



Financial Stability Report

SVERIGES RIKSBANK



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Foreword

One of the primary functions of the Riksbank is to promote a safe and efficient payment system. The purpose of the report Financial Stability is to present the Riksbank's appraisal of developments in the financial system and their implications for stability. The report is also intended to stimulate a discussion of matters that concern the stability of the payment system.

The report begins with a summary and the Riksbank's conclusions on the stability of the payment system. Thereafter follows an analysis on which the conclusions are based. Chapter 1 discusses trends in the banking sector. The banks' credit risk in relation to macroeconomic developments is described in Chapter 2. As before, it should be noted that these accounts do not contain any monetary policy signals. Chapter 3 contains a discussion of counterparty and settlement risks. The fourth chapter is focussed on operational risks which have attracted increasing attention recently.

Financial Stability presents the essential subject matter of the reports and discussions on payment system stability that took place in the Executive Board on 9 and 23 November 2000.

Stockholm, November 2000

Urban Bäckström

Governor of Sveriges Riksbank

Summary and conclusions

The favourable state of the economy, combined with high profitability in the banking sector, suggest that the financial system is currently stable.

The most important risk factors identified by the Riksbank are:

- *A volatile stock market and slightly increasing default risks in the corporate sector*
- *Somewhat increased indebtedness in the household sector*
- *Rapidly rising property prices, however not appearing to be driven by increased borrowing secured by real estate*

In spite of these risk factors, the banks and their borrowers in general appear well equipped to face a possible downturn in the economy in the near future. In the short term, only extreme events, such as extensive losses related to operational risks or international disturbances such as the failure of a major foreign bank, ought to comprise a threat to the stability of the Swedish financial system.

Definitions of specialist terms used can be found in the glossary at the back.

Trends in the banking sector

The three first quarters of 2000 are characterised by very strong results from the banks, both in terms of Swedish kronor and of return on equity. The primary source of the positive development is higher commission income.

Traditionally, net interest income has been the most important source of income for the banks. A clear trend is visible, whereby net commission income is getting closer to net interest income in size. The reduced significance of net interest income and lending may lead to a reduction in cyclical sensitivity for the banks. However, commission income is strongly influenced by both the price level and turnover in the stock market, which may involve greater variation in earnings in the short term. It is also uncertain whether the strong earnings and the relatively high margins in asset management in particular can be maintained in the long term. Nevertheless, there is less risk of large, sudden losses in commission-related operations than in lending. A development where commission income increases in significance, thus appears positive for stability in the banking system. The banks' loan losses remain low, and capital adequacy is still satisfactory. Mergers and repurchases of shares have not reduced the Tier 1 capital in the banking system too significantly.



The banks' loan losses remain low, and capital adequacy is still satisfactory. Mergers and repurchases of shares have not reduced the Tier 1 capital in the banking system too significantly.

The major Swedish banks have all undertaken major acquisitions or taken part in mergers during the latter part of the 1990s. This has increased the Swedish banking sector's sensitivity to a negative economic development in other countries. Commitments to new, untried operations also involve new risks for the banks. When the personnel, culture and technical systems of different banks need to be integrated and the bank groups become larger and more complex, the *operational risks* also increase. At the same time, the mergers imply that the banks have become somewhat less dependent on economic developments in Sweden, as both their credit portfolio and their earnings have become more diversified.

The Internet is becoming an increasingly important distribution channel, which in the long term could involve new business opportunities and cost savings for the banks. However, there are certain risks connected with increased investments in the Internet-related services, such as the risk of interference in the computer systems. The direct effects of unauthorised access need not be so great, but the indirect consequences of customers losing confidence in a bank could be considerable. All investments in new technology are associated with the risk that the technology in question could prove to be unprofitable. For example, there is a risk that the Internet-based services will not attract a sufficient number of customers. However, at this point in time, the investments in the Internet are not sufficiently large to constitute a threat to the stability of the banks, although profitability would be lower than expected if the wrong investment were made. The Internet therefore appears mainly to comprise a potential source of considerable efficiency gains in the banking sector, rather than something that increases the strategic risks in a way that might threaten the system.

Credit risks in the banks

The Swedish economy is experiencing an upswing. Banks do not normally face any major loan losses during such periods. However, during this phase there can be a build-up of risk in the banks' credit portfolios, which leads to loan losses when the economy slows down. The Riksbank sees it as an important task to assess whether such a risk build-up is taking place.

Lending to the household sector is continuing to grow strongly. In October, the growth rate for total lending was just over 8 per cent on an annualised basis. Household indebtedness in relation to disposable income has also increased slightly.

There are, however, a number of reasons why the growth in lending does not appear too worrying in a financial stability perspective. Although indebtedness has increased, it is still much lower than



it was at the time of the Swedish banking crisis. The low interest rates mean that household interest costs in relation to disposable income are currently at a relatively low level. In addition, the developments in the stock market in recent years, combined with an increasing transfer of savings into shares and mutual funds, has led to a very strong rise in the value of households' financial assets. Despite the fall in share prices during the latter part of the year 2000, household net wealth is still considerable, when compared with a few years' ago. At the same time, it cannot be ruled out that some households have adapted to a higher level of wealth, for which a drastic fall in share prices may pose a problem.

In recent years, bank lending to the corporate sector has increased considerably, while corporate lending by mortgage institutions has declined. If corporate borrowing abroad and on the bond market is included, the total borrowing in the corporate sector has increased relatively moderately during the year 2000.

Although the general picture of the state of the corporate sector is a positive one, there are some signs of increasing bankruptcy risks.

Companies' debt/equity ratios and interest coverage ratios have improved steadily over the past eight years. Although the general picture of the state of the corporate sector is a positive one, there are some signs of increasing bankruptcy risks. Company bankruptcies are increasing for the first time in a long time, primarily in the IT industry and the hotel and restaurant trade. The volatile developments on the stock market may be an indication of a weaker earning capacity at least in parts of the corporate sector. Estimations based on stock market information indicate that the probability of default is higher now than earlier this year. Bankruptcies are, however, currently at a low level, and a slight increase is not too alarming. At present, corporate bankruptcies primarily seem to hit companies with relatively small amounts of bank loans. It is only in the case of a severe recession that the banking sector risks extensive loan losses.

Property prices have continued to rise strongly, particularly in metropolitan areas. The driving force behind the rise is the great demand for premises, combined with a limited supply which, in turn, results from sparse construction during recent years. Price increases in commercial property are mainly fuelled by rising rents, while the price rise in apartment buildings can largely be explained by the conversion to condominium apartments. The rise in prices thus appears to be largely based on "fundamental factors", that is, reasonably realistic expectations of future cash flows. There is currently no indication that prices in the real estate market are being fuelled by purely speculative behaviour, as was the case in the bank crisis. Additionally, as the increase in prices is not reinforced by any growth in lending to the property sector, the rising property prices do not appear to comprise a serious threat to the banks.

There is some risk that real estate investors will overestimate the long-term sustainability of the current rent levels. The demand for



premises in Stockholm is unlikely to last. Sooner or later, supply will adapt to demand, in the form of new premises being built, and a general economic slowdown will occur. These developments will have a negative effect on the development of rents in the long term. However, a radical deterioration in the development of the real economy would probably have to occur before any major problems regarding real estate lending would arise for the banks.

Counterparty and settlement risks in the banking sector

The Riksbank's surveys of the banks' major exposures indicate that there is still a high risk of systemic effects in the event of a large counterparty failing. The Riksbank recommended in the previous financial stability report that the regulations on large exposures be made more stringent, to reduce systemic risks in the financial system. A working group comprising representatives from the Swedish Financial Supervisory Authority and the Riksbank is currently studying the possibility of this.

The opportunities for reducing exposures related to foreign exchange settlement will improve considerably with the start of the *CLS Bank*, a clearinghouse for foreign exchange settlements. However, the Swedish krona is not among those currencies that will be affiliated from the start, which is planned for the end of 2001. Discussions are being held on affiliating further currencies, including the Scandinavian currencies, at the end of 2002. The Riksbank concludes that the possibility of affiliating the Swedish krona to the CLS Bank would be very useful for reducing systemic risks, even if it were only to apply for a transition period until the introduction of the euro. The Riksbank will therefore work to implement this.

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The banks' limits on the size of the credit exposures that can be taken with regard to different counterparties comprise an important part of risk management. In recent years, a limit system has also been built up for exposure related to foreign exchange settlement. The systems often run parallel to the normal credit limit systems. As settlement exposures in foreign exchange can in principle be regarded as unsecured credit exposures, it is desirable that the banks develop greater integration of the different limit systems.



Operational risks

The fourth chapter of the report contains a general discussion on operational risks. These comprise the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events. Examples of these are losses as a result of a robbery, unauthorised securities trading, computer failure, etc. This type of risk is often depicted as the most serious, in addition to the banks' credit risks. The general opinion is that operational risks have increased markedly in recent years, partly as a result of the rapid rate of change, involving extensive structural changes, internationalisation, new business operations and new technology.

The management of operational risks is still relatively undeveloped, but awareness of the risks has increased among the banks, and intensive development is now underway.

From a systemic risk perspective, operational risks do not constitute as great a problem as, for instance, credit risks, because it is unlikely that major losses in this respect would occur simultaneously in several banks. On the other hand, an operational loss that leads to the suspension of payments for a bank can spread to another bank through counterparty and settlement exposures. As operational losses often occur suddenly, it is possible to envisage rapid sequences of events, where the counterparties do not have time to reduce their exposures, which makes the risk of systemic effects particularly great. From a financial stability point of view, therefore, it is essential that the banks spread their risks and do not allow individual exposures, even to other well-reputed banks, to become so large that the failure of a counterparty threatens their own bank's survival.

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Trends in the banking sector

The underlying earning capacity of the banking sector developed favourably during the first three quarters of this year. This improvement is largely explained by a strong growth in securities-related commission income, relatively restrained cost increases and low loan losses. The strong earning capacity is also due to the ongoing structural transformation that entails the banks expanding on new markets and in new product areas. This development may be connected with some strategic risks.

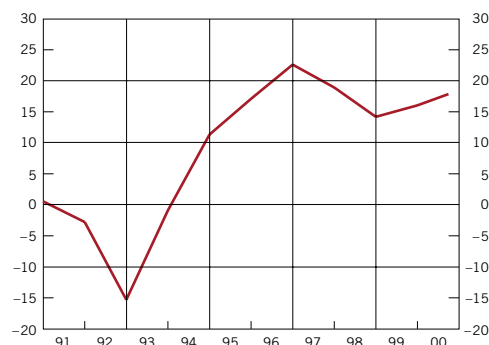
The Riksbank monitors developments in the banking sector with regard to profitability and earning capacity, in order to be able to detect at the earliest possible stage any conditions that could have repercussions on the stability of the financial system. The Swedish banking sector has been undergoing a process of transformation for some years now, and this places significant demands on the banks' capacity to change and adapt. The most important factors behind this transformation include changes in households' and companies' financial services needs, rapid technological developments and the integration of the European financial market.

These structural changes create new opportunities for the banks, but also entail strategic risks. The margins for traditional banking products are being squeezed by increasing competition, while expansion in new markets requires major investments and, to some extent, new competence. Strategic mistakes can result in considerable losses and significantly reduced profitability, which in turn could provide incentives for increased risk taking. Against this background, this chapter reports on the financial development in the banking sector, with the emphasis on the past year.

Profitability

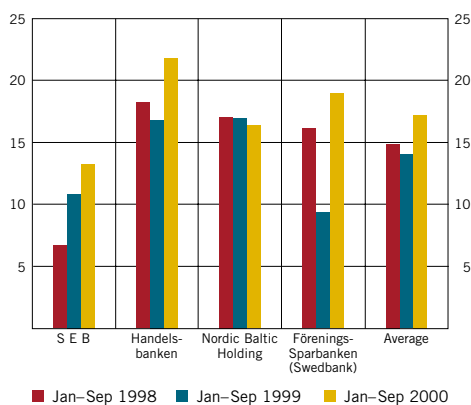
The major Swedish banks have shown a strong development in profitability during the first three quarters of 2000, characterised by a standstill in net interest income, rapidly growing commission income and low loan losses. The positive development in profitability is not so remarkable, given the strong economy and high level of activity on the stock exchange during this period. The total return on equity after tax during the period January-September amounted to 17.2 per cent, which corresponds fairly well with the average level for the past five-year period (see Figure 1:1).

Figure 1:1 Return on equity after tax in the major banks.
Per cent



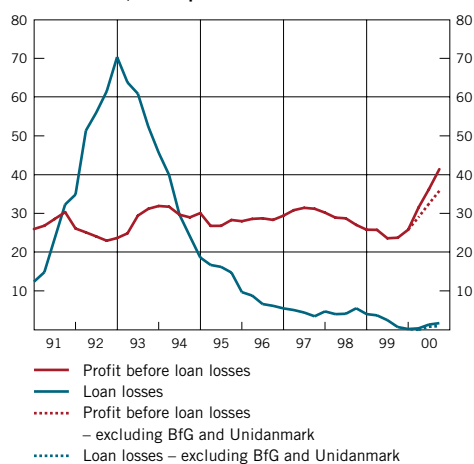
Sources: The banks' reports and the Riksbank.

Figure 1:2 Return on equity after tax.
Per cent



Sources: The banks' reports and the Riksbank.

Figure 1:3 Profit before loan losses and loan losses in the major banks, totalled over four quarters.
SEK billion, 1991 prices



Sources: The banks' reports and the Riksbank.

The major Swedish banks have shown a strong development in profitability during the first three quarters of 2000, characterised by a standstill in net interest income, rapidly growing commission income and low loan losses.

Compared with the equivalent period in 1999, when return on equity amounted to 13.9 per cent, the result for the period is a clear improvement (see Figure 1:2).

Although return on equity is not particularly high in a long-term perspective, the past twelve-month period distinguishes itself in that the banks' underlying earning capacity¹ is stronger than it has been for a very long time (see Figure 1:3). During the whole of the 1990s, the banks' underlying earning capacity showed hardly any growth at all – in real terms the earning capacity in 1999 was lower than it was in 1991. Despite this, it was possible to achieve high profitability, since loan losses were gradually declining from the high levels that prevailed in the beginning of the 1990s.

1 Underlying earning capacity refers to profit before loan losses.

CONSOLIDATION IN THE BANKING SECTOR

The Swedish banking sector has continuously been undergoing processes of consolidation, of which the most recent started in the mid-1990s. During the period 1995–1997, there occurred a number of large domestic mergers, the one between Nordbanken and Merita Bank being the only cross-border case. After this, the consolidation process continued with a few minor acquisitions, particularly in the Baltic States and Poland. Following SEB's acquisition of BfG and MeritaNordbanken's merger with Unidanmark and acquisition of Christiania Bank og Kreditkasse, several major Swedish banks are now saying that they have set their sights on northern Europe (see Table R1).

Table R1. Major corporate deals involving Swedish banks, 1995–2000

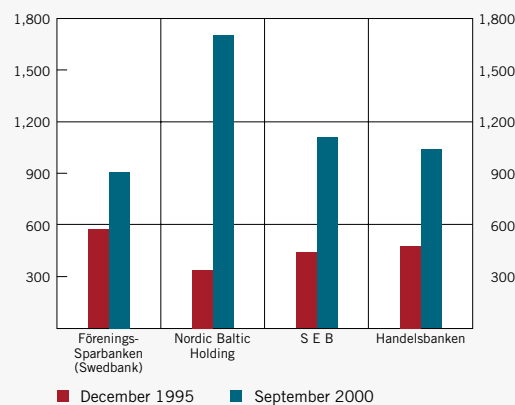
- Acquisition of the Stadshypotek mortgage institution by Handelsbanken.
- Merger between Sparbanken Sverige and Föreningsbanken.
- Merger between Nordbanken and Merita Bank.
- Acquisition of the insurance group Trygg-Hansa by S E B.
- Acquisition of the BfG by S E B.
- Merger between MeritaNordbanken and Unidanmark, and acquisition of Christiania Bank og Kreditkasse by the new group.

A natural consequence of the extensive mergers is that the major Swedish banks are now significantly larger than they were before the consolidation process began in 1995 (see Figure R1). However, the growth has largely occurred outside of Sweden, which means that an increasing share of the banks' assets and income is attributable to operations abroad.

The underlying motives for banks to merge vary. However, one fundamental factor is that the growth potential for traditional banking services, such as deposits, lending and payments, is considered to be low. Thus, it is difficult to improve profitability through increased sales of these services, which has driven the banks to *both* try to reduce their costs *and* acquire new sources of income with greater growth potential. Naturally, a bank can choose to, for instance, implement cost savings and to develop new products on its own, but a merger with another bank often appears a quicker, more effective alternative.

The gains in efficiency, or synergies, that can be obtained through a merger can be attributed to both costs and incomes.

**Figure R1 Balance sheet total.
SEK billion**



Note. Nordic Banking Holdings' balance sheet total for 1995 refers to Nordbanken only.

Sources: The banks' reports and the Riksbank.

Cost synergies:

- Integration of central functions, such as IT systems, administration and asset management.
- Closure of overlapping parts of branch networks.
- Lower borrowing costs and less required capital as a result of greater diversification. When assessing a bank's credit rating, the rating agencies tend to look positively on a large, diversified balance sheet.

Income synergies:

- Increased sales through access to new clients.
- Larger clients can be attracted by achieving the necessary critical mass.

