. This could lead to an amplification of the macroeconomic fluctuations both regionally and nationally. At the same time, a single currency facilitates international diversification of loan portfolios. A larger, more liquid securities market would create more favourable conditions for eliminating some of the risks via these markets. The increased opportunities for diversification could be limited, however, by greater covariation in economic activity between the various Member States of the euro area. While it is genuinely difficult to make an overall assessment, it is likely that the opportunities for reducing risk would be the more important factor.

DIRECT CONTAGION RISKS

Normally, the banks also have large direct exposures to each other. In principle, the banks encounter four kinds of counterparty and settlement risks.[74] These arise via foreign exchange settlement, short-term liquidity management, securities trading, and the clearing and settlement of different financial instruments. The size of these transactions and the payment system's dependence on the banks are such that any problems could have dramatic consequences for stability in the financial system.

- *The need to manage foreign exchange exposure would decrease.*
  Swedish membership in EMU would reduce some of the non-financial companies' foreign exchange exposure, while also decreasing foreign exchange trade. This should result in less extensive exposures for the banks to manage. Thus, it is likely that the foreign exchange exposure in Swedish banks would decrease.

74 See also the chapter on the banks´ borrowers for a discussion of the banks' counterparty risks.

- *A diversification of counterparty exposures would entail lower systemic risks.*
  As the four major Swedish banks currently dominate in Sweden, the number of participants in the krona market is limited, thus forcing the banks into considerable exposures to each other. An appreciably larger number of potential counterparties exist in the euro area, enabling the spread of exposures over several participants, i.e. the concentration to individual counterparties can be reduced. The risk of financial problems in one bank spreading to others would thus fall. This applies in particular to the management of short-term liquidity, i.e. short-term loans from and deposits in other banks, but also to a number of longer-term contracts. The probability of encountering counterparty problems increases with a larger number of counterparties. The risk of one counterparty experiencing financial difficulties becomes greater if there are a hundred counterparties than if there are only three. However, a larger number of counterparties is also likely to lead to a reduction in the individual amounts of these exposures, which is why the banks' capacity to manage the problems without public intervention would probably improve. This leads to the tentative conclusion that a Swedish changeover to the euro would increase the risk of the banks incurring losses from certain counterparty exposures but that the amounts involved would be smaller and thereby more manageable. It is primarily the concentration of these exposures that would affect the contagion risks and thereby stability in the financial system. The extent to which the Swedish banks choose to alter their exposure profile if Sweden adopts the euro will depend on their liquidity management and their confidence in other potential counterparties.

- *The banks' credit ratings may become more important.*
  Compared with a small market in which all the significant participants know each other well, the importance of information about creditworthiness will probably increase in a larger, more integrated European securities market. Consequently, if Sweden adopts the euro, the banks' credit ratings could have a greater impact on both borrowing costs and the choice of counterparty in the interbank market. With more counterparties, the need for and dependence on external credit ratings could therefore be expected to rise. If different credit ratings are available, this could have different consequences for the four major Swedish banks.

It should be noted, however, that the banks' exposures will diminish for several reasons whether or not Sweden joins EMU. A substantial proportion of the banks' counterparty exposures today are short-term settlement risks for foreign exchange transactions. These will be reduced significantly when the Swedish krona, during 2003, becomes a member

The European systems for large-value interbank payments

BY DEFINITION, payment systems are closely-related to a currency. A single currency makes it natural therefore to have a common payment system. Prior to the beginning of Stage Three of EMU, the relevant EU authorities realised the need to have a common payment system in order to manage the single monetary policy and to render large-value, cross-border payments more efficient. Consequently, an RTGS system[75], TARGET,[76] was developed for large-value interbank payments.