However, when a bank increases in size or adds new products to its portfolio, new costs arise with regard to co-ordination and organisation. In addition, a larger organisation may result in increased bureaucracy and thus less efficient decision-making structures.

Academic research into bank mergers shows, with some exceptions, that the economies of scale involved are limited, and cease to exist even at a fairly small size.² This would mean that it is mainly the smaller banks that can improve their efficiency by increasing in size. However, the generalisation of these results may be questioned since the studies are largely based on American conditions, characterised by the specific American regulations that previously did not allow European style universal banks. Furthermore, the majority of the studies is relatively old which puts the focus on traditional banking activities, such as deposit taking and lending through bank branches. Thus, the activities that are generally considered to provide the greatest economies of scale, such as mutual fund management and Internet services, are under-represented.

The stock market's reaction to a merger between banks can provide an indication of the expected synergy effects. If a merger is expected to improve profitability, this should be reflected in a higher stock market value for the merging banks. However, studies of how the stock market reacts to the announcement of a merger on average do not indicate any effect on the combined shareholder value. Even if the valuation of the acquired bank rises, this is usually compensated by a corresponding depreciation of

² See, for instance, Berger, Demetz & Strahan (1999). "The consolidation of the Financial Services Industry: Causes, Consequences and Implications for the Future". *Journal of Banking and Finance*, volume 23.

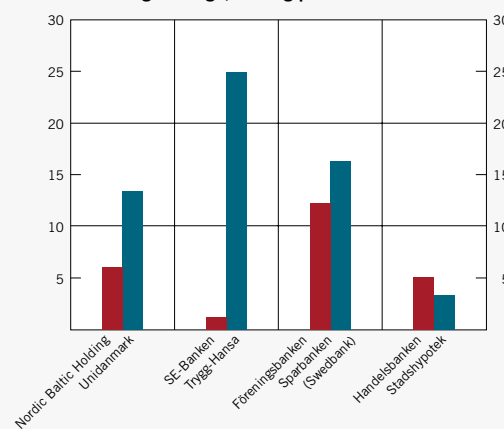
the share value of the bank making the bid. Thus, the only effect of a merger is often a transfer of wealth from the shareholders of the bidding bank to those of the acquired bank.³

With regard to consolidation in the Swedish banking sector, it is not yet possible to draw any general conclusions. All of the major banks have taken part in some form of consolidation, which makes it difficult to assess how a bank would have managed on its own. On the other hand, it can be concluded that the immediate market reactions at the announcement of a merger have been mainly positive (see Figure R2). This could be interpreted as the deals, at the time of the announcement, being expected to result in improved profitability. However, caution should be exercised when making such an interpretation, especially with regard to the acquired banks. The acquisition price normally includes a premium, which leads to a rise in the share price.

From a stability perspective, the most tangible effect of the Swedish banks' consolidation activities is probably the increased exposure to foreign markets. On the one hand, new credit risks arise in new markets, which can spill over into the Swedish banking sector. On the other hand, the total risk in the credit portfolio may be reduced through improved geographical diversification, which is often much more effective than diversification between different industries in the same country.

Another consequence of international consolidation is that transparency tends to decline, which makes it more difficult for authorities, rating agencies and the stock market to regularly analyse the condition of the bank. It also makes it more difficult for the authorities to take measures in the event of a failure. The international collaboration between central banks and supervisory authorities on these issues thus becomes even more important.

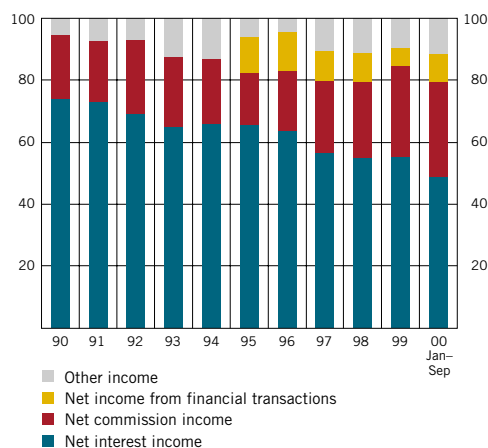
Figure R2 Share price reactions on date of announcement of mergers.
Percentage change, closing price



Source: The Riksbank.

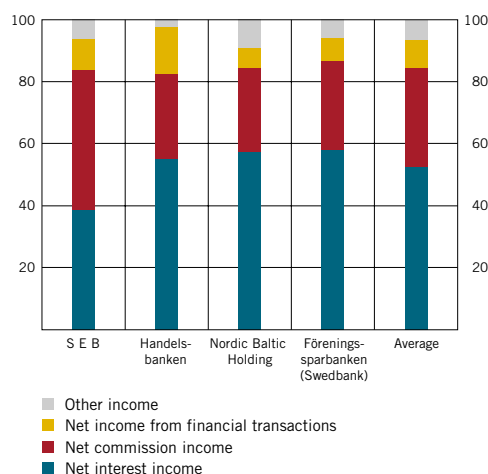
³ See, for instance, Pilloff and Santomero (1998). "The Value Effects of Bank Mergers and Acquisitions" in Amihud & Miller, ed., *Bank Mergers and Acquisitions*, Kluwer Academic.

Figure 1:4 Income structure in the major banks. Per cent



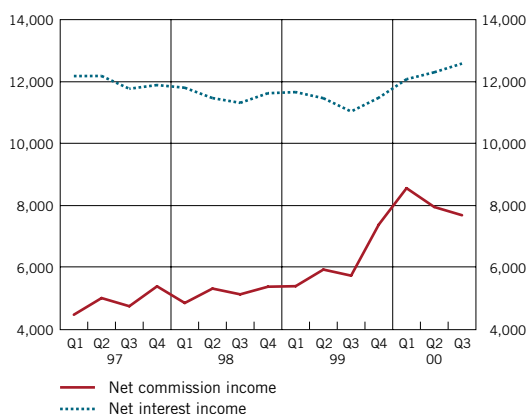
Sources: The banks' reports and the Riksbank.

Figure 1:5 Income structure, January–September 2000. Per cent



Sources: The banks' reports and the Riksbank.

Figure 1:6 Net interest income and net commission income in the major banks. SEK million



Note. Excluding BfG and Unidanmark.

Sources: The banks' reports and the Riksbank.

Income

The major banks' income increased by 17 per cent during the first three quarters of 2000, compared with the corresponding period in 1999. The high rate of increase is almost entirely explained by rapidly growing commission income from asset management, securities trading and corporate finance services, as well as successful financial transactions. The net interest income that arises from the difference between interest income and interest expense declined marginally. This comprised an accentuation of the trend that became clear some years ago, whereby the significance of net commission income as a source of income is gradually growing and the significance of the traditionally dominant net interest income is declining (see Figure 1:4).

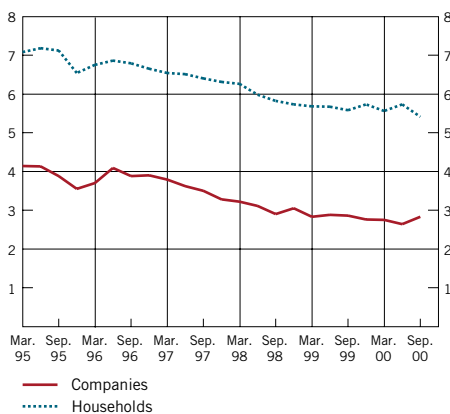
Net interest income has gone from comprising more than 70 per cent of income at the beginning of the 1990s to just under 50 per cent. During the same period, net commission income has increased its share of revenue from 18 per cent to just over 30 per cent. There are several reasons behind this change in the banks' income structure. Three contributory factors are: increasing competition in the deposits and lending markets, increased disintermediation⁴ and significantly lower interest rates during the 1990s than in the 1970s and 1980s.

During the latter part of the 1990s, the major banks' traditional deposit and lending activities have been exposed to increasingly stiff competition, mainly from smaller banks and foreign banks, which has contributed to steadily falling margins (see Figure 1:7).

The major banks' share of total public lending now constitutes just over 80 per cent, which can be compared with more than 90 per cent at the beginning of the 1990s (see Figure 1:8). The falling prices have meant that net interest income has been fairly constant, despite volumes in both deposits and lending showing a relatively high rate of increase in recent years (see Figure 1:9). This development has led to the major banks wanting to reduce their dependence on net interest income.

Furthermore, in recent years a growing percentage of saving and

Figure 1:7 Lending and deposit margins in the major banks. Per cent



Source: The Riksbank.

⁴ *Disintermediation* means that an increasingly large percentage of saving and credit granting is occurring directly on the financial markets, without banks acting as intermediaries.

financing in the Swedish economy has occurred outside of the banks. Households are choosing to invest an increasingly large *percentage* of their savings in shares and bonds instead of bank accounts. At the same time, it is becoming more common for companies to finance themselves by issuing shares or bonds instead of through traditional bank loans, although the latter still comprises the most important source of financing.⁵ All in all, this means that the banks' role has changed to some extent - from direct supplier of credit to providing financial advice and asset management. In addition, asset management and financial advice have, over the past few years, shown greater profitability than traditional deposits and lending. However, it is not certain that today's levels of profitability in asset management will last when the products become standardised and an increasing number of new players enter the market. If the long-term positive trend on the stock market is broken, this could also have considerable effects on profitability. In addition, it cannot be ruled out that the capital gains taxation currently deducted when transferring to a different fund will be abolished. As the major banks were among the first to enter the mutual fund market, they currently benefit from the restraining effect of the capital gains taxation.

The increased significance of net commission income could affect financial stability negatively or positively. As the overwhelming majority of commissions is related to asset management, stockbroking and corporate finance, the banks' exposure to developments on the stock market increases (see Figure 1:10).

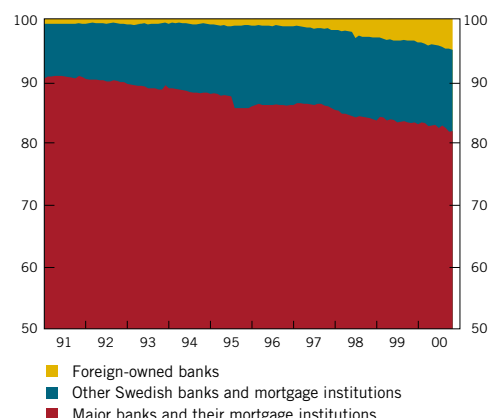
The slightly weaker developments in the stock market during the second and third quarters immediately resulted in a lower net commission income, although the level is still considerably higher than it was one year ago. It is therefore likely that a not inconsiderable part of the past year's increase in commission income is connected to the strong stock exchange development that characterised the last quarter of 1999 and the first quarter of 2000 in particular. However, it is too early to say how large a part of the increase in commission income is the result of a strong stock exchange development and how much reflects structural changes in the behaviour of households and companies.

The increased significance of net commission income and thus declining dependence on net interest income thus appears a positive development.

One positive effect of an increased share of commission income, and thus a smaller share of net interest income, is the improvement in income diversification thus achieved. A bank with income from several different sources should have greater resistance to a deterioration in credit quality than a bank with a more one-sided dependence on income from granting credit. Rapidly rising loan losses have historically been the most common reason behind bank crises. Therefore, the increased significance of net commission income and thus declining dependence on net interest income appears a positive development.

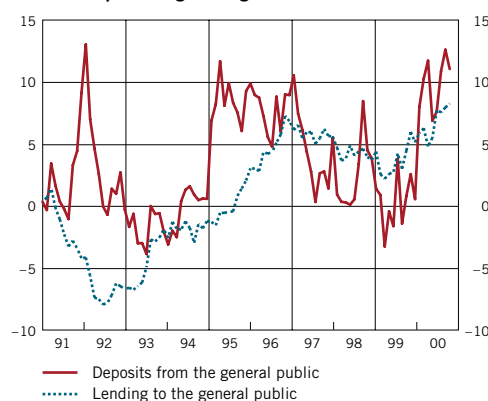
5 For further discussion on household savings and company financing, see Chapter 2.

Figure 1:8 Lending by banks and mortgage institutions. Market share in per cent



Source: The Riksbank.

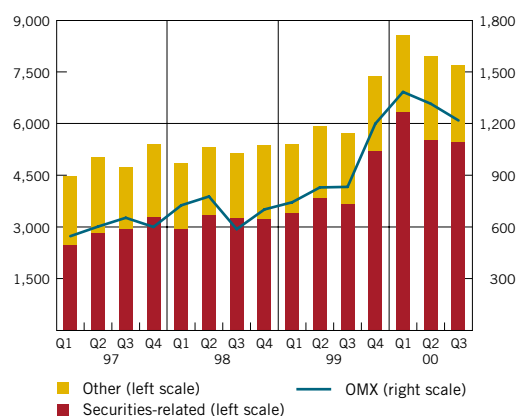
Figure 1:9 Deposits and lending to the general public in major banks and their mortgage institutions. Annual percentage change



Note. Excluding repos.

Source: The Riksbank.

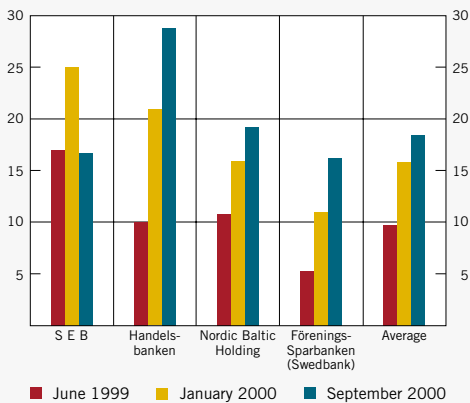
Figure 1:10 Net commission income in the major banks and stock market development. SEK million and OMX index



Note. Excluding BfG and Unidanmark.

Sources: The banks' reports and the Riksbank.

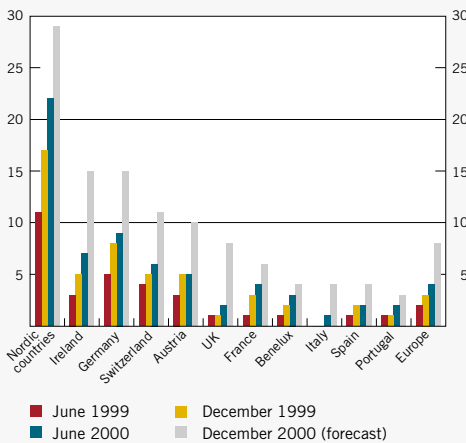
Figure R3 Proportion of Internet customers.
Per cent



Note. Percentages includes the banks' foreign operations as these arise.

Sources: The banks' reports and the Riksbank.

Figure R4 Proportion of Internet customers in listed European banks.
Per cent



Source: Lafferty Business Research.

THE INTERNET AND FINANCIAL STABILITY

Over the past few years, the range of Internet-based banking services has grown rapidly. Besides supplying another channel for distribution and marketing, with new business opportunities, the Internet provides opportunities for far-reaching rationalisation and cost cutting. As customers are given greater opportunity to perform simple errands from a computer connected to the Internet, the need for banks to maintain bank branches and personnel declines.

The percentage of Swedish bank customers using the banks' Internet services now amounts to approximately 20 per cent, which is a very high figure by international standards (see Figures R3 and R4). Although there is some uncertainty as to how many of the customers with an Internet connection actually use the available services, the banks report that for certain services, more transactions are now made via the Internet than in the traditional way.

As an increasing number of customers choose to use banking services over the Internet, the risks associated with this development have been highlighted by the banks, the authorities concerned and by the media. It has been questioned whether the systems are sufficiently robust to handle situations with extremely high transaction volumes. For instance, there have been occasions when stockbroker services have ceased to function as a result of the large number of customers trying to log on at the same time. In addition, concern has been expressed over the risk of unauthorised access by hackers, which could lead to accounts being emptied or private customer information getting into the wrong hands. Common to these risks is the fact that they are risks to which the *customers* become exposed by using banking services over the Internet.

However, seen from a stability perspective, it is more relevant to analyse the risks to which the *banks* expose themselves by allowing an increasing share of customer transactions to take place over the Internet. The Internet hardly changes the *financial* risks that have always comprised a natural part of banking activities, such as *credit risks* when granting loans or market risks when investing in securi-

ties.⁶ On the other hand, Internet expansion involves increased *operational* and *strategic* risks.

Operational risks are risks resulting from inadequate or failed internal processes, people and systems (see Chapter 4). The degree of operational risk in a bank is thus largely due to the quality of the bank's internal control system and IT system. The rapid technological developments many banks are currently experiencing mean that their internal control systems and routines need to change at a corresponding rate to avoid becoming outdated and inadequate. These changes in themselves give rise to increased operational risk.

When an increasing number of transactions are made via the Internet, the consequences of technical breakdowns and hitches become greater. If a bank's Internet services suffer technical problems or unauthorised access by hackers, which lead to customer accounts being emptied, this could seriously damage the general public's confidence in that bank and perhaps in the banking sector as a whole. It is difficult to imagine at the moment that this would lead to a confidence crisis of such depth or to such an extensive withdrawal of bank funds that the financial stability would be threatened. This assessment is supported by the incidents, ranging from technical breakdowns to unauthorised access and withdrawals from customer accounts, that have befallen large Internet banks in the UK this year. Although the incidents have probably damaged confidence in the banks affected, they have not given rise to any system threatening reactions from the general public.

The strategic risk faced by a bank is the risk that its long-term business strategy may fail by proving to be unprofitable. All of the major Swedish banks have invested considerable sums in Internet technology and thus run a strategic risk that these investments will not generate the profits now being forecast. It might not be possible to achieve the critical number of Internet customers required to make the investments worthwhile. Although the number of Internet customers is satisfactory, perhaps the increased competitiveness that should be achieved with the new technology might result in such a reduction in prices on banking services that the expected improvements in profitability are not forthcoming.

6 The Internet can, of course, significantly improve a bank's opportunities to expand to new geographical markets. Expansion in new markets is and has always been connected with certain risks that are basically connected to the fact that the new bank is at a disadvantage compared with already established banks with regard to information on local market conditions. In this case, the risk should be regarded as a credit risk in the bank's lending rather than a risk particularly connected with the Internet.

In addition, the Internet technology enables a different kind of strategic risk taking in the form of expansion abroad. All of the Swedish major banks are currently planning or implementing ambitious establishments on foreign markets. A common argument in favour of these foreign investments is the advantage over foreign banks that Swedish banks feel they have in Internet technology. It remains to be seen whether this technological advantage is sufficient and whether it is possible to establish customer relations over the Internet to the extent anticipated.

If the investments in the Internet should prove to be unprofitable and the foreign expansion connected with them should fail, this would have a significant impact on the Swedish banks' profits. In the short term, however, the banks' strategic risk taking in this field does not appear likely to provide any problems.

Costs

The combination of a modest growth in volume and falling margins that has marked the banking sector for several years now has led to cost efficiency becoming an increasingly important means of achieving profitability goals. One common measure of a bank's cost efficiency is the C/I ratio, which expresses the bank's total costs in relation to total income. During the period January-September 2000, the banks' total cost efficiency has developed well (see Figure 1:11).

The explanation for the improvement in the C/I ratio is that income has increased, rather than that costs have decreased, which has been the case in previous years. During the period January-September, costs increased by 5 per cent, compared with the corresponding period in 1999, while income increased by 17 per cent. A significant proportion of the increase in costs comes from the fact that a growing share of the wage cost is earnings-based. According to several banks, if this earnings-based effect is excluded, costs have actually remained constant or even declined. The question is to how variable this type of bonus-based wage cost is in practice and consequently, whether these costs can be expected to decline to a corresponding degree when profits fall. In asset management, for example, the manager's bonus is often related to how well the fund develops in relation to a market or sector index. This means that the bonus cost will not necessarily fall, even if earnings decline as a result of weaker market performance.

There is a considerable difference in cost efficiency between the banks, measured according to the C/I ratio (see Figure 1:12). However, it should be pointed out that this measure is affected by the business structure of the bank and should therefore be interpreted with some caution in comparisons between banks with different operational orientations. On the other hand, the change in the C/I ratio provides a good indication of the cost development in the individual bank.

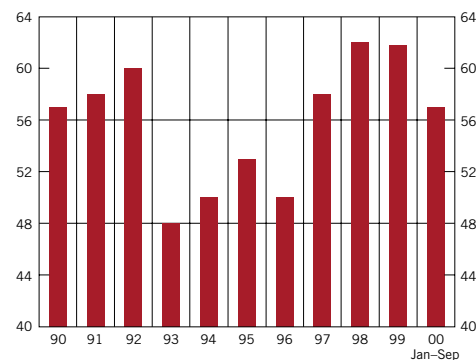
Despite the differences in levels between the major banks, the positive trend of the past few years has been largely the same for all of them. Several banks claim that the improvement is largely explained by the efficiency gains resulting from the increased use of the Internet by customers. This appears reasonable, but to be able to assess the size of potential efficiency gains due to the Internet, it is necessary to include the original cost of the Internet investments in the calculations. However, in practice it is difficult to estimate this cost.

The banks' financing

BORROWING

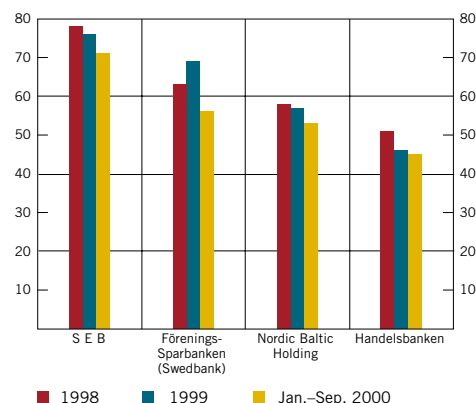
The way in which banks finance themselves is important in that a bank's borrowing potential risks disappearing rapidly if their solvency is questioned in the market, with the result that liquidity problems may arise in the bank. This problem is greater for banks than

Figure 1:11 Costs before loan losses as a percentage of income (C/I ratio) in the major banks. Per cent



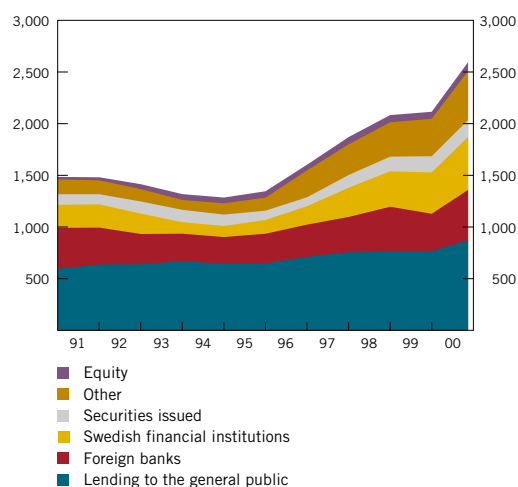
Sources: The banks' reports and the Riksbank.

Figure 1:12 Costs before loan losses as a percentage of income (C/I ratio). Per cent



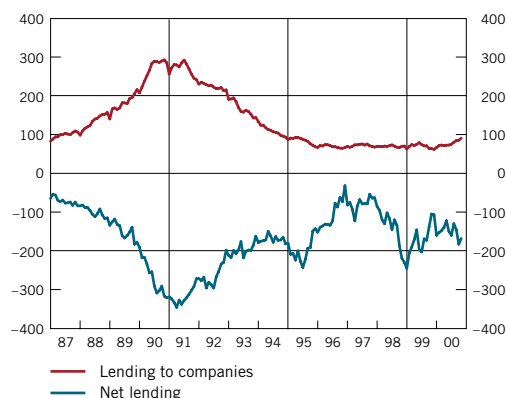
Sources: The banks' reports and the Riksbank

Figure 1:13 Liabilities and equity in major banks. SEK billion



Source: The Riksbank.

Figure 1:14 Lending to companies in foreign currency and net lending to foreign banks. SEK billion



Source: The Riksbank.

other companies, since a major part of the banks' assets are illiquid, while their liabilities, both deposits and most other sources of financing, can be withdrawn at very short notice.

Deposits from households and companies have traditionally been the most important source of financing for the banks. Despite the fact that deposits are immediately accessible to depositors, the risk that a vast number of deposits be withdrawn rapidly is considered relatively slight, mainly due to the fact that they are covered by the government deposit guarantee. Nor was there any widespread withdrawal of deposits during the Swedish banking crisis, despite the fact that there was no deposit guarantee then. In recent years, deposits have declined in significance as a source of financing, partly due to the increased interest in other forms of saving, such as shares and mutual funds (see Figure 1:13).

One major change that has occurred in the banks' financing structure during the 1990s is that the share of financing obtained through other Swedish financial institutions has increased, which is mainly explained by the fact that the repo market has grown. Another change that has occurred is that the 'other' item has increased considerably, which mainly is a result of that the derivative positions taken up in the accounts as liabilities have increased.

Perhaps the most volatile source of financing is funding from foreign banks. Experiences from both the Swedish banking crisis and foreign banking crises show that it is often the foreign lenders who withdraw their financing first when a bank or banking system begins to experience problems. The problem can be particularly severe if the foreign financing requirement arises because the domestic corporate sector finances itself in foreign currency, which was the case during the Swedish banking crisis. When financing in foreign currency was withdrawn, the banks experienced serious problems in continuing to finance companies' foreign exchange loans.

Today the banks have a relatively large net borrowing from foreign banks, albeit smaller than at the beginning of the 1990s. However, this is not associated with a corresponding increase in Swedish companies' borrowing in foreign currency (see Figure 1:14). The banks currently have a larger percentage of liquid assets than at the beginning of the 1990s, which means that the risks connected with foreign financing appear less serious today.

EQUITY AND CAPITAL ADEQUACY

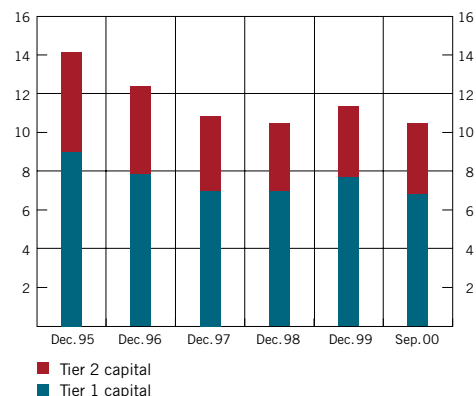
From a stability perspective, it is important that the banks have a strong capital base in order to withstand any unexpected losses. Although capital adequacy has declined by almost one percentage point since the start of the year, this is only natural given the acquisitions that have taken place since then (see Figure 1:15). The considerably higher Tier 1 capital ratio shown, for instance, by S E B at the start of the year, should be seen in the light of the acquisition then being carried out (see Figure 1:16). In the same way, the capital adequacy in Nordic Baltic Holding will decline slightly with the acquisition of Christiania Bank og Kreditkasse.

It is now possible to reduce capital adequacy intentionally through the buyback of shares. Although several of the banks have discussed the possibility of buying back shares, so far only Handelsbanken has begun a repurchase programme.⁷

It can be concluded that the banks' capital adequacy is still satisfactory, despite the implementation of these plans.

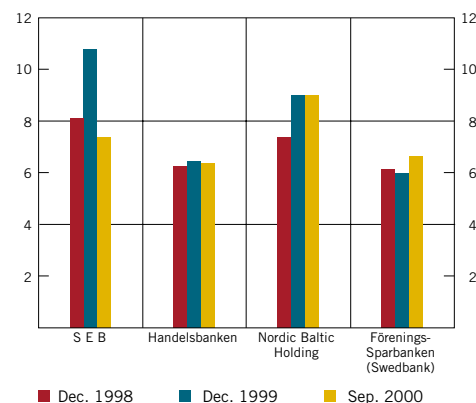
The previous Financial Stability Report discussed the effects of the planned reductions in capital adequacy, which would result from buyback of shares, and acquisitions. It can be concluded that the banks' capital adequacy is still satisfactory, despite the implementation of these plans. The total capital adequacy amounts to just over 10 per cent. The strong earning capacity of the banks is a significant factor behind this, as high profit levels make it possible to use accumulated profits to continuously strengthen the capital base.

Figure 1:15 Capital adequacy and Tier 1 capital ratio in the major banks. Per cent



Sources: The banks' reports and the Riksbank.

Figure 1:16 Tier 1 capital ratio. Per cent



Sources: The banks' reports and the Riksbank.

⁷ As of 31 October, Handelsbanken had repurchased 2.1 per cent of the total amount of shares. The goal is to buy back almost 7 per cent of the total number of shares before the next annual general meeting in 2001.

Macroeconomic developments and credit risks in the banks

The positive development of the Swedish economy implies that the risk of major loan losses at the banks is low. The corporate sector features limited indebtedness and good ability to service debt. Although households have increased their indebtedness, their ability to service debt is satisfactory, thanks in part to low interest rates. Property prices are continuing to climb but this does not appear to be speculation-driven. All in all, both households and businesses are expected to be able to ride out an economic downturn without triggering extensive loan losses.

The levels of loan losses suffered by the banks are normally dependent on the macroeconomic climate. During an upswing those businesses able to borrow from the banks generally encounter growing demand and so easily find a market for their products, with relatively few running into payment difficulties or defaulting. Losses on loans to the household sector are also low since a buoyant economy generally brings rising incomes and relatively low unemployment.

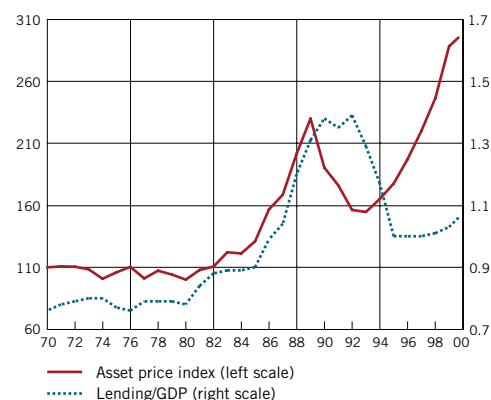
The Swedish economy is currently booming – growth in economic activity has been strong and is expected to remain so over the next two years, according to the assessment in the latest Inflation Report.

The Swedish economy is currently booming – growth in economic activity has been strong and is expected to remain so over the next two years, according to the assessment in the latest Inflation Report. It is important during this phase of the business cycle to monitor movements in indebtedness and ability to service debt in the corporate and household sectors in order to detect signs of an unbalanced development at an early stage.

The late 1980s brought a surge in both asset prices and an increase in lending. When the macroeconomic situation worsened and asset prices collapsed, this caused heavy loan losses at the banks and eventually brought about a severe financial crisis. The last few years have seen asset prices climbing in a similar fashion, albeit with a slight correction in recent months, but lending has not risen to the same extent. Lending relative to GDP is significantly lower than at the beginning of the 1990s, but has increased slightly over the last two years. Thus the current growth in asset prices does not appear to be fuelled by credit expansion as was the case leading up to the banking crisis of the 1990s (see Figure 2:1).

This chapter analyses developments in lending to households and the corporate sector. With regard to the latter, special importance is attached to describing the development in the property sector.

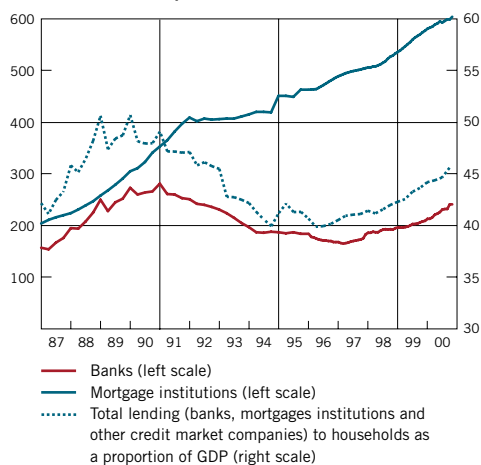
Figur 2:1 Lending as a proportion of GDP and real asset prices.
Per cent and index: 1980=100



Note. Lending is defined here as loans to the Swedish public (households, businesses and local authorities) relative to GDP. The asset price index is a weighted average of the prices of shares, single-family dwellings and commercial property, deflated by the CPI. Asset price index compiled by BIS through to 1997 and extrapolated by the Riksbank from 1998 onwards.

Sources: BIS, Statistics Sweden and the Riksbank.

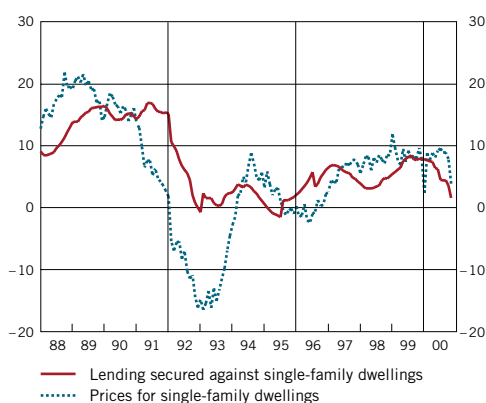
Figure 2:2 Lending by banks and mortgage institutions to households and total lending as a proportion of GDP.
SEK billion and per cent



Note. Statistics Sweden changed the method used to compute GDP with effect from 1993 and so the Riksbank has restated the earlier data series using the new method. Prior to 1995, the total lending figure includes banks, mortgage institutions and finance companies but not other credit market companies. The data series here differ somewhat to those presented in previous editions of the Financial Stability Report where only the banks and mortgage institutions were included in total lending.

Sources: Statistics Sweden and the Riksbank.

Figure 2:3 Mortgage institutions' growth in lending secured against single-family dwellings and growth in prices for single-family dwellings.
Per cent



Sources: Statistics Sweden and the Riksbank.

The household sector

LENDING TO HOUSEHOLDS

Recent years have brought improvements in household finances on account of higher real wages and lower unemployment. The conclusions drawn in the Riksbank's latest Inflation Report suggest that this upward trend will continue the next two years. In these circumstances it is natural for households to borrow to invest in home ownership or purchase durable consumer goods.

Total lending to households increased by 8.2 per cent in October 2000 on an annualised basis, which is marginally lower than the figure recorded during the corresponding period in 1999 (8.8 per cent). Lending has also risen relative to GDP, from 44 per cent in October 1999 to 46 per cent in October 2000. The growth in lending is not evenly distributed between different types of credit institutions, breaking down into 16.1 per cent for the banks, 5.2 per cent for the mortgage institutions and 10.9 per cent for the finance companies. The relatively sharp growth in bank lending breaks down in turn into 74.3 per cent for the smaller Swedish banks and foreign banks and 7.4 per cent for the big four Swedish banks⁸. Growth in lending by the finance companies has slowed considerably in recent months to levels well below those noted in the previous issue of Financial Stability (May 2000).