One disadvantage with RTGS systems is that they require considerable liquidity, i.e. a bank may have to send a large number of payments before receiving any itself and thereby incurs a temporary deficit. From the point of view of stability, it is important that large-value payments are settled in central bank money, as the central bank is the only party that can create unlimited liquidity in the domestic currency and therefore carries no credit risk. In Sweden, the Riksbank currently manages the RIX system, where the banks can borrow unlimited intraday credit as long as they can provide satisfactory collateral. TARGET is not a new system but has essentially the role of linking and harmonising the existing national systems for large-value interbank payments where settlement can be made in central bank money.

One disadvantage with TARGET's existing structure is that cross-border euro payments are more expensive than domestic payments. The maintenance of many systems – one in each country – would be expensive in the long run. With a single currency, it would be easier to spread the fixed costs over a larger number of payments and thereby produce a more efficient solution.[77] Another problem is that the complexity of the current system makes it sensitive to disturbances, at the same time as increasingly stricter requirements on operational security have pushed up costs. Neither has the system been adapted to accommodate an enlarged EU with more than 15 members. Consequently, work has begun on developing a new common RTGS system for large-value interbank payments, TARGET2. This system will also imply settlement in central bank money. However, the new system will not be introduced until after a potential Swedish entry into EMU in 2006.[78] It is unlikely that payments, including cross-border payments, will have to pass through the different national systems first but will instead be debited or credited directly to the sending/recipient bank account regardless of the bank's location within the EU.

The introduction of a simpler, more direct system for large-value interbank payments in Europe is independent of whether or not Sweden adopts the euro. The Swedish banks already use the TARGET1 system to make certain payments in euro. The number of euro-based transactions in the Swedish part of TARGET is small, however – around 300 payments per day – compared with 4,500 krona-based transactions per day. Nevertheless, Swedish membership in EMU would make the structure of the future TARGET2 system an important issue for the Swedish banks.

In addition to TARGET, there are commercial systems for euro payments. It is only in TARGET, however, that real-time settlement is made continuously during the day in central bank funds. For euro payments, the second largest system, after TARGET, is Euro1.[79] It is also the most frequently used system for cross-border euro payments. Euro1 is used for both interbank and customer payments. The four major Swedish banks all participate in Euro1 and have chosen to channel their euro payments to a large extent via Euro1, as the cost per transaction is lower than in the current TARGET system.

75 RTGS stands for Real Time Gross Settlement, which means that payments are settled individually and immediately, instead of settling them in batches. This means that at the same time bank A pays bank B, bank B will have the funds in its account and will be able to use them to make new payments. This also reduces the counterparty risks that arise in the payment systems.

76 TARGET stands for Trans-European Automated Real-Time Gross Settlement Express Transfer system, and comprises the fifteen national payment systems of the EU. The system enables the central banks to be connected to approximately 5,000 commercial banks in the EU.

77 Payment systems are generally characterised by economies of scale and network effects. It is relatively expensive to build the infrastructure but relatively inexpensive to process an individual payment. The more parties that join a system, the greater the benefits will be for all the participants.

78 It is expected that the system will be ready to put into operation some time between 2007 and 2010. The exact structure of the TARGET2 system has not been decided, but the system will be based on three principles: i) harmonised core services available to all participants, ii) a single price structure and iii) cost-effectiveness, i.e. no subsidies. TARGET2 will also continue to allow national systems in addition to the common system. However, the price in each system will be based on the price level in the system that – with full cost coverage – demonstrates the lowest cost. Thus, most likely there will eventually be a highly limited number of systems in Europe.

79 Euro1 is managed by the Euro Banking Association (EBA), which consists of more than 70 banks in Europe.

of CLS.[80] Other risk-reducing changes that are independent of EMU include Newclear, VPC's new system for securities settlement. In other words, this situation will develop entirely irrespective of EMU or of a potential Swedish adoption of the euro.

All in all, a Swedish changeover to the euro should in the long term entail positive macro effects on financial stability on the one hand due to the risk of loan losses becoming more company-related and less macro-related and systemic. On the other hand, negative effects should arise from the fact that it would no longer be possible to use domestic monetary policy to manage large macroeconomic shocks. Of greater importance for financial stability is the positive effect that would stem from lower concentration in counterparty exposures. All factors point to a resultant decrease in contagion risks, although at the end of the day it is the actions of the individual participants that would determine the exposures and thereby also the level of dependence between the banks.

The payment system

It is of vital importance for the economy that payments can be made in a safe, efficient manner. To ensure this, it is necessary to have a well-functioning payment system. In reality, it is specifically the role of the banks themselves in this infrastructure that motivates the special public interest in the banks with regard to safeguarding stability in the financial system. The payment system comprises the instruments of payment as well as the individual systems for managing the payments. Examples of relevant systems in Sweden are the bank giro system for retail payments and the RIX system for large-value interbank payments.

As a consequence of EMU, the European payment systems are currently undergoing a process of change.[81] This development will take place whether or not Sweden joins the euro, but it will of course be more important in the event of Swedish membership. This would have several consequences for the payment system in Sweden.

- *A specific Swedish system for large-value interbank payments would be unnecessary.*
  If Sweden joins EMU, there will be no need for a specific Swedish system for large-value interbank payments. A more integrated system, such as the single platform in TARGET2, will entail lower costs and higher efficiency than the current RIX system, as there will be greater opportunities for economies of scale.

- *Volumes from the Swedish banks are likely to decrease in the systems for large-value interbank payments.*
  A Swedish changeover to the euro could imply a fall in the volumes of interbank payments from the Swedish banks. One reason is that

80 CLS stands for "Continuous Linked Settlement" and is a special purpose bank for managing global settlement of foreign exchange transactions. CLS enables simultaneous settlement of both payments in a foreign exchange transaction irrespective of time zones, thus eliminating so-called Herstatt risk. CLS is discussed in more detail in the chapter on financial infrastructure.

81 Please see the boxed text for a discussion of the systems for large-value interbank payments.

many of the transactions performed today in RIX are krona payments to and from foreign banks' accounts in Swedish banks. Within the eurosystem these payments will become euro flows for which the foreign banks in the majority of cases should already have established other channels. However, the number of transactions will not be affected only by a Swedish adoption of the euro. Other changes such as the introduction of Newclear and CLS Bank will have an appreciably larger impact on the banks' payments, for instance. The netting of foreign exchange settlement performed in CLS will reduce volumes of interbank payments via RIX in any case.

- *The risks in the payment systems would change.*
  As liquidity can be managed more efficiently in a large system, it would be possible to reduce contagion effects between the banks following entry into EMU. Thus, it would also be possible to reduce the risks of financial difficulties in one institution having detrimental effects on stability in the financial system. At the same time, dependence on a single system would increase. In this system, operational problems would have significant consequences for the entire euro area, making the choice of technical solution and business continuity planning more important. On the other hand, a single system should improve the chances of finding alternative operational solutions to potential crises. It is often simpler and less expensive to add more security features to new systems than to adapt existing systems to a higher level of operational security. It is likely that the resources to be invested in both prevention and the management of operational problems in the event of a crisis would depend partly on the ownership structure for the chosen system. It is not clear what the optimal level of security and business continuity planning is from an economic perspective. The system would attain such a level of significance for the economy that the authorities may find it difficult to accept far-reaching problems. There is a risk that the problem of moral hazard would lead commercial participants to underinvest in security solutions, while theoretically there may be an incentive for public authorities to overinvest in comparison to what is economically efficient. A good analysis of the risks and consequences for the existing payment systems forms the basis for decisions on a reasonably balanced continuity solution. An ECB committee, PSSC, is currently working on these issues.