Lending to households is linked to price trends for residential property. Prices for single-family dwellings were 8 per cent higher in October 2000 than in the same period in 1999. However, the picture varies widely across Sweden. Growth was again highest in Stockholm – 13 per cent during the first half of the year – but does appear to have slowed in recent months. Prices climbed 9 per cent in Malmö and 7 per cent in Gothenburg and in the areas around the big cities. The number of single-family dwellings sold in the third quarter this year was down around 20 per cent compared to 1999.

Growth in lending by the mortgage institutions secured against *single-family dwellings* has matched growth in prices relatively closely (see Figure 2:3). Lending by the mortgage institutions secured against condominiums has continued to rise rapidly: October 2000 brought annualised growth of 29 per cent, which is the same rate of increase as October 1999. As a comparison, it can be mentioned that the corresponding rate of increase during the period in the run-up to the banking crisis was around 60 per cent. The substantial increase in lending secured against condominiums is probably due to their higher value as collateral following the sharp rise in prices. Similarly, the borrowing requirement has increased due to the conversions from rental property to condominiums that have taken place recently. However, it should be noted that these loans account for just 5 per cent of total lending by the mortgage institutions.

Some lending with property as collateral also occurs in the banks. Lending with private housing as collateral cannot be monitored sep-

⁸ "Foreign banks" refers to foreign-owned banks' subsidiaries and branches in Sweden.

arately in the statistics for this category, but the total lending with residential property as collateral has not increased significantly (see Figure 2:12 later on).

The households most vulnerable to a drop in prices for single-family dwellings are those that have recently purchased in the Stockholm area, where prices have risen most. Financing costs for single-family dwellings after tax relief have increased by an average of 25 per cent here since 1998.⁹

HOUSEHOLDS' ABILITY TO SERVICE DEBT

Indebtedness is not the only parameter of interest from a stability perspective. A household may have large debts without this leading to appreciable risks as long as its ability to service these debts is good – in other words its income is sufficient to cover interest and amortisations.

Household debt has continued to rise faster than disposable income.

Households' confidence in their own financial situation remains high. Statistics Sweden's confidence indicator for October suggests that 25 per cent expected their finances to improve over the next 12 months and only 8 per cent expected them to deteriorate.

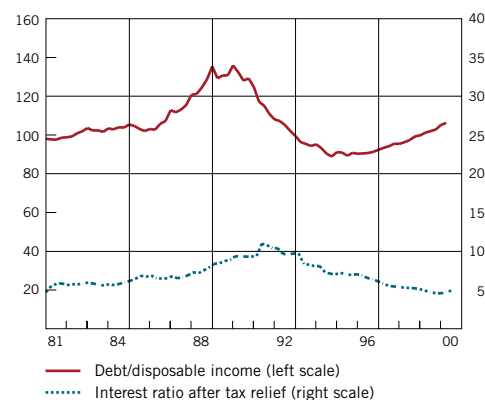
Household debt has continued to rise faster than disposable income (see Figure 2:4). The interest ratio shows that household interest costs too have risen slightly relative to income in the last year. However, the interest ratio is far lower than at the beginning of the 1990s thanks to lower interest rates.

Lending from mortgage institutions is taking place to a greater extent at variable rates of interest. More than 70 per cent of *new loans* granted to households from mortgage institutions are at variable rates of interest, with variable-rate loans now accounting for 36 per cent of the total stock of lending to households by mortgage institutions. As bank loans are normally granted at variable interest rates, it is estimated that around 54 per cent of household loans from the banks and mortgage institutions are variable-rate loans, compared with 44 per cent last year. The growing proportion of variable-rate borrowing is making households more and more sensitive to changes in interest rates, with any changes in short-term rates having an increasingly rapid impact on household finances.

The growing proportion of variable-rate borrowing is making households more and more sensitive to changes in interest rates, with any changes in short-term rates having an increasingly rapid impact on household finances.

9 The financing cost is calculated as the average price of a detached house in Stockholm, multiplied by the mortgage institutions' floating interest rate.

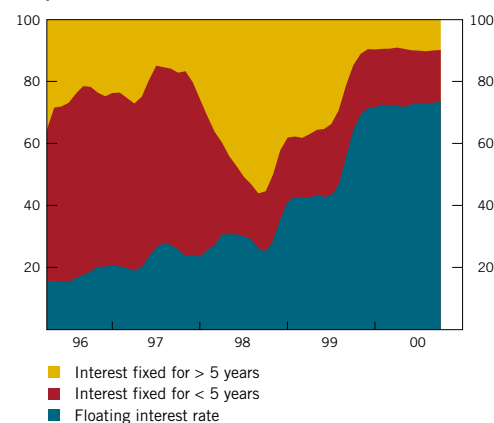
Figure 2:4 Household debt relative to disposable income and household interest ratio. Per cent



Note. The interest ratio shows household interest costs after tax relief relative to disposable income.

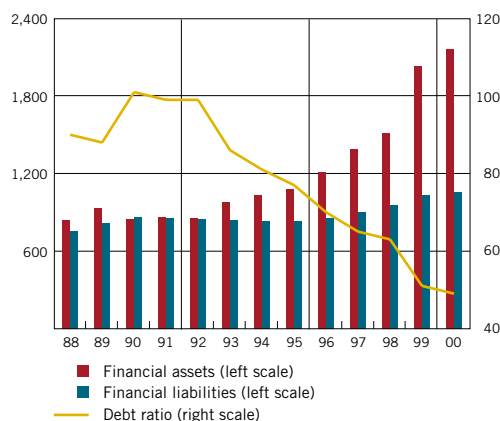
Sources: Statistics Sweden and the Riksbank.

Figure 2:5 Fixed interest periods on new loans to households granted by mortgage institutions. Three months moving average, per cent of total stock



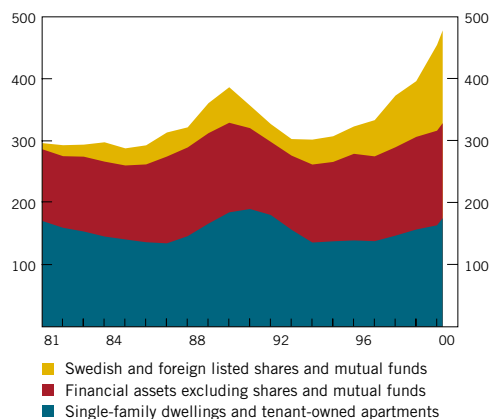
Source: The Riksbank.

Figure 2:6 Households' financial assets and liabilities.
SEK million and per cent



Sources: Statistics Sweden and the Riksbank.

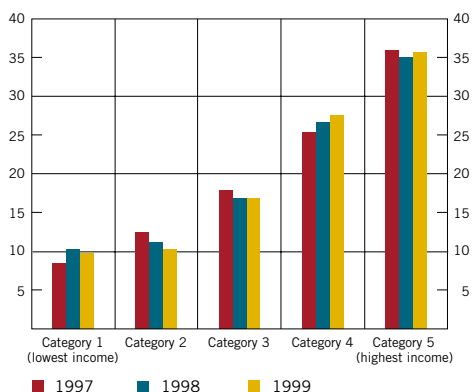
Figure 2:7 Households' assets.
Percentage of disposable income



Note. This chart shows households' investments in shares, mutual funds and other financial and real assets as a proportion of disposable income.

Sources: Swedish Ministry of Finance, Statistics Sweden and the Riksbank.

Figure 2:8 Distribution of the capital deficit between the various income categories.
Per cent



Note. The x-axis shows the categories, where category 1 contains the 2,000 persons (20 per cent) with the lowest wage income and so on up to category 5, which contains the 2,000 persons with the highest wage income.

Sources: Upplysningscentralen AB and the Riksbank.

The major surge in the value of shares and mutual funds in recent years has resulted in a substantial increase in households' financial assets (see Table 1).

Table 1. Households' financial assets, excluding insurance-based savings.
SEK and per cent

	1990		2000	
	Value (SEK billion)	Share of portfolio (per cent)	Value (SEK billion)	Share of portfolio (per cent)
Bank deposits, bank notes, coins and loans to the financial sector	535	69	543	27
Bonds	87	11	5	0.2
Shares and mutual funds	153	20	1 495	73
Total	775	100	2 043	100

Note. The table above excludes insurance-based savings because this type of saving is locked in. In this context it is of greater interest to look at financial assets that can be used to repay loans if households wish to reduce their interest costs.

Sources: Statistics Sweden and the Riksbank.

Shares and mutual funds currently account for over 70 per cent of households' financial assets, compared with just 20 per cent in 1990. It is interesting to note that it is the *proportion* of bank deposits that has fallen, not the volume. This means that, although households' total financial portfolio is more exposed to risk than before, the value of those classes of assets that can be considered safe (bank deposits, bonds, etc.) has decreased only marginally. Looking back at the last decade, the sharp rise in asset prices in the last few years has brought households' financial liabilities relative to their financial assets down to levels far below those seen in the 1980s (see Figure 2:6). The value of households' real assets (primarily their homes) have also increased in recent years (see Figure 2:7).

As in the previous Financial Stability Report, the Riksbank has attempted to assess the financial position of the most vulnerable households and the spread of risk in the household sector on the basis of tax return data for a random selection of households.¹⁰ These have been divided into five categories according to their pre-tax income from employment. The information on each category's capital deficit – capital income less interest expenses – can then provide an indication of the distribution of debts between the various income categories. Unsurprisingly the statistics reveal that the households with the highest pre-tax income also declare the highest capital deficit, which suggests that this category has the largest debts (see Figure 2:8). The statistics also show that the 20 per cent of households with the lowest incomes together account for less than 10 per cent of the total capital deficit.

Comparing the capital deficit to pre-tax income from employment provides a rough approximation of interest expenses relative to income in the various categories (see Figure 2:9).

Although households in the lowest income category have a relatively small capital deficit, these households are most vulnerable to a drop in income or rise in interest rates since they have the highest capital deficit relative to their income. However, the situation has

10 Anonymous information from the tax returns of 10,000 people chosen at random from the Upplysningscentralen AB (UC) database.

improved in recent years, with the interest ratio for the lowest income category being more than halved.

CONCLUSIONS

Although the rate of growth in household lending has slowed somewhat recently, household debt has continued to increase relative to disposable income. Household interest costs relative to disposable income have also risen slightly in recent months but, like household debt, remain at low levels compared to the beginning of the 1990s.

The sharp increase in households' financial assets means that households' liabilities have fallen relative to their financial assets to levels far below those seen in the 1980s. Even allowing for the fact that households' overall financial portfolio is more exposed to risk than before due to a high proportion of shares and mutual funds, the financial position of households looks good.

The most vulnerable households are those with the highest burden of debt relative to their income. These households belong to the category with the lowest income and are those most likely to run into payment difficulties following a downturn in the economy. However, the level of vulnerability has decreased substantially in recent years and the interest ratio for the category with the lowest incomes has halved. Nevertheless, variable-rate loans are now accounting for a relatively high proportion of household debt, making households more sensitive to increases in short-term interest rates than before.

Overall, the household sector's financial position is good.

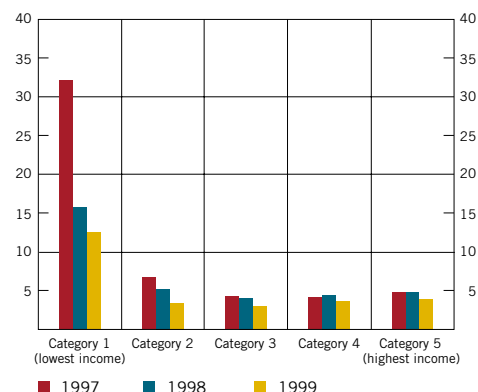
Overall, the household sector's financial position is good. Any deterioration in the economic climate or unexpected increase in interest rates could make it difficult for some households to service their debts, but probably not to an extent sufficient to cause widespread loan losses at the banks.

The corporate sector

The corporate sector has historically accounted for the bulk of the banks' loan losses. Heavy loan losses normally arise when large numbers of businesses generate trading losses as a result of an economic downturn. It is important to monitor developments in the corporate sector so that any signs of a build-up of vulnerability that could cause problems in the event of a recession can be picked up at an early stage. This section begins by analysing developments in corporate lending and then reviews changes in bankruptcy risks in the corporate sector.

It is not surprising that lending should increase in periods of high growth and confidence – the difficulty lies in deciding when this credit growth begins to amount to an excessive accumulation of risk in the banking sector.

Figure 2:9 Capital deficit relative to pre-tax income from employment for the various income categories. Per cent



Note. The x-axis shows the categories, where category 1 contains the 2,000 persons (20 per cent) with the lowest wage income and so on up to category 5, which contains the 2,000 persons with the highest wage income.

Sources: Upplysningscentralen AB and the Riksbank.

Credit growth is one of the most widely used indicators of credit risk at the banks, both in Sweden and elsewhere. The banking crises that have hit a number of countries in recent years have generally followed a phase of strong credit growth, often coupled with rapidly rising asset prices or large investments in what have later proven to be less profitable projects. This credit growth leads to a rapid accumulation of debt, which subsequently results in banks experiencing major losses, when the economic activity slows and asset prices fall or investments bring in lower than expected revenues. It is not surprising that lending should increase in periods of high growth and confidence – the difficulty lies in deciding when this credit growth begins to amount to an excessive accumulation of risk in the banking sector. An analysis of the factors that underlie credit growth allows a more educated assessment of the risks associated with any given development.

WHAT ARE THE FACTORS THAT DETERMINE CREDIT GROWTH?

Credit growth in the corporate sector is determined primarily by the demand for investment in the economy. High levels of investment naturally lead to a major demand for credits. One important way in which heavy loan losses can arise at the banks is when investment at an aggregate level is based on over-optimistic expectations and leads to trading losses at companies later on. The Swedish banking crisis was caused largely by unrealistic expectations of investments in property, both existing buildings purchased at over-inflated prices and new developments based on projections that assumed unrealistically high rents in the longer term.

At present demand for credit is not being fuelled primarily by investment in property (see also the section on the property sector below) but seems to be more general. IT is one of the fastest-growing sectors and, given the levels of risk associated with many IT start-ups, it would be a real danger if the demand for credit could be attributed to this sector. To date the IT companies have primarily raised finance on the stock market, which means that the suspension of payments or bankruptcy of businesses in the IT sector would have only a limited impact on the banks. However, a study by the Swedish Financial Supervisory Authority has found that lending to the IT companies has risen sharply recently, albeit from very low levels. This suggests that, after a start-up phase financed with venture capital, these companies are now beginning to switch to a more traditional loan financing. Nevertheless, according to the study, this type of lending accounts for a very small proportion of the banks' overall lending, less than 1 per cent.¹¹

Property prices are another factor that affects credit growth since property is the most common form of loan collateral. Rising property prices allow businesses to borrow more and can therefore have a positive impact on lending volumes. Here again property-driven lending is associated with particular risks because a drop in property prices can lead to the value of the collateral falling below the

¹¹ See Swedish Financial Supervisory Authority, "The Stability of the Swedish Financial Sector", 2000:5.

value of the loan and the collateral thus being realised at a lower value than the loan.

The banks' willingness to grant credits can also influence credit growth – high levels of credit growth may be a result of changes in their credit policies. This was the case in the late 1980s when inadequate credit assessment, along with competition for market shares, were key contributory factors to the high level of credit growth. However, the banks' credit policies are difficult to assess, especially at an aggregate level, because this requires qualitative information on how each individual bank's way of assessing credit applications changes over time.

Interest rates can also be expected to impact on credit growth. Interest rates are determined by factors such as the central bank's monetary policy, the inflation outlook and fiscal policy. Credit growth is probably affected in different ways by nominal and real interest rates, and tax aspects can also play a role. Although nominal interest rates were indeed high leading up to the banking crisis, high inflation and generous tax relief gave a low real rate of interest after tax. The 1990 tax reform then combined with falling inflation to trigger a rapid rise in real interest costs for borrowers during the crisis.

From a financial stability perspective there is good reason to monitor the total level of borrowing by businesses and pay particular attention to lending by the Swedish credit institutions.

Businesses do not borrow solely from Swedish credit institutions (banks, mortgage institutions, finance companies and other credit market companies). They may also borrow from foreign credit institutions or issue bonds and notes – or finance their operations with venture capital instead of loan capital, by issuing shares or by ploughing back their profits. From a financial stability perspective there is good reason to monitor the total level of borrowing by businesses and pay particular attention to lending by the Swedish credit institutions. Growth in total borrowing reflects growth in the overall indebtedness of the corporate sector.¹² Sharp increases in lending by any of the various types of credit institution will show which type of credit is in demand – and may also be a sign of more aggressive credit policies, which can be a warning sign in itself. The following looks first at total borrowing in the corporate sector and then at where the credit growth is happening.

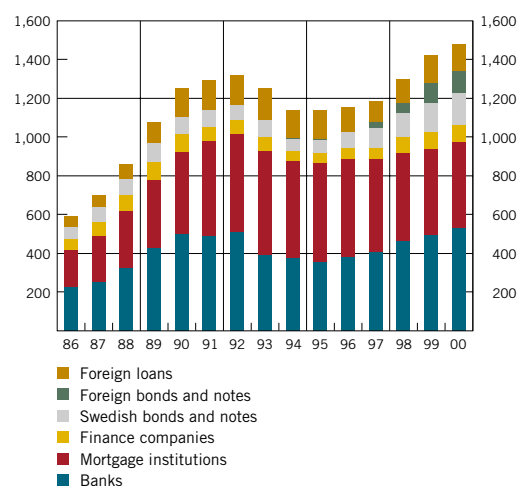
MOVEMENTS IN CORPORATE BORROWING

Total corporate borrowing has risen by 4.2 per cent in the last year (see Figure 2:10).¹³ This can be considered a relatively small increase

12 This can be viewed from both the lenders' perspective, by assessing growth in their overall loan portfolios, and the borrowers' perspective, by comparing indebtedness in the corporate sector to financial performance using debt/equity and interest coverage ratios. The latter is discussed in the section below on the corporate sector's ability to pay.