- *Cross-border retail payments may become more efficient.*
  Today, the Swedish banks use primarily the Euro1 system for euro payments. In the event of a Swedish changeover to the euro, it is likely that the banks will continue to do so as long as the prices in the TARGET system do not fall. Retail payments are presently both slower and much more expensive if made cross-border than if made domestically. The EBA is planning to introduce a new system in summer 2003 that will enable cross-border retail payments to be settled not just individually but also in batches. This is likely to re-

duce the costs of small euro payments, thus contributing to a more efficient internal market with larger cross-border payment flows. From an economic point of view, this would entail a considerable efficiency gain. Nevertheless, it is difficult to expect changes in retail payments to have a significant effect on stability in the financial system in the short term. They could, however, promote integration and thereby also structural transformation in a wider sense.

- *The integration of retail payment systems may have significant implications for long-term bank structure.*
  The development of more efficient systems for cross-border payments could in the long term also affect the present distinctly national characteristics of the banks at present[82]. For the really big companies, national boundaries are not of great importance. The banking market is already international in nature for these companies. For households and small and medium-size companies, however, the market is still largely national. There are several reasons for this. Banking legislation, standards and traditions differ from country to country. Another probable reason is that a number of retail payment systems are still national in nature. The availability of important infrastructure can often be a precondition for efficient competition. The current dissimilarities between the national retail payment systems are one of many barriers to entry. If the systems for retail payments between euro countries were to become more efficient and more standardised, this could have significant long-term consequences for structural transformation in the banking sector as well as for the opportunities for banks to compete outside the domestic market, even for services aimed at households and small and medium-size companies. The internationalisation of the banking structure in Europe would be stimulated and the trend towards a European banking market would accelerate. As the new systems for retail payments are euro-based, the largest potential earnings ought to be most attainable after a Swedish adoption of the euro. Having the euro as legal tender in Sweden would increase the chances for Swedish companies and households to benefit fully from this development.

- *The integration of payment systems would have implications for supervision and oversight.*
  The new pan-European systems, such as those for payments, run the risk of becoming so large that the authorities will be unable to accept any serious problems. The need for public intervention in the event of a crisis, and thereby also supervision and oversight under normal circumstances, could therefore change as a result of EMU. The strictly national responsibility of the public authorities would need to be modified and replaced by a more international coordination of supervision and oversight. Such coordination already exists in

82 For a discussion of the integration of the financial infrastructure, see also the chapter on this infrastructure.

various forms.[83] However, coordination is also associated with the risk that national supervision, oversight and management of financial crises would not fully heed potential international contagion problems. The more advanced integration becomes in the banking market, the greater the reason to introduce a more central form for supervision and oversight of financial stability in order to internalise the contagion problems that exist. In the future of EMU, the need for more centralised responsibility for financial stability at EU level can therefore not be ruled out.[84] At the same time, it should be noted that if EMU in the long run leads to a more integrated market for financial services, the banks of today would be small participants in this market. This would lessen their importance for financial stability, which would reduce the need for public intervention to safeguard stability in the financial system. While the banks may become less systemically important, the infrastructure may become more important as a subject for oversight.

All in all, EMU has produced greater integration of the payment systems in Europe. This should lead to efficiency gains and in the long run to integration of the banking market via, for instance, integrated retail payment systems in Europe. This will take place irrespective of Sweden's decision on EMU, although Swedish participation is likely to improve the chances for Swedish companies and households to avail themselves of these efficiency gains. In the long term, the integration of payment systems could facilitate the creation of a pan-European banking market, which would also have considerable consequences for the authorities' oversight and supervision of this sector.

Crisis management

Any crisis that threatens stability in the financial system must be dealt with, in particular to avoid a situation where the payment system ceases to function. The biggest threat is if one or more institutions – in practice one or more banks – of importance for the payment system encounters financial difficulties. If the bank is solvent but has liquidity problems, the central bank can come to its aid by providing emergency liquidity assistance (ELA).[85] If the bank is insolvent, the best thing is usually to treat it like any other company. This involves the owners providing a capital injection or allowing the bank to go into bankruptcy. In certain circums-

83 For example, the EBA operates under the supervision and oversight of the ECB. Furthermore, the banks' international payments are entirely dependent on SWIFT (Society for Worldwide Interbank Financial Telecommunications), which is a bank-owned network for financial messages. In addition, CLS bank manages the risks involved in foreign exchange settlement. Technically, SWIFT comes under the responsibility of the Belgian authorities and CLS under US responsibility, but the degree of international cooperation is significant in both cases.

84 The implications for supervision are discussed further in the box in the next section. See also European Economic Advisory Group (2003). "Financial Architecture", Chapter 4 of "Report on European Economy 2003", CESifo, and Stolz, S. (2002) "Banking Supervision in Integrated Financial Markets: Implications for the EU", CESifo Working Paper No 812, July 2002.

85 In practice, it is difficult to distinguish between a bank with liquidity problems and a bank with solvency problems, especially given the time pressure under which decisions often have to be made.

tances, however, a bankruptcy may have considerable negative effects on the payment system and thereby also on the economy in general. The government may then have to provide some form of financial assistance to the bank. As the costs of providing assistance to insolvent banks can be substantial, the government is the only party that can serve as guarantor for this kind of assistance. Ultimately, solvency assistance is thereby based on the right to levy taxes. There is good reason, however, to refrain from assisting insolvent banks, as it creates problems of moral hazard. In the event that assistance is provided, it should be given in such a way that does not save the shareholders from incurring losses, which is why assistance should target primarily the bank's lenders.[86] Another reason to refrain from assisting insolvent banks is that it could conflict with the EU's prohibition of government support. Instead, it is often better to attempt to limit the harmful effects of a bankruptcy, e.g. by ensuring that settlement procedures are conducted in a smooth manner. Should a bank become insolvent, it may also be necessary to provide ELA to solvent banks in order to prevent contagion effects of a systemic nature. The question here is whether and in what way EMU will affect the government's ability to manage crises efficiently.

- *The Riksbank would continue to be responsible for ELA.*
  According to current regulations for the European central banks, the national central banks are responsible for promoting financial stability. As early as 1999, the ECB stipulated that "the competent NCB takes the decision concerning the provision of ELA to an institution operating in its jurisdiction. This would take place under the responsibility and at the cost of the NCB in question."[87] Consequently, even if Sweden were to join EMU, it is the Riksbank that, under current regulations, would be responsible for decisions regarding the provision of ELA to Swedish institutions.

In practice, however, EMU entry could affect the government's possibilities to manage a crisis in the financial system. There are several possible effects in this regard.

- *ELA would require coordination.*
  One consequence of joining EMU is that the ability of a national central bank to provide unlimited ELA changes. As ELA affects liquidity in the economy, it can therefore have undesirable effects for monetary policy. The exchange of information with the ECB and the other central banks of the euro area would therefore be important in the event of financial crises, especially if the ELA involves more considerable amounts.

86 For a discussion of the moral hazard problem, see, for instance, the final report of the Banking Law Committee.
87 ECB Annual Report 1999, pp. 98.

Oversight of the financial sector in Europe

In brief, public oversight of the financial sector can be said to have three components. The first is a regulatory framework, consisting of laws and regulations, that establishes the bounds within which financial companies must operate. The second is the day-to-day oversight, which comprises supervisory authorities' supervision of the risks and regulatory compliance in individual companies, and central banks' oversight of the risks in the financial system as a whole. The third component is crisis management, which concerns public measures designed to deal with crises in the financial system. What follows is a discussion of a number of relevant trends in light of the ongoing shift of this oversight in Europe from national to EU level.

The development of the regulatory framework for financial institutions in Sweden has mainly been carried out for a number of years within the EU. The driving force behind this is the fact that a similar framework for all financial institutions in Europe is a precondition for one of the EU's main objectives – a single market for financial services. Given that the regulatory framework constitutes a restriction for these institutions, the existence of different rules could create barriers to competition between institutions from different countries.