13 The rate of growth in lending by Swedish banks, mortgage institutions and finance companies and foreign credit institutions plus outstanding corporate bonds and notes both in Sweden and abroad.

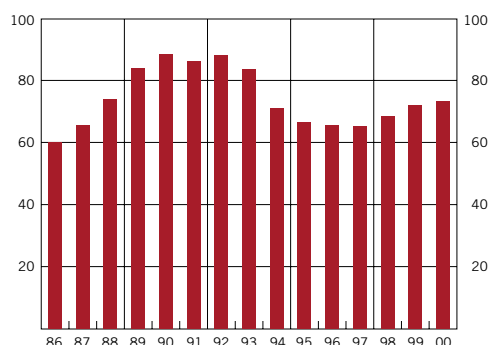
Figure 2:10 Corporate borrowing. SEK billion



Note. This chart includes lending from banks, mortgage institutions and finance companies plus foreign loans and financing through Swedish and foreign bonds and notes. Foreign bonds included from 1997 only; latest data as of June 2000.

Source: The Riksbank.

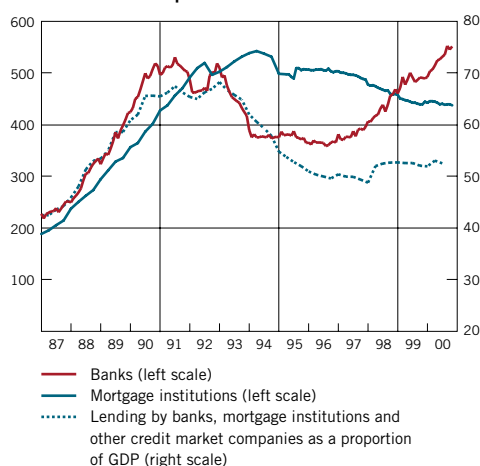
Figure 2:11 Total lending relative to GDP.
Per cent



Note. Latest data as of June 2000.

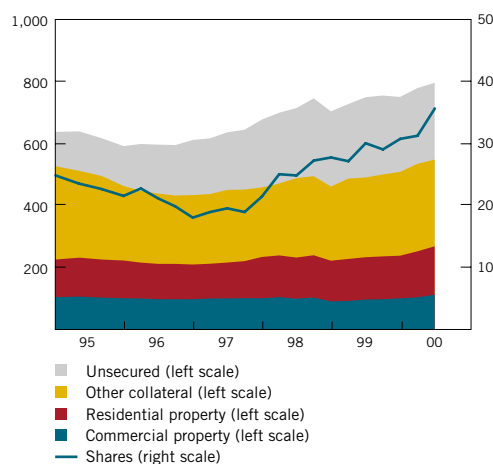
Source: The Riksbank.

Figure 2:12 Corporate lending.
SEK billion and per cent



Sources: Statistics Sweden and the Riksbank.

Figure 2:13 Collateral for bank loans.
SEK billion



Note. See the separate sections on the household sector and the property sector for a more detailed discussion of lending secured against shares and commercial property.

Sources: Finansinspektionen and the Riksbank.

in the current economic climate, especially as investment in the economy has climbed around 8 per cent in the last two years. Borrowing relative to GDP is around 73 per cent and has not risen appreciably in recent years, which suggests that borrowing is growing in step with the economy (see Figure 2:11). Borrowing relative to GDP was much higher at the beginning of the 1990s – around 89 per cent. However, the increase in borrowing is not likely to be associated with increased risk, as debt/equity ratios are still low in the corporate sector.

However, the increase in borrowing is not likely to be associated with increased risk, as debt/equity ratios are still low in the corporate sector.

An examination of the various components shows that lending to the corporate sector by Swedish credit institutions increased by 5.4 per cent in October 2000 on an annualised basis. The trend seen in recent years of higher lending by the banks (up 12.5 per cent in October) and lower lending by the mortgage institutions (down 0.3 per cent in October) has continued (see Figure 2:12). The drop in lending by the mortgage institutions is probably due to the low levels of construction activity and to the booming economy, prompting businesses to make repayments on their property loans.¹⁴ Many property loans were granted when interest rates were higher and many companies have probably chosen to refinance this debt with bank loans, which generally bear variable rates of interest. This is confirmed by the slight increase in bank loans secured against commercial and industrial property in the last year (see Figure 2:13). However, viewed over a longer time frame it is mainly lending without collateral that has increased. Lending to the corporate sector by Swedish credit institutions has been relatively constant at around 52 per cent of GDP in recent years.

The corporate bond market has grown relatively rapidly in recent years, with issues of corporate bonds and notes 31.2 per cent higher in June 2000 than in June 1999. These securities are issued both in Sweden and abroad: issues on the Swedish bond market climbed 9.3 per cent and Swedish companies' issues abroad increased by 16.2 per cent.

Borrowing from foreign credit institutions has decreased slightly in the last year after climbing relatively quickly during the second half of the 1990s. The levels seen at the end of June/beginning of July 2000 were 3.3 per cent down on June 1999.

The increase in borrowing on the bond market has probably had a largely positive impact on the stability of the banking system, thanks mainly to a lower concentration of credit risk in the banking system.¹⁵ However, the increase in bond financing does entail some risks for the banks. It is generally only large creditworthy compa-

¹⁴ Although investment in construction is now slowly rising, the property companies' buoyant finances mean that development projects are not requiring the same level of loan financing.

¹⁵ A more detailed discussion of the implications of higher bond financing in the corporate sector for the stability of the financial system can be found in Blåvarg & Lilja, "Securitisation – a future form of financing?", Sveriges Riksbank Quarterly Review, 1998:3.

nies that are able to borrow on the bond market since these loans will normally need a credit rating before investors are willing to buy. This may result in a drain of low-risk credit from the banks and so push up the average degree of risk in the banks' loan portfolios. This is not necessarily a problem: in an efficient banking system the higher level of risk will be offset by higher risk premiums and higher capitalisation levels. However, it is doubtful whether the system actually works like this today – a particular question mark being whether there is sufficient differentiation of interest rates for the specific degree of credit risk associated with each company to be closely matched.

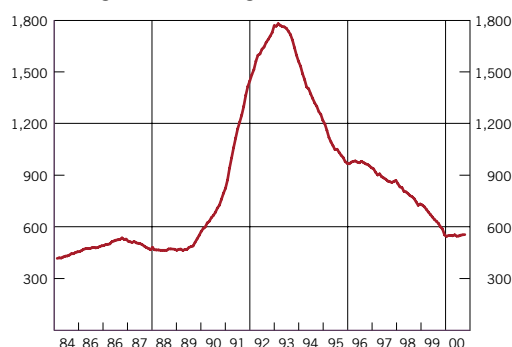
The increase in borrowing on the bond market has probably had a largely positive impact on the stability of the banking system, thanks mainly to a lower concentration of credit risk in the banking system.

It may also be the case that these bond issues do not reduce the banks' risk exposure as far as their credit exposure. One reason for this may be that many issue programmes include a right to secure financing from the bank if issues do not attract sufficient interest. This is particularly important in the case of short-term programmes where the securities have short times to maturity and issues need to be frequently refinanced. Experience shows that there is a particular need for this kind of instrument during periods of poor liquidity in the market or when there is uncertainty about a company's creditworthiness. This means that there is a risk of the bank's credit exposure to a company increasing at the very times when the credit risk associated with the company is at its highest. Given that many bond loans are issued in the international markets, foreign banks are likely to be involved in these issue programmes and so some of the credit exposure should be shifted away from the Swedish banks. The upshot of this is growing international diversification of credit risk in respect of the largest companies, which should be viewed as a positive sign from a stability perspective.

If a company, sourcing part of its financing in the bond market, runs into trouble and is unable to raise funds there, its other lenders – primarily the bank – can easily end up effectively being held hostage.

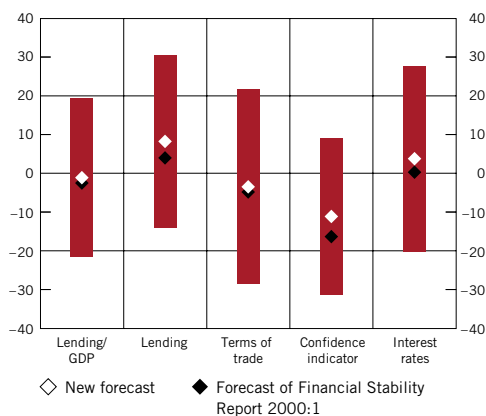
A similar problem may arise even when formal lines of credit have not been established. Most companies issuing their own bonds will retain a certain level of financing at the banks. If a company, sourcing part of its financing in the bond market, runs into trouble and is unable to raise funds there, its other lenders – primarily the bank – can easily end up effectively being held hostage. If the bank does not grant new credit in place of the abandoned bond issue, the company is at risk of running into acute financing problems. The banks may then be forced to issue new loans to protect their older credits.

Figure 2:14 Number of corporate bankruptcies. Rolling 12-month average



Source: Statistics Sweden.

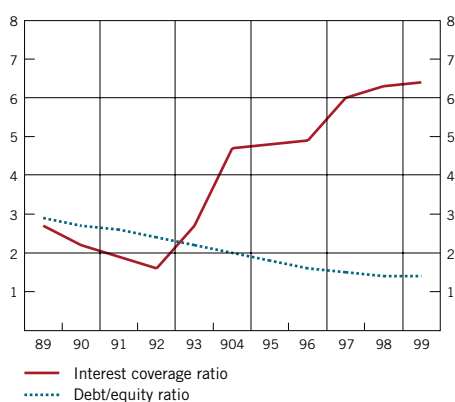
Figure 2:15 Indicators of future bankruptcy trends (one-year view). Percentage change



Note. Each point estimate is surrounded by an uncertainty interval based on historical forecasting error indicated by the red bar. The black rhomb indicates the point estimate from the previous Financial Stability Report. The smaller the bar, the better the variable has been at predicting future bankruptcies.

Source: The Riksbank.

Figure 2:16 Interest coverage ratio and debt/equity ratio at large companies. Ratios



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

Source: Upplysningscentralen AB.

DEFAULT RISKS IN THE CORPORATE SECTOR

The number of corporate defaults varies according to the economic cycle, with a recession normally triggering an increase in bankruptcies. The size of this increase depends on businesses' ability to pay, which can be measured in various different ways. The better the ability to pay, the better the ability to cope with a deterioration in the macroeconomy. Both macroeconomic and microeconomic factors need to be taken into account for a complete assessment of the risk of future defaults.

The number of corporate bankruptcies was 20 per cent higher in October 2000 than in October 1999.¹⁶ It is primarily among small businesses that bankruptcies have increased as those with more than ten employees accounted for just 9 per cent of total failures. In addition it is businesses in high-risk sectors such as computer consultancy and the hotel and restaurant trade that have been hardest hit. Between January and October 2000, for instance, the number of bankruptcies among computer consultancy businesses increased by 50 per cent. It should also be noted in this context that in an economic upswing, a large number of new businesses are started which are generally more likely to fail than their established counterparts. For example, almost 60 per cent of bankruptcies between 1997 and 1999 were at businesses fewer than five years old.

MACROECONOMIC PERSPECTIVE

Several macroeconomic variables have proved useful in forecasting defaults. One is lending relative to GDP: when lending grows faster than the economy as a whole, this is generally a sign of imbalances building up.

The growth in lending and the increase in interest rates both indicate a slight increase in future defaults.

Figure 2:15 shows how the number of defaults can be expected to change over the next year on the basis of various indicators that the Riksbank deems particularly appropriate for predicting defaults.¹⁷ These estimations suggest that the risk of bankruptcies remains low even though there has been a slight increase since the last Financial Stability Report. The growth in lending and the increase in interest rates both indicate a slight increase in future defaults. Other variables suggest that the numbers will remain low.

MICROECONOMIC PERSPECTIVE

Aggregate accounting information can be used to supplement the picture of default risks painted by these macroeconomic indicators. Data for the 1999 financial year suggests that the debt/equity ratio has remained low while the interest coverage ratio has risen (see Figure 2:16). The low debt/equity ratio confirms the conclusion drawn above that the growth seen in lending to businesses is not

16 Corporate bankruptcies is used here to denote all business failures: companies, partnerships and private firms.

17 See Lena Lindhe, "Macroeconomic indicators of credit risk in business lending", Sveriges Riksbank Economic Review, 2000:1.

worrying. The fact that the debt/equity ratio is low historically suggests that businesses are currently in a good position to cope with a downturn in the economy. Similarly the high interest coverage ratio suggests that businesses should have a good level of resilience in the event of rising interest rates. Profitability has also been good during 1999. Sales at Swedish limited companies climbed by 7 per cent and pre-tax earnings by no less than 21.4 per cent.

The fact that the debt/equity ratio is low historically suggests that businesses are currently in a good position to cope with a downturn in the economy.

Another indicator of the state of the corporate sector is the risk classification of all limited companies undertaken by Upplysningscentralen AB (UC), which uses accounting information, credit information, age, size and so on to divide companies into five different classes according to the likelihood of them becoming insolvent within the next two years. The proportion of companies in each class can therefore be used as an indication of changes in the corporate sector's general state of health. Despite a booming economy the proportion of companies in the lowest risk class (class 5) has decreased slightly and the proportion of companies in the highest risk class (class 1) has increased slightly (see Figure 2:17). There are several reasons for this. For example, the last 12 months have seen an increase in the proportion of companies with a record of non-payment or subject to creditor enquiries and the number of companies with directors who have comments registered against their names. Whether this should be interpreted as a sign of a slight increase in the risk associated with lending to the corporate sector as a whole remains to be seen.

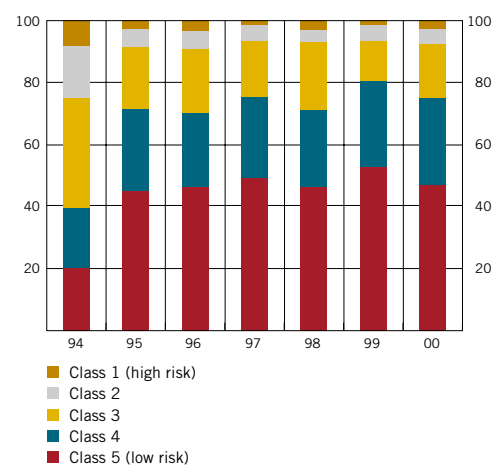
MARKET INFORMATION

Many of the indicators of the state of the corporate sector used by the Riksbank are retrospective – there is always a certain time lag while the statistics are compiled – and rarely contain prospective information. With this in mind it is interesting to try to use market prices as an indicator since these are generally available immediately and contain information about expectations.

Share prices are the most readily accessible source of market information on the corporate sector. Rather than taking share prices directly as an indicator, the Riksbank uses information from KMV Corporation (KMV), which estimates the probability of listed companies defaulting based on stock and balance sheet data. The basic measure of credit risk in the KMV model is the expected default frequency (EDF), which reflects the likelihood of default within a given time frame. The data can also be interpreted in terms of the common credit rating categories from AAA downwards (see Figure 2:18).

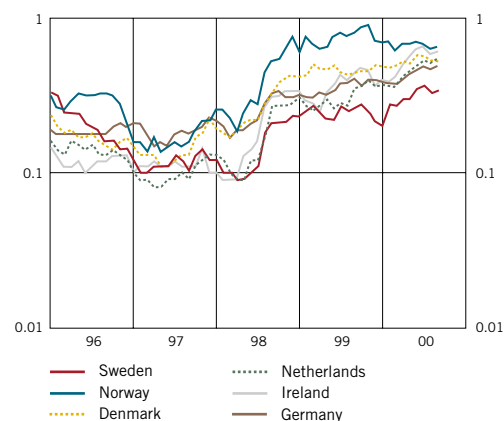
A comparison between Sweden and a number of other countries suggests that default risks for Swedish companies are relatively low.

Figure 2:17 Proportion of companies in the various risk classes.
Per cent



Source: Upplysningscentralen AB.

Figure 2:18 EDF for non-financial listed companies.
Per cent (logarithmic scale)



Source: KMV Corporation.

The EDF measures the risk of a listed company proving unable to service its debt, which is expected to happen if the market value of its assets falls below its liabilities. The market value of the company's assets is in turn derived from its market capitalisation using modern option pricing techniques.

One advantage of EDF values is that they can be used for international comparisons, which can be difficult with accounting data since reporting rules and the availability of data vary widely from country to country. A comparison between Sweden and a number of other countries suggests that default risks for Swedish companies are relatively low. The poor performance and high volatility of the stock markets in recent months have caused the EDFs to rise slightly in most countries since the previous Financial Stability issue. This can be interpreted in a number of ways. One is that we are seeing a bubble gradually deflating – the earlier expectations of sky-high sales and earnings growth at IT companies in particular are increasingly being called into question and so these companies' extremely high market values have come tumbling down. Another possible interpretation is that the stock market as a whole is expected to generate lower earnings growth than previously anticipated.