As a single regulatory framework for the EU is achieved through negotiation between all Member States, the drawing up of new regulations can sometimes be a lengthy process. At the same time, the financial sector is safeguarded by an extensive regulatory framework, which means that a large number of rules need to be drawn up in the EU. With a view to accelerating this process, the EU developed a plan in 1999 (Financial Services Action Plan) containing 43 items that must be implemented by 2005 to complete the internal market for financial services. This plan of action will help realise the vision of making the EU the most competitive, knowledge-based economic area in the world by 2010. Three-quarters of the items have already been decided upon. A large proportion of these relate to the securities markets. In order to enable all the measures to be implemented within the appointed time, it was also necessary to make the process for enacting the new rules more efficient. This has been achieved through the introduction of the so-called Lamfalussy process.

Briefly, the Lamfalussy process entails that the European Commission will play a more prominent role when the regulatory framework is to be revised. Presently, amendments to regulations are decided by the Council of Ministers and the European Parliament. Through the Lamfalussy process, a considerable number of amendments will be made by decision of the Commission in collaboration with committees comprising representatives of the Member States governments. Two new committees have been created for securities matters, one with a regulatory and decision-making function (European Securities Committee, ESC) and one with an advisory function (Committee of European Securities Regulators, CESR).

The aim is to conduct all coordination of public regulatory and supervisory functions in the securities markets in one unit and to speed up the decision-making process in the EU. In the new structure, the European Commission asks CESR to study a particular area. CESR in turn consults market participants and users of financial services, after which it reports back to the Commission, which then develops a proposal. This proposal is then sent to ESC, which makes a decision on the matter. Finally, the Commission adopts the new regulation. Both committees can propose changes in regulations for the securities markets.

In 2002, efforts were initiated to find an equivalent way of making the work on banking regulations more efficient. The proposal implied the creation of two new committees: the European Banking Committee (EBC) and the Committee of Banking Supervisors (CEBS). Their overall mandate is to foster cooperation between supervisory authorities, to advise the Commission on issues related to banking supervision, and to contribute to a uniform implementation of EU directives in the Member States. Central banks without supervisory powers will be represented in CEBS through the ECB and through their own national members.

The initiative to make the regulation process more efficient is commendable. It is important that new rules are negotiated with a certain degree of speed. At the same time, the developments entail a certain amount of risk. For the EU, the harmonisation of the regulatory framework is the most important goal. This focus on producing a speedy harmonisation of regulations runs the risk of attaching far too much importance to both the time aspect and the reaching of an agreement, at the risk of neglecting the objectives of the regulations themselves. Thus far, this has not resulted in overly vague or inadequate regulations that could lead to excessively high risks in the financial sector. On the other hand, it is open to discussion whether the regulatory framework has become so comprehen-

sive and restrictive that it risks leading to efficiency losses in the production of financial services. There are no clear incentives for individual Member States to propose an abolition of existing regulations, which is why there is a risk of only more regulations being created. With the proposed new process, it is mainly representatives of regulatory interests that are discussing the need for changes to regulations. But it is not certain that this will safeguard efficiency interests to the desired extent if the EU's vision of being the most competitive region in the world for financial services by 2010 is to be realised.

Cooperation in the area of day-to-day oversight is not as advanced as in the formulation of regulations, particularly due to the fact that responsibility in this regard still largely lies at national level.

The principle of home country supervision applies to supervisory authorities, which means that financial companies that are established as legal entities in a country are also subject to supervision by that country's supervisory authority, while branch offices are supervised from the home country. Consequently, corporate groups that include legal entities in a number of countries are subject to supervision by authorities in several countries. To facilitate this, and to foster the exchange of other information, the various supervisory authorities have concluded both bilateral and multilateral agreements of mutual understanding. Furthermore, the EU's supervisory authorities cooperate in Groupe de Contact, the aim of which includes coordinating and formulating principles for how supervision is conducted in the EU. This is done through an exchange of information and experiences, as well as by creating best practice solutions for the field of supervision. The role of the group will be given more official status in the future when it is made a working group of CEBS. In addition, the central banks and supervisory authorities cooperate on financial stability issues within the scope of the European System of Central Banks (ESCB) through their participation on the Banking Supervision Committee. The Committee has two principal tasks, namely to follow and analyse the macroeconomic trend from a financial stability perspective, and to promote cooperation between supervisory authorities and central banks.

Although oversight and supervision are being conducted more and more at EU level, the tasks of the central banks and supervisory authorities are still primarily domestic in nature. This is mainly due to the fact that the majority of financial companies are still largely domiciled according to national origin, from where oversight can be conducted. As cross-border consolidation in the financial sector progresses, an increasing number of genuinely international companies will appear, i.e. companies that do not have the majority of their operations in one country. One example of such a company today is Nordea, which has significant operations in Finland, Sweden, Norway and Denmark. Nordea, as well as other banks with a dominant position in several countries, currently has a subsidiary-based structure, which means that each national central bank and supervisory authority is responsible for supervision and oversight of the bank subsidiaries operating in its jurisdiction. This gives the impression of a clear delineation of responsibilities. Corporate groups often operate as one unit, however, which raises the question of whether the operations are separate to such an extent that makes supervision of the legal entities meaningful. In addition, it is uncertain whether the legal entities could be separated in the event of the bank failing. For example, it is likely that liquidity problems in an international bank will always be a group matter, as the bank's counterparties do not distinguish between the various legal entities.

The current rules governing home country supervision may prove difficult to implement for these kinds of genuinely international banks that could be systemically important in several countries. In the long term, it is therefore likely that there will be a need for alternative, complementary solutions.[88]

As regards crisis management, cooperation and the delineation of responsibilities at European level is even less advanced than for day-to-day oversight. A first step towards greater cross-border cooperation for crisis management has been taken within the scope of the ESCB. This arose through a cooperation agreement between different authorities in crisis situations. The agreement concerns practical arrangements such as the exchange of information. This is an initial step, but there is reason to intensify the cooperation further at European level.

One problem regarding crisis management is that it is not formalised in the same way as the other two components. The need to manage crises

88 See, for example, European Economic Advisory Group (2003). "Financial Architecture", Chapter 4 of "Report on European Economy 2003", CESifo, and Stolz, S. (2002) "Banking Supervision in Integrated Financial Markets: Implications for the EU", CESifo Working Paper No 812, July 2002.

seldom arises, which has resulted in a less distinct division of responsibilities and structure for how the different public authorities should act and for what options are available. In addition, crisis management is often perceived as sensitive and difficult to discuss in advance. This is particularly due to the fact that crisis management is partly a question of government willingness to provide financial assistance to the financial sector. Even if the government should do its utmost to avoid such measures, due to problems of moral hazard, experience says that governments are seldom able to avoid giving financial assistance when particularly serious crises occur. This also means that it is financial resources – i.e. the government's possibilities for making use of the government budget and thereby the right to levy taxes – that are the ultimate guarantee for crisis management.

All of this makes crisis management problematic for banks with significant operations in a number of countries. If there is a risk that one such bank's failure could threaten stability in the financial system of several countries, crisis management will also have to be conducted jointly by several countries. This places great demands on the ability of countries that become involved in such a problem to cooperate with each other.

- *The Riksbank would not be able to use the repo rate to manage a financial crisis.*
  Should the Swedish financial system encounter a financial crisis, it would not be possible as part of the Eurosystem to lower interest rates in Sweden alone to alleviate the consequences. In other words, membership in EMU could make it more difficult to limit the effects of a financial crisis on the real economy. The importance of domestic monetary policy as a means of managing a financial crisis should not be overestimated, however.