CONCLUSIONS

Given the current economic temperature the corporate sector can be considered stable. Lending is rising but no faster than is reasonable in an economic boom, and this growth is not resulting in a higher debt/equity ratio in the corporate sector. However, some indicators suggest a slight increase in default risks and so the overall picture is not entirely unambiguous. Nevertheless, there does not appear to be any serious accumulation of risk in the corporate sector.

At present it appears unlikely that lending to the corporate sector could lead to destabilising loan losses at the banks.

The low overall credit growth in the corporate sector hides a relatively high level of growth in lending by the banks. This could pose a threat if the investment growth seen in recent times proves to have been fuelled by unrealistic expectations as to future earnings. At present it appears unlikely that lending to the corporate sector could lead to destabilising loan losses at the banks.

FOREIGN CREDIT RISK IN THE MAJOR BANKS

Recent years have seen the Swedish banks acquiring and merging with a number of foreign players, primarily elsewhere in the Nordic region but also in the Baltic States, Poland and Germany. This means that the economic performance of these countries is of growing importance to the Swedish banks. This section presents a brief review of credit risk from a macroeconomic perspective in the countries where the Swedish banks have the greatest exposure, based on the Nordic central banks' stability reports and the Bundesbank's monthly report.¹⁸

¹⁸ See Norges Bank, "Financial Stability Report", May 2000; Danmarks Nationalbank, "Monetary Review", 2000:2; Bank of Finland, "Bank of Finland Bulletin", 2000:2; Deutsche Bundesbank, "Monthly Report", August 2000.

NORWAY: The Norwegian economy is growing fast and features high capacity utilisation and signs of labour shortages in some sectors. Household debt has risen in relation to disposable income but is still at low levels compared to the end of the 1980s. As in Sweden, household finances have improved on the strength of rising asset prices and falling unemployment. Corporate lending is growing rapidly, especially to relatively high-risk sectors such as property and the shipping/offshore industry. The property market features strong demand, especially in the metropolitan areas, and low levels of construction activity, causing house prices to rise sharply in recent years, albeit slightly less so in recent months. Overall, the stability of the financial system is considered to be good.

DENMARK: The Danish economy has grown rapidly in recent years, although a slight slowdown can now be seen. Household lending has increased substantially and debts relative to disposable income are now higher than at the end of the 1980s. Danish businesses have performed well with healthy earnings growth and few bankruptcies. As in Sweden, the debt/equity ratio has been falling and the interest coverage ratio rising. The property market has exhibited strong growth in prices although this has slackened off somewhat in the last few months. As in Sweden, property prices are growing fastest in the big cities.

FINLAND: The economic conditions in Finland are extremely favourable. The banks have been reporting healthy results and loan losses remain limited. Here too lending to both households and the corporate sector has grown considerably in recent years. Household debt relative to disposable income is low compared with the end of the 1980s. The main reason for the growth in lending is, as elsewhere in the Nordic region, rising property prices. Lending to traditionally high-risk sectors such as property and construction has also increased.

GERMANY: The German economy is continuing to boom and boasts rising capacity utilisation and investment. Production is being stimulated by both domestic and foreign demand. In contrast to the Nordic region, lending to both businesses and households has fallen. This can be explained partially by a larger number of companies accessing the credit market directly and by a smaller increase in house prices than in the Nordic countries.

Overall, the Nordic countries can be said to be in much the same situation. Lending is increasing, mainly due to rising property prices, but the favourable economic climate means that the ability to service debt is good in both the household sector and the corporate sector.

Overall, the Nordic countries can be said to be in much the same situation. Lending is increasing, mainly due to rising property prices, but the favourable economic climate means that the ability to service debt is good in both the household sector and the corporate sector. The combination of higher debt and rising property prices may entail a greater risk of loan losses when the economy takes a

turn for the worse. The situation in Germany is slightly different and the risk of destabilising loan losses in the event of a recession is considered to be low.

The commercial property sector¹⁹

Banking crises have often been preceded by rapidly rising property prices, combined with a surge in credit granting. It is therefore natural, from a stability point of view, to analyse the property sector. It is particularly important to identify any signs of “price bubbles”, i.e. price rises that are not reasonable in relation to expected cash flows, and to relate price developments to lending.

Commercial property prices have climbed rapidly since the beginning of the year and there are no signs of this increase slowing down in the immediate future. It is therefore important to decide whether this growth entails higher levels of risk for the financial sector. The first step in an evaluation of this kind is to look more closely at current price trends.

Commercial property prices have climbed rapidly since the beginning of the year and there are no signs of this increase slowing down in the immediate future.

Next the relationship between supply and demand should be analysed to form the basis of an assessment of whether today’s price trends appear to be sustainable. Whether or not a sharp correction causes problems depends largely on the extent to which the banks finance property investments and on the property companies’ ability to service their debts and subsequently this too is discussed.

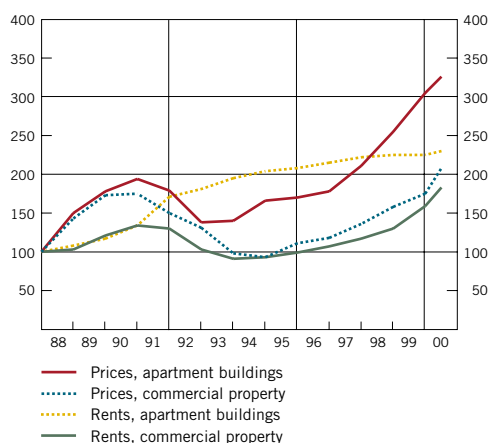
PRICES AND RENTS FOR COMMERCIAL PROPERTY AND APARTMENT BUILDINGS

Prices have continued to follow the pattern that has been evident in recent years:

- Prices are increasing most in the metropolitan areas where there is a high demand and a limited supply.
- Prices and rents for commercial property in the big cities are rising in tandem.
- Prices for apartment buildings are continuing to rise rapidly, exceeding growth in rents but closely matching growth in prices for condominiums.

Prices and rents have been analysed in conjunction since changes in rents are an important explanatory factor for movements in property prices, which should reflect the present value of anticipated future rental income net of management costs. If costs and required

Figure 2:19 Prices and rents for apartment buildings and commercial property in the metropolitan areas.
Index: 1987=100



Source: Catella Fastighetsekonomi AB.

¹⁹ This section focuses on the commercial property sector; owner-occupied residential property (single-family dwellings and condominiums) is discussed in the earlier section on the household sector. The commercial property market is subdivided into apartment buildings (properties let primarily for residential purposes) and properties let for office, retail or industrial use.

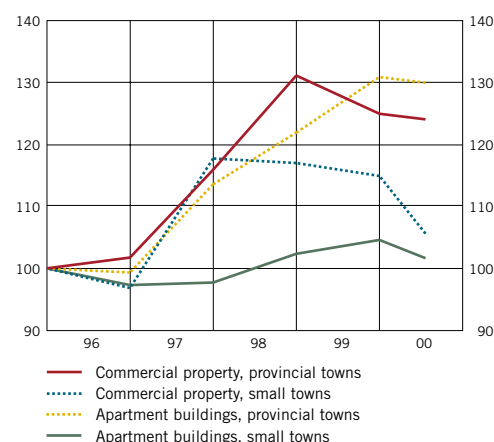
rates of return are unchanged, any increase in rents should lead to rising property prices. If, on the other hand, prices rise faster than the present value of income expected to be generated, this is an indication that the price trends are not sustainable in the long term.

When it comes to apartment buildings, current prices do not reflect changes in rental income from the letting of individual apartments but the value of apartment buildings converted into condominiums. Prices for apartment buildings rose by 7 per cent nationwide during the first half of this year but rents by just 2 per cent. Over the last five years prices per square metre have risen by 91 per cent and rents by just 10.4 per cent. This may seem alarming but virtually all apartment buildings sold have been sold for conversion to condominiums, and these transactions command more than the market rate for apartment buildings, but less than the existing market rate for condominiums.²⁰ The reason for the large discrepancy in the value of identical properties under the two forms of tenancy is that rent regulation limits the level of income that rental properties can generate. The current growth in prices for apartment buildings is not therefore believed to jeopardise stability. It is also worth mentioning that lending by the financial institutions to individual tenant-owners and tenant-owner associations is limited in scope.²¹

In the provincial centres and small towns prices for both commercial property and apartment buildings have fallen slightly in the last six months (see Figure 2:20).^{22, 23} Since apartment building prices are not considered to pose a threat to the stability of the financial system and commercial property only exhibits modest price movements outside the big cities, the following analysis focuses on retail and office property in the metropolitan areas. Retail and office property prices in the metropolitan areas climbed 19 per cent and rents 15 per cent between December 1999 and June 2000, which means that both prices and rents have risen by around 85 per cent in the last five years.

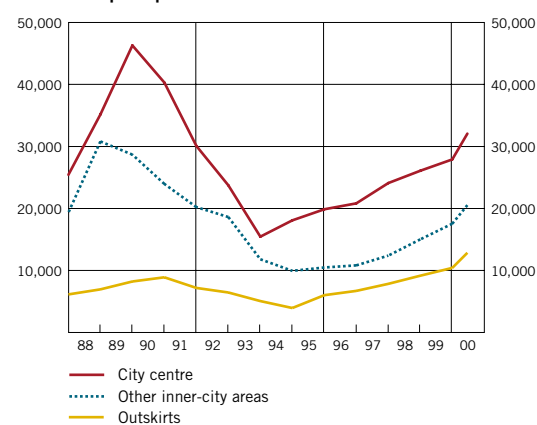
Commercial property prices are highest in the centre of Stockholm but rising fastest in the outskirts of the city where prices are less than half those in inner-city areas but rising rapidly. Commercial property prices in Stockholm are about a third down on their peak at the beginning of the 1990s in real terms (see Figure 2:21), except in the outskirts where prices are record-high in real terms too. Although the rapid increase in the first half of this year warrants attention, the rate of growth seems reasonable on the basis of fundamental factors.

Figure 2:20 Prices for apartment buildings and commercial property in the provincial towns and small towns. Index: 1995=100



Source: Catella Fastighetsekonomi AB.

Figure 2:21 Development of commercial property prices in Stockholm in real terms. SEK per square metre



Source: Catella Fastighetsekonomi AB.

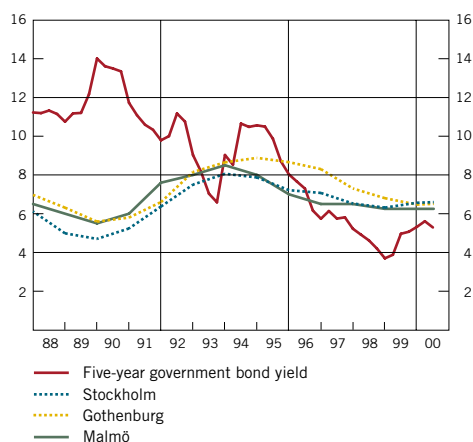
20 According to Catella Fastighetsekonomi AB, virtually all apartment buildings sold are sold directly to tenant-owner associations or to companies that renovate the buildings before selling them on to tenant-owner associations. A more detailed analysis of this can be found in Financial Stability Report 1999:2 and Financial Stability Report 2000:1.

21 A discussion of lending secured against condominiums can be found in the earlier section on the household sector.

22 Provincial centres are Falun, Gotland, Gävle, Halmstad, Helsingborg, Jönköping, Kalmar, Karlskrona, Karlstad, Kristianstad, Landskrona, Linköping, Luleå, Lund, Norrköping, Skövde, Sundsvall, Umeå, Uppsala, Västerås, Växjö, Örebro and Östersund.

23 Small towns are Alingsås, Borlänge, Borås, Enköping, Eskilstuna, Falkenberg, Hudiksvall, Härnösand, Järfälla, Kungälv, Karlskoga, Lidköping, Ljungby, Ludvika, Sandviken, Skellefteå, Strängnäs, Söderhamn, Södertälje, Trelleborg, Uddevalla, Värnamo and Örnsköldsvik.

Figure 2.22 Direct yield on commercial property in the metropolitan areas and five-year government bond yield. Per cent



Sources: Catella Fastighetsekonomi AB and the Riksbank.

PRICE CRASH LOOMING?

The *direct yield* can be used to gain an idea of whether the price of a property is sustainable in the long term. This shows the level of rental income net of operating costs that a property is expected to generate expressed as a percentage of the price of the property.²⁴

Comparing the direct yield with the required rate of return on investments in property can provide a rough indication of expectations as to the growth in the value of property. If the direct yield falls below the required rate of return, investors will expect this to be offset by an increase in value.

Direct yield indicates that prices have not been pushed above sustainable levels.

The required rate of return on investments in property is defined as the long-term risk-free interest rate plus a risk premium.²⁵ Calculated in this way, the required rate of return is currently between 6.9 and 7.6 per cent, while the direct yield on commercial property is currently 6.6 per cent in Stockholm, 6.5 per cent in Gothenburg and 6.3 per cent in Malmö (see Figure 2:22). It is not unreasonable to assume that property prices may rise at the same rate as inflation in future. The price increase needed to bring the total return into line with the required rate of return is below long-term inflation expectations in all cases. Direct yield thus indicates that prices have not been pushed above sustainable levels.

Overall, this means that the risk of a dramatic drop in commercial property prices is low.

Based on the direct yield, prices and rents for commercial property seem to be in equilibrium and a slight increase in prices can be accommodated without upsetting this.

The direct yield indicates that the prices are not driven by expectations of future increases in value. Overall, this means that the risk of a dramatic drop in commercial property prices is low.

SUPPLY AND DEMAND

The supply and demand relationship contributes to the explanation of developments on the property market and can indicate whether the current situation appears sustainable.

²⁴ The calculations of direct yield in this report were undertaken by Catella Fastighetsekonomi AB.

²⁵ This risk premium is calculated here as the risk premium applied by the stock market to property companies – in other words the calculations assume that the risk premium for individual properties is the same as the risk premium for listed property companies. The calculation of this risk premium is based on the capital asset pricing model (CAPM) of the relationship between risk and return, whereby the required rate of return on an asset should be the same as the risk-free return (i.e. the long-term risk-free interest rate) plus a risk premium. The risk premium on an asset is that asset's specific risk measured as the covariance between the return on the asset and the return on the market (i.e. the asset's beta) multiplied by the risk premium for the market as a whole. The beta used here is that of the Enskilda property index since 1995. Thus the required rate of return = risk-free interest rate + beta for listed property companies × market risk premium. The market risk premium is estimated to be between 3.5 and 4 per cent.

The rental income that underlies the value of a commercial property depends on property-specific factors (location, condition, etc) and on the relationship between supply and demand for that type of property. The buoyant demand for property in the metropolitan areas, especially Stockholm, has driven up rents and in turn prices. Demand pressure was high during the first half of this year and is likely to remain so, given the prevailing expectations as to the region's future economic growth. There has been a net influx of people moving into the metropolitan areas and forecasts suggest continued growth in employment over the next three years.

In periods of economic growth, prices tend to take off once vacancy falls below two per cent. A vacancy ratio of two per cent is normally considered the minimum to allow for properties that are empty while tenants move in/out or for repairs. Vacancy is currently below this level in downtown Stockholm and very close to two per cent throughout central Stockholm (see Figure 2:23) and the most attractive locations in Malmö.

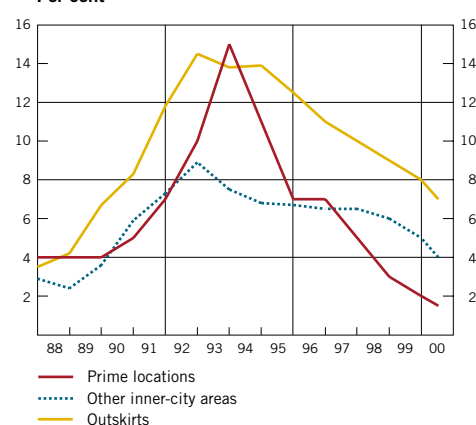
Construction activity has picked up but will not be able to keep up with demand in the immediate future, primarily because the amount of land available for development in central Stockholm is limited. Investment in buildings and plant grew in June by 3.5 per cent on an annualised basis, which is slightly higher than in 1999 when the corresponding figure was three per cent. However, the level of investment is well below the levels seen at the beginning of the 1990s. Commercial property development is now gathering speed in Stockholm and its immediate suburbs. A survey carried out by the magazine *Fastighetsvärlden* suggests that 163,000 square metres will be completed this year and over a million square metres are planned for 2001-03.²⁶ This can be compared with 1989, when construction activity was at its highest and 600,000 square metres of commercial property were completed, and with the mid-1990s, when only around 100,000 square metres were built each year. Construction activity is therefore below the high levels seen during the property crisis and may be set to slacken off, judging from the drop in the number of building permits granted (see Figure 2:24).

The fact that both development activity and property prices are increasing in the areas around Stockholm suggests that businesses are adapting to high rents by moving out of the centre. This has a dampening effect on the demand pressure in central areas. All in all, the situation is the same as that reported at the turn of the year, with strong demand pressure, especially in the big cities, driving up rents and prices and providing a greater incentive for higher construction activity.