- *The need for government financial assistance in crises may diminish.*
  EMU is likely to contribute to integration of securities markets, payment systems and banking markets. The disappearance of exchange rate risk should result in larger and more numerous international flows between participants in different countries. The banks' liquidity management is also likely to become more European and less national than it is today. A likely consequence is that financial dependence in Europe will increase, while there will also be more banks and more advanced financial securities markets that can absorb part of the risk. Even if this implies that problems in one bank would have an impact on other banks, systemic contagion problems and the need for ELA would diminish following entry into EMU.

- *European integration may impose new demands on crisis management.*
  Crisis management is associated with how other elements of the government's oversight of the financial sector are managed. Regardless of EMU, European integration will entail increasing demands for this oversight to be managed to some extent at EU level. Within EMU, Sweden's influence would be greater. In this respect, the negative effects of remaining outside EMU is especially pronounced with regard to issues concerning stability in the financial system. The development of European oversight and the consequences this will have for crisis management is discussed further in the adjacent box.

If Sweden joins EMU, there will not be any change, technically speaking, in its capabilities for managing a crisis that threatens stability in the financial system. The Riksbank will continue to be responsible for ELA. It is possible that the management of a crisis will be made somewhat more difficult as it will not be possible to adjust interest rates to reduce the effects on the real economy. However, EMU could accelerate integration of the European banking market, which could have more far-reaching consequences for supervision, oversight and crisis management in the long term.

Summary and conclusions

Swedish membership in EMU would affect financial stability in several ways. This article focuses on the effects within four areas: on the individual participants of importance for stability, on the contagion risks between these participants, on the financial infrastructure, and on crisis management. The implications of membership vary.

One important conclusion is that membership in EMU would quickly have consequences for certain areas, such as reduced foreign exchange trade and a concentration of securities trading to other instruments. Although these direct, initial effects would have some impact on the institutions, the implications for financial stability would be marginal in the short term. In the longer term, the consequences may be more significant as the markets for financial services become increasingly European. The rate of change will largely depend on how quickly the financial institutions adapt to the new situation. The euro is an obvious part of the increasing market integration and would therefore contribute to increasing dependence between European countries as regards stability in the financial system.

The analysis points to several potential consequences of Swedish participation in EMU. Some likely effects are:

1) Competition in the financial services market would increase. In the long term, this could squeeze profit margins and thus make the financial system more vulnerable.

2) Structural transformation would accelerate and the financial market would become more European.

3) Larger financial markets should result in better allocation of capital and risk in the economy. As a result, companies should seek financing to a greater extent via the securities markets. This in turn would reduce the effects of a bank failure on the economy.

4) Counterparty risk should diminish since the opportunities to spread exposures over more counterparties would rise. This should improve stability in the system as well as alleviate the problem of moral hazard. However, the size of this effect would depend on how the banks decide to manage their exposures in a euro-world.

5) The payment system would change, although the most important changes would occur irrespective of whether or not Sweden adopts the euro. Dependence on one or a few systems in Europe, as well as continuity in this/these, is likely to increase.

6) Cross-border payments in the new systems would be safer and less expensive, which may result in more payments.

7) As EMU contributes to a uniform European financial market, oversight of the financial sector would have to be conducted to a greater extent at EU level.

The management of financial crises would primarily remain a national matter, however:

a) as long as the formal responsibility rests at national level, and

b) as long as the banks are mainly national in nature.

As the effects would vary, it is impossible to draw any definite conclusion as to whether Swedish participation in EMU would result on the whole in an improvement or deterioration in the stability of the financial system. The effects would also depend on how market participants behave in the new environment and to what extent the European authorities are able to adjust the focus of their oversight on to Europe.

Articles in previous stability reports

2002:2

- Central counterparty clearing for the securities market
- Credit expansion as an indicator of financial instability
- Swedish banks' international expansion

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 regulations for banks
- Operational incidents in the banking system - two examples
- Increased financial stability through international standards

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

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- The year 2000 transition in the financial sector

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- Year 2000 – a threat to financial stability