MORTGAGES IN THE PROPERTY SECTOR

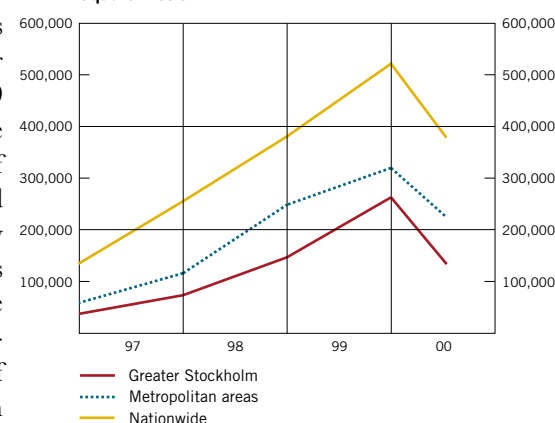
A "price bubble" in the property market primarily constitutes a risk to the banks if it is reinforced by a growing volume of mortgages on properties. This development was seen in the crisis at the beginning

Figure 2:23 Office vacancy rates in Stockholm. Per cent



Source: Catella Fastighetsekonomi AB.

Figure 2:24 Planning permits granted for commercial property. Square metre

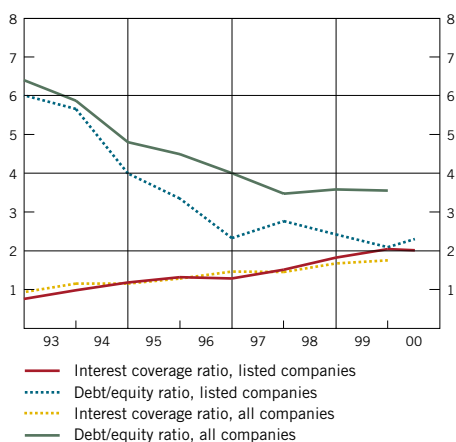


Note. 2000 data annualised.

Sources: Catella Fastighetsekonomi AB and Statistics Sweden.

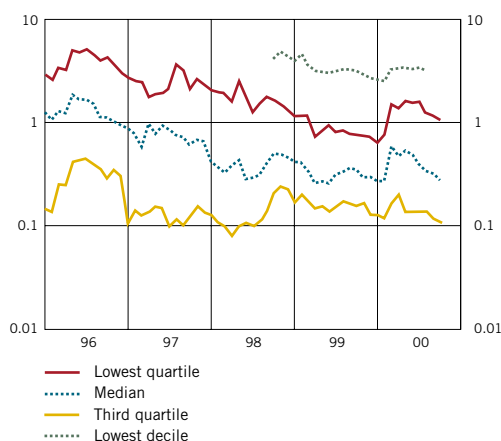
26 The survey is presented in *Fastighetsvärlden*, No. 9, 2000. The municipalities covered by the survey were Stockholm, Solna, Sollentuna, Täby, Danderyd, Sundbyberg, Nacka, Huddinge and Haninge

Figure 2:25 Interest coverage ratio and debt/equity ratio at property companies (weighted average).
Ratios



Sources: Appllysningscentralen AB and annual reports.

Figure 2:26 Expected default frequency for listed real estate companies at the Stockholm Stock Exchange Per cent (logarithmic scale)



Note. The lowest quartile refers to the 25 per cent of the companies with the lowest creditworthiness according to EDF, etcetera.

Source: KMV Corporation.

of the 1990s. Mortgages on properties are provided by both mortgage institutions and the banks. As mentioned in the section on the corporate sector, lending to companies by mortgage institutions is declining. In the banks, on the other hand, loans with collateral in commercial property have increased significantly over the past year (see Figure 2:13). All in all, however, lending to the commercial property sector has been relatively stable in recent years, which means that rising property prices do not appear to comprise a serious risk.

PROPERTY COMPANIES' ABILITY TO SERVICE DEBT

A commercial property price crash must be accompanied by a serious shortfall in the property companies' ability to service their debts if it is to trigger loan losses in the banking sector. The listed property companies' own sensitivity analyses show that profits are dependent primarily on changes in interest rates and net rental income. During the first half of this year, a number of these companies managed to reduce the average rate of interest payable on their borrowings while rents continued to rise, enabling them to report a strong financial position. It is worth mentioning that four listed property companies have been taken over by unlisted companies, thus reducing the share of the market covered by listed companies.

Despite the acquisitions that have taken place, the listed property companies' interest coverage and debt/equity ratios have only declined marginally. The interest coverage and debt/equity ratios have improved for all property companies (see Figure 2:25).

The picture of a strong financial position at the listed property companies is confirmed by KMV Corporation's calculations of default risks.²⁷ These suggest that the probability of default has decreased for all the real estate companies, especially the weakest ones (see Figure 2:26).

KMV's calculations are based on the market's view of the property companies, which has been very positive. Enskilda's property index has gained 13% in the first three quarters of this year, while the general index has fallen. This reflects the healthy financial position of the listed property companies.

At present, the risk of imbalances in the property market leading to serious disturbances in the financial system appears to be limited.

Overall, the Riksbank believes that the price trend largely reflects the fundamental values in the market and that the property sector's financial position is sound. At present, the risk of imbalances in the property market leading to serious disturbances in the financial system appears to be limited.

²⁷ Further information on these statistics can be found in the section on the corporate sector.

Counterparty and settlement risks in the banking sector

The four major Swedish banks have considerable counterparty and settlement risks, concentrated to a few large counterparties. In order to reduce systemic risk, the Riksbank is therefore reviewing in cooperation with the Swedish Financial Supervisory Authority the possibility of tightening up the regulations on large exposures. An improvement in the scope for reducing foreign exchange settlement risks is already underway through the establishment of the CLS Bank, a clearing house for foreign exchange settlements. The Riksbank believes that affiliating the Swedish krona to the CLS Bank procedures would be of great value from the point of view of avoiding systemic risk, even if this were only for an interim period until the introduction of the euro.

In addition to the medium-term and long-term risks discussed in previous chapters, there are also a number of risks arising in the bank's activities that comprise a potential cause of short-term losses for the banks. These include market risks, liquidity risks, counterparty exposures in financial instruments trading, foreign exchange settlement risks and operational risks. In this report, the Riksbank has chosen to focus on counterparty and settlement risks, and operational risks. An individual bank's exposure to these types of risk can be very large and could accelerate or considerably worsen a crisis in progress within a bank. The Swedish banking sector is very concentrated and interbank exposures among the major banks are usually substantial. It is therefore likely that the contagion effects of a sudden financial crisis in one bank reach systemic dimensions.

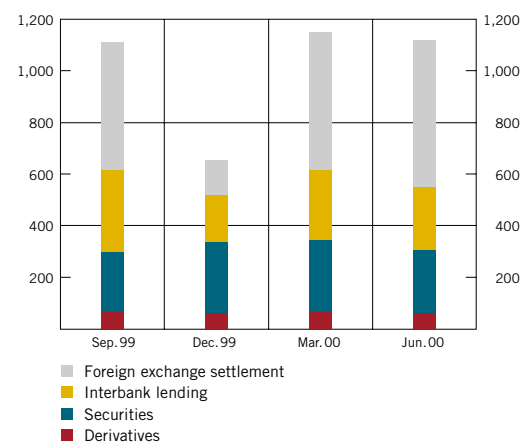
This chapter describes the credit risks that arise from interbank trading. Operational risks are described in Chapter 4.

Counterparty and settlement risks

The Riksbank's statistics on counterparty and settlement risks comprise the four major Swedish banks' exposures to individual counterparties in financial instruments trading, particularly derivatives, holdings of non-governmental securities and interbank lending, as well as the settlement risks that arise in the banks' foreign exchange trade.

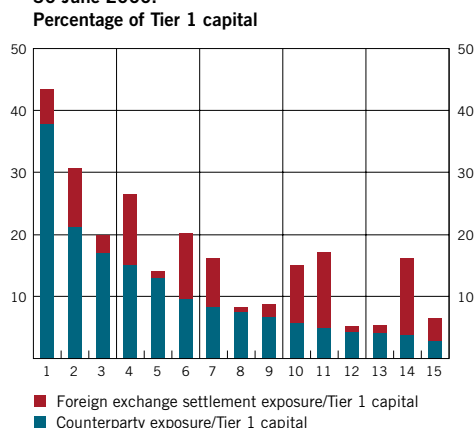
At the end of June this year, the four major banks' exposures to counterparty and settlement risks amounted to a total of SEK 1,118 billion (see Figure 3:1). Disregarding the turn of the millennium, when all of the banks temporarily reduced their exposures, this figure is in line with the exposure levels reported on previous occasions. Although the exposures vary from month to month, there is

Figure 3:1 Exposures for the four major Swedish banks.
SEK billion



Source: The Riksbank.

Figure 3:2 The fifteen largest exposures on average for the four major banks on 30 June 2000.



Source: The Riksbank.

consequently no reason to believe that exposures of around SEK 1,100 billion on any given day are exceptional.

The exposures for each bank are concentrated to a few large counterparties. The five largest counterparties represent on average just over 25 per cent of the total counterparty exposure and the average single largest counterparty alone represents 10 per cent of the total exposure. The size of the exposures rapidly declines after this.

To gain a picture of the size of individual exposures in relation to the bank's operations and the effects that the failure of one counterparty could lead to, the exposure can be related to the bank's Tier 1 capital (see Figure 3:2). According to the capital adequacy regulations for banks, Tier 1 capital must constitute at least 4 per cent of a bank's risk-weighted assets and is intended to serve as a buffer against losses. In the information reported to the Riksbank, the fifteen largest counterparties have been ranked according to the total value of the counterparty exposures. What is meant by counterparty exposure here is those exposures where there are unsecured loans; net derivative exposures, non-governmental securities and interbank lending with no collateral. With regard to the fifteen largest counterparties, the foreign exchange settlement risks are also stated.²⁸

The fifteen largest counterparty exposures correspond on average to 161 per cent of Tier 1 capital. In previous reports, the percentage has varied between 139 and 170. The largest individual counterparty exposure is equivalent to 38 per cent of Tier 1 capital on average²⁹, while the combined share of the two largest is equivalent to 60 per cent. An individual exposure of 38 per cent means, e.g., that a bank with a Tier 1 capital ratio of 7 per cent would have 4.3 per cent Tier 1 capital remaining if the largest counterparty should fail. This is barely above the minimum requirement of 4 per cent. If the counterparty defaults, the bank's settlement exposures to this counterparty would also be in jeopardy and the bank would fall below the minimum requirement, with only 3.9 per cent Tier 1 capital remaining.³⁰ The banks differ considerably with regard to counterparty concentration, which makes the average exposure rather misleading. The largest individual counterparty exposure in the bank with the lowest concentration amounts to approximately 10 per cent of Tier 1 capital, while the corresponding share in the bank with the highest concentration is approximately 60 per cent.

28 Foreign exchange settlement risks are reported separately, as they are of a different nature than counterparty risks and normally concern other counterparties.

29 This corresponds to 25 per cent of the entire capital base.

30 These examples are to some extent extreme, as they assume that the bank loses an amount equivalent to the total exposure to the failed counterparty. This total reported exposure is already reduced because of collateral and netting, but various forms of recoveries mean that the final loss will probably be much lower. These types of processes normally take some time and liquidity problems may arise until parts of an exposure have been recovered. The above calculation only refers to the consequences of direct exposures to the failing counterparty. As the concentration is high, however, it is probable that other large counterparties will have exposures to the failing bank, which could result in a second wave of losses. The four major Swedish banks have several common counterparties among their largest exposures, which means that several of the Swedish banks would be affected simultaneously if one of these counterparties were to fail.

The previous Financial Stability Report described the current regulations for large exposures and the Riksbank made the assessment that there were some deficiencies in the regulations that allow interbank exposures to reach these levels.³¹ The Riksbank has therefore initiated a study, in cooperation with the Financial Supervisory Authority, into how these regulations could be amended.

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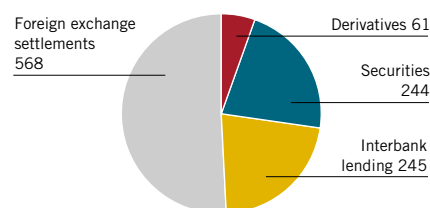
The Riksbank’s surveys of counterparty and settlement risks are focused on four types of exposure: *derivative exposures*, *holdings of non-governmental securities*, *interbank lending* and *foreign exchange settlement risks*.

Derivative exposures amounted to a gross of SEK 146 billion for the four major banks. The effects of netting have great importance in this field and reduced derivative exposures by 58 per cent to a net total of SEK 61 billion (see Figure 3:3). The portfolio of *non-governmental securities* comprised 22 per cent of the total exposure in this survey. Around 88 per cent of the securities holdings among the fifteen largest counterparties comprise Swedish mortgage securities. It is thus largely a matter of exposures between the major Swedish banking groups. Foreign issuers constitute only ten per cent of the circle of larger counterparties.

On 30 June 2000, the exposures of the four major banks in the market for *interbank loans* amounted to SEK 245 billion and thus accounted for 22 per cent of the total exposures. The concentration was very high and the fifteen largest counterparties accounted for as much as 59 per cent of the total exposure. These loans usually have a very short time to maturity. The Riksbank’s survey of August 1998 showed that 56 per cent of the lending in the interbank market consisted of overnight loans and only 17 per cent had a time to maturity of more than one month.

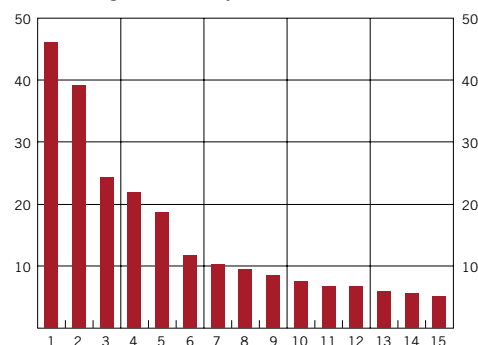
Foreign exchange settlement risks give rise to very short-term exposures, which on average arise for a period of about two days. Although these settlement exposures are considered to involve less risk than longer-term commitments, they should still be regarded as unsecured loans and the amounts involved are very large. At the time of the survey, the foreign exchange settlement risks gave rise to exposures of SEK 568 billion, which corresponded to just over half of the total exposure. The largest counterparties in foreign exchange trade are usually not the same as for other exposures, and the concentration is very high. On average, the fifteen largest counterparties are responsible for 62 per cent of settlement exposures. However, there are considerable variations between the banks, and the concentration varies between 40 per cent and just over 80 per cent.

Figure 3:3 The four major banks' exposures as of 30 June 2000. SEK billion



Source: The Riksbank.

Figure 3:4 The fifteen largest foreign exchange settlement exposures on average for the four major banks on 30 June 2000. Percentage of Tier 1 capital

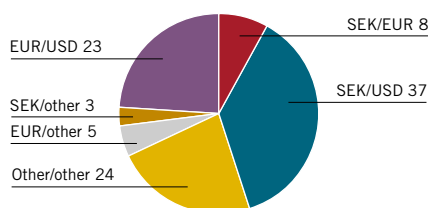


Source: The Riksbank.

31 Financial Stability Report 2000:1 “Is there a need for better regulation of large exposures?”.

The main deficiency is in the exemption whereby exposures to other financial institutions need not be fully accounted for when calculating the institution’s large exposures. These exposures can instead be reduced to varying extents depending on time to maturity, with short-term exposures not needing to be accounted for as exposures at all. Most of the exposures arising between financial institutions can be assumed to be short term.

Figure 3:5 Breakdown of the major Swedish banks' exposure to foreign exchange settlement risk by currency pairs, 30 June 2000.
Per cent



Source: The Riksbank.

It has been concluded in earlier reports that the duration of settlement exposures varies for different currency pairs, depending on time zones and business hours in the various national payment systems. The information reported therefore breaks down settlement exposure into currency pairs. The breakdown on 30 June 2000 showed a similar distribution as in previous surveys, with SEK/USD as the most common currency pair (see Figure 3:5).

As discussed in previous reports, the CLS Bank intends to offer simultaneous settlement of foreign exchange transactions, thereby totally eliminating the settlement risk.³² According to the survey in June, 48 per cent of the exposures included SEK and can therefore not be settled in the CLS Bank, as the Swedish currency will not be affiliated from the planned start date. In addition, the term “other” also comprises some further currencies that cannot be settled in the CLS Bank from the start. Although the CLS Bank has the potential to offer effective risk reduction, it is important to remember that not all currencies and counterparties are affiliated. For the Swedish banks, the majority of foreign exchange settlement risks will remain and it is therefore important that the banks continue their work on reducing these risks, e.g., through netting. Discussions on affiliating additional currencies are being held with the central banks of Sweden, Norway and Denmark.

The Riksbank attaches great importance to reducing settlement risks as far as possible, and although the EMU issue has not yet been resolved in Sweden, the Riksbank intends to strive to achieve an affiliation of the Swedish currency to the CLS bank.

Since Norway is not a member of the EU and Denmark will not be participating in the third stage of EMU. The central banks of these countries will endeavour to affiliate their currencies to the CLS Bank as soon as possible. The CLS Bank estimates that this could be achieved at the end of 2002, following the current timetable. The Riksbank attaches great importance to reducing settlement risks as far as possible, and although the EMU issue has not yet been resolved in Sweden, the Riksbank strives to achieve an affiliation of the Swedish currency to the CLS bank. Even if the Swedish krona were to be replaced by the euro in the future, the Riksbank considers that, from a risk point of view, it is important that the Swedish krona is settled in the CLS Bank during a transition period.

³² CLS stands for Continuous Linked Settlement. The CLS Bank is owned by around sixty international banks and intends to supply simultaneous settlement of currency transactions via multi-currency accounts. This is known as Payment versus Payment (PvP). The CLS Bank plans to begin operating in the final quarter of 2001, and will initially settle transactions in euro, British pounds, US dollars, Canadian dollars, Swiss francs, Japanese yen and Australian dollars.

Discussion on the banks' risk management

The Riksbank has for some time held regular, bilateral meetings with the major Swedish banking groups for the purpose of discussing and assessing developments in the banks' risk management and risk control. These are important components of the Riksbank's qualitative analysis.

The four major banks have well-developed methods for risk management and principles for risk control, and the banks work consciously on further minimising risks of losses. Although the Swedish banks are probably not among the international leaders with regard to "modern" quantitative methods, they are currently developing their methods. An important driving force behind the efforts to improve methods of risk measurement is, of course, the prospect of improving the relationship between the banks' risk and return. All of the four banks currently quantify market risks, while they have not come as far in measuring credit risks and operational risks. However, the differences between the banks are considerable in this respect. These differences reflect not only the levels of ambition, but are also governed to a great extent by differences in business structures and risk profiles.

The banks have increasingly begun to apply *limits* to the risks related to settlement of foreign exchange and securities transactions, which is positive from a stability point of view. At the same time, it can be concluded that the management of settlement limits and credit risk limits is done through parallel systems.

The Riksbank considers it a desirable development that the limit system for the management of settlement and credit risks become more integrated.

The Riksbank shares the Basel Committee view that foreign exchange settlement exposures can be equated with credit exposures and should thus undergo the same process for affixing limits as other credit exposures of the same size and duration.³³ The exposure should thus undergo an appropriate appraisal concerning the maximum exposure a bank is willing to take with regard to a specific counterparty and the limit set should be binding. The Riksbank considers it a desirable development that the limit systems for the management of settlement and credit risks become more integrated.

³³ See also; Basel Committee on Banking Supervision: Supervisory Guidance for Managing Settlement Risk in Foreign Exchange Transactions, September 2000.

Operational risks

As operational losses tend to arise suddenly, it is possible to envisage a scenario where the counterparties do not have time to reduce their exposures, which makes the risk of systemic effects particularly large. The general opinion is that operational risks have increased considerably in recent years, partly as a result of the rapid rate of change in terms of extensive restructuring, internationalisation, new operations and new technology. In Sweden, as in the rest of the world, the methods for measuring and analysing operational risks are as yet relatively undeveloped. Only a few individual banks have reached a stage where the operational risks are quantified and economic capital can be allocated to operational risks.

Risk management in the major banks both in Sweden and internationally is increasingly focussing on operational risks. Operational risks have always existed in banking. The difference now is that operational risks are viewed as a separate area and that the banks try to measure and analyse these risks, as well as manage them.

In addition to credit risks, operational risks can probably be sufficiently large to cause a bank serious problems, and thus threaten financial stability.

In addition to credit risks, operational risks can probably be sufficiently large to cause a bank serious problems, and thus threaten financial stability. The size of operational risks varies between the banks depending on business focus and strategy. Studies estimate that 15-25 per cent of the total financial risk in international banks' current operations relates to operational risks.³⁴

A number of different factors have increased interest in this area:

Spectacular events:

A number of spectacular events in the financial sector incited large media interest during the second half of the 1990s. Most well known was the Barings Bank case in 1995, where an employee disregarded instructions, and by taking and concealing trading positions caused losses which, following liquidation of the 232 year-old bank, amounted to GBP 1.4 billion.³⁵

³⁴ Basel Committee on Banking Supervision 2000. Risk Management Group. Unpublished survey.

³⁵ Adrian E. Tschoegl. 1999. The Key to Risk Management: Management. The Wharton School.

Changes in operations:

Changes in the banks' operations and new products have caused increased operational risks. In many banks, new business areas have grown considerably compared with more traditional banking operations (see Chapter 1). The current very rapid rate of change in the banking sector with extensive structural transformation, internationalisation and investments in new technology is in itself a source of increased operational risks, as adapting regulations, instructions and routines takes time. In 1998, operational losses of approximately USD 7.4 billion were reported in the mass media, which is almost double the 1995 figure.³⁶

Allocation of risk capital:

By setting a required return in proportion to risk for different business areas, the bank can better control its operations, and thus improve profitability in the long term. In estimating and allocating economic capital internally in the banks, the ambition is to estimate as far as possible how much economic capital different business areas need, including capital to cover operational risks.

Authorities' attention:

The authorities' increased attention in this area has also contributed to the development of risk management in the banks. When the Basel Committee on Banking Supervision presented its draft proposals regarding new capital adequacy regulations in June 1999, it was proposed that the increasingly sophisticated capital adequacy requirements for credit and market risks should be supplemented by a capital requirement for "other risks", in which operational risks were included. This work is in progress in collaboration with the banking sector, and a consultative document is planned to be published in January 2001.

What are operational risks?

To date, there is no official definition of operational risk, but the following definition seems to be gaining ground in the financial sector: "*Operational risk is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events*".³⁷

In other words, the concept covers a large number of events, which can be divided into a number of risk categories. The more common include

- Deficiencies in internal control: internal theft, fraud and unauthorised activities, unclearly defined authority, weak corporate culture and management problems.

³⁶ A study in autumn 1999 carried out by PriceWaterhouseCoopers, organised by the British Bankers Association, ISDA and Robert Morris Associates. 110 international financial institutions were consulted and 55 responded the majority of them banks.

³⁷ This definition has been adopted by the Basel Committee.

- Process and transaction errors, technology and system errors.
- Legal, administrative and documentation errors.
- Crime: robbery and fraud.
- Loss of or damage to physical assets, e.g. in case of fire.

The first category has traditionally caused significant problems. In many cases, the bank management has lacked knowledge of the operational risks, or has failed to take them sufficiently seriously. When problems have come to light, management has reacted too slowly. Losses have often been preceded by management sending the wrong signals to their organisations, leading to a corporate culture where insufficient emphasis is placed on following regulations and instructions and implementing controls. It is also important to have a corporate climate where employees are not afraid to admit mistakes. Many of the major losses occurring in recent years have started off as minor mistakes that grew out of control when people tried to hide them.

The losses that may arise can be divided into *direct and indirect losses*. An example is a computer failure resulting in the bank's computer services not functioning. The direct losses in this case would be the costs of dealing with the computer failure, in the form of increased overtime costs and consulting costs or software costs. The indirect costs in this example would be the costs resulting from reduced confidence in the bank and the loss of income during the computer system's down time. Historically, banks have focused on direct costs, which is natural since these are easier to measure. It has, however, become increasingly clear that such an approach results in an underestimation of the risks, and consequently indirect losses should also be taken into account.

Assessment of operational risks

The banks' risk management previously focused mainly on market and credit risk. Over the past years, the banks have increasingly adapted their organisations and also appointed policy and reporting officers responsible for operational risks. The primary responsibility for the management of operational risks often lies with the respective business unit, since these have the best ability to monitor the risks in the operations. The overall policy and reporting responsibility is concentrated centrally in the banks, in a similar way to the management of market and credit risks. The bank management always has the ultimate responsibility for implementing the strategy for management of operational risks determined by the board of directors.

The traditional starting point for management of operational risks has been to rely entirely on internal audit, staff ethics and the bank's culture. There is currently no generally accepted method of identifying, reporting and measuring operational risks. However, a number of different techniques and processes aimed at controlling these risks have arisen recently.

Some well-known examples of operational incidents and "near misses" in Sweden

Fraud

The most obvious operational risk, beside robbery, is fraud perpetrated by bank employees. Sparbanken Väst's Gothenburg office, where the regional manager was sentenced to prison as a result of large-scale fraud in connection with granting credit.

Unauthorised trading

Insufficient internal control can enable unauthorised trading to have consequences that can lead to major losses in an individual institution/organisation

- (i) City of Stockholm option trading in the 1980s
- (ii) A stockbroker at Nordbanken who carried out unauthorised trading over a long period of time

Technical breakdowns

Disruptions in technical systems can lead to both direct and indirect costs

- (i) SEB's Internet bank that failed to manage the large amount of orders on one occasion.
- (ii) Breakdowns that have occurred at stock exchanges and clearing institutes (OM, BGC and the RIX system)

- Self-assessment, where the different business areas assess the risks on the basis of centrally prepared checklists.
- Risk mapping, where procedures and product flows are reviewed to identify which types of risks may arise and where they may arise.
- Identification of prioritised risks. An assessment is made of the probability of an event leading to a loss (high-low), and the amount of the loss should the event occur (high-low). Action programmes are being introduced for risks having the combination high probability and high loss.
- Identification of risk indicators. Indicators can be determined at different levels and can be of very different natures. High staff turnover can, for example, in some cases be considered to increase the risk of human errors and mistakes. It can also lead to a weaker corporate culture, making internal control more difficult. The indicators are monitored and reported continuously, and measures can be put in place if developments are considered disquieting.
- Escalation triggers. If the risk control department considers that the risk indicators have reached disquieting levels or that there are deficiencies in the risk management of a business, for example deficient assignment of responsibilities, the business area can be allocated a higher internal capital requirement until the problem is solved. As there is a required return on the internal capital, there is a stronger incentive to solve the problem quickly.
- Development of loss event databases. Losses resulting from operational risks are reported in a structured way. The loss data is used to monitor developments and to estimate, using statistical methods, the probability of various losses, e.g. in case of computer failures. This can then be used to assess the amount of capital which should be allocated for these risks. Also the reporting of *near misses*, i.e. events which could have led to a loss but did not do so due to sheer luck or to the problem being identified and dealt with in time. An increased frequency of this type of incident gives an indication of increased operational exposure.

Operational risks are, as has been seen, a very broad concept. A bank's different business lines, such as asset management, corporate finance and securities trading, are exposed to different degrees and to different risk types. One approach is to try to identify a few indicators of exposure per business line. These indicators are normally expressed as a value, volume or number. In the securities trading business line, it is reasonable, e.g., to assume that there is a correlation between volume of trades and operational losses. In the asset management business line, it may instead be more reasonable to monitor the value of assets under management and the value of transactions, while the volume of new deals may be useful information for assessing the operational risks in the corporate finance business line. In many cases, the identification of indicators is based on intuition, since the banks still have too little internal loss data to carry out a reliable statistical analysis.

Only a very few banks have gone as far as to quantify the operational risks and to allocate economic capital to these risks.

The banks are in a phase where they are trying out different methods and combinations of methods. According to an international study carried out in 1999, self-assessment was the most common method, even though 71 per cent used or planned to use all the above techniques in the near future.³⁸ However, there is a trend towards attempts to develop more risk-based, “bottom-up” methods based on actual loss data from internal and external loss event databases. In Sweden, as in the rest of the world, this process has just begun. Only a very few banks have gone as far as to quantify the operational risks and to allocate economic capital to these risks.

Notably, operational risks are also affected by organisational culture and management attitudes. Improvements in quantitative methods alone will not solve all problems, but can provide important support in identifying and evaluating the risks.

Regardless of which method the bank chooses to use, it is important to be able to detect the operational errors that arise and react to them. As the banks have already experienced, rapid action can drastically reduce the size of the loss.

Measurement problems

One of the banks’ aims in attempting to measure operational risks is to assess the amount of buffer capital needed by the bank to protect itself against operational losses. The capital serves to protect the bank against unforeseen events that might jeopardise the bank’s continued existence. Losses expected by the bank should be covered by the bank’s earnings through the pricing of the bank’s services. This can be done by budgeting for losses known by the bank to occur with a certain frequency, such as credit card misuse.³⁹

Since the interest in reporting operational losses in a structured way has arisen recently, there is no structured historical data to refer to. In addition, the operational losses that are relevant from a capital perspective, exhibit low probability and great magnitude, therefore few events are reported. In certain areas of operational risk, longer data series may be available. This normally applies to the computer department, where detailed statistics are often available, e.g., on computer failures and interference in computer systems. Significant data problems arise in the development of *internal loss databases*. Unambiguous and exclusive definitions, which apply to the whole bank, are important, particularly for direct and indirect losses. For example, it is not unusual in case of robbery to re-

³⁸ See footnote 36.

³⁹ With regard to operational exposures, it is still difficult to estimate expected and unexpected losses, due to inadequate data series. There is no explicit pricing of operational risks, and there is little possibility for allocating untaxed reserves for these in most countries.

port the sum stolen as an operational loss, while consequential costs, such as staff on sick leave and repairs to the premises, are reported as personnel and material costs respectively. Attention is thus not paid to the operational loss as a whole. In addition, there is the potential loss of income for the days the bank was closed as a result of the robbery. The boundary between operational risk and other types of risk can also be inconsistent. In many cases, a loss is reported as a credit loss, despite the fact that the real cause was deficient internal instructions or inadequate documentation, and thus strictly speaking the loss ought to have been classed as an operational loss. A lower limit is often also set for the losses to be reported.

The banks discuss and work in various groupings for the international exchange of internal data and the development of *common databases*. The objective is to obtain an adequate volume of data to carry out statistically reliable analyses.⁴⁰ Detailed definitions and reporting instructions are, of course, also important in this context. External databases, often containing major losses reported in the media, are already used to some extent today, mainly for the purpose of comparison with competitors, and for drawing up various types of worst case scenarios.

Risk reduction

With regard to other risks, such as interest rate risk, the bank can normally increase its anticipated income by raising the risk level. The bank's anticipated income does not normally increase, however, if operational risk is increased. The bank thus has an explicit interest, in most cases, in trying to limit operational risks. However, reducing operational risk involves expenses, e.g., for staff, systems, and controls. The better operational risks have been identified and quantified, the easier it is to create an understanding of the risks to which the bank is exposed, and to determine which risks the bank is prepared to take and what it is prepared to pay for risk reduction.

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The banks already use traditional insurance solutions for certain types of operational risks, such as fire and theft. As a rule, these risks are reinsured on the international reinsurance market. Products for other types of operational risks, such as unauthorised securities trading, are being developed. Insurance solutions can fulfil a function, since each individual bank cannot be expected to hold

⁴⁰ Consortia for common databases, in which the various individual banks' internal loss data is compiled, are currently in a start-up phase. Apart from the British Bankers Association, these databases are provided mainly by various consultancies. Incidents are to be reported to the databases according to detailed instructions. All information is anonymous and the data is to be made available to the participants.

sufficient buffer capital to manage major losses. Different insurers could, however, manage even major bank losses through a diversified portfolio containing such diverse risks as bank failures, nuclear accidents and natural disasters. A number of questions remain to be solved, however, with regard to these new insurance products.

- Operational risks can be difficult to define and quantify, and it can thus be difficult to clearly determine what is actually covered by the insurance.

- Insurance contracts normally contain clauses on disclosure requirements. This means that insurance compensation may not be payable or may be reduced, if the insurer considers that the insured has withheld information on risk exposure. With regard to losses resulting from deficient staff ethics or competence, which are considered an important part of operational exposure, the question of the bank's duty of disclosure to the insurer can be difficult.

- Loss investigations in case of operational losses are often difficult and take a long time. The period between the loss and payment can be significant and place a strain on the bank's liquidity.

- An additional risk is that the amount is so high that the insurer cannot pay, and that the operational risk is thus replaced by a counterparty risk. When the sums insured are large, it is important that the reinsurance structure is transparent.

From a societal point of view, it is also feared that *moral hazard* problems can arise, that is that insurance policies against operational risks reduce the bank's incentive to improve its internal risk management. This can be counteracted by the insurers placing higher demands on the banks' risk management, as well as through the structure of the insurance. Significant excesses, a ceiling on possible compensation and "reinstatement" requirements in case of loss counteract moral hazard.

Systemic risk

Even though quantification attempts encounter many difficulties, systematic measures to identify operational risks increase the bank's awareness of where the really significant risks lie. Operational risks also differ from credit and market risks in that they are normally not correlated between different institutions. Market crashes and economic shocks can affect many banks simultaneously and in a relatively similar way, while, e.g., computer failures or fraud probably affect one bank at a time. This means that systemic risks resulting from operational risks can be expected to be less serious than other systemic risks. The bankruptcy of an individual bank could have serious repercussions on other banks in the system, irrespective of whether the bankruptcy is caused by fraud or bad loans.

From a systemic point of view, it is therefore important that the banks spread their risks, and do not allow such large individual exposures even to other well-reputed banks that a bankruptcy would threaten their own bank's survival.

The Barings Bank case showed that high losses resulting from operational risks can, in principle, be revealed overnight even in a well-reputed bank. In the case of such a rapid course of events, the counterparties do not have the same opportunity of reducing their exposures, as they have in the case of a slower deterioration in a counterparty's credit worthiness. From a systemic point of view, it is therefore important that the banks spread their risks, and do not allow such large individual exposures even to other well-reputed banks that a bankruptcy would threaten their own bank's survival.



Glossary

Bilateral netting

Bilateral netting is when two parties offset their claims and liabilities against each other, thereby reducing the size of their exposure.

Capital adequacy

Capital adequacy, or the capital adequacy ratio, is the capital base in proportion to risk-weighted assets. Capital adequacy shall, according to the Act on the Capital Adequacy and Large Exposures of Credit Institutions and Securities Companies (SFS 1994:2004), be at least 8 per cent.

Capital base


The capital base is the total of Tier 1 and Tier 2 capital. Tier 1 capital is equity minus goodwill and 72 per cent of the parent company's untaxed reserves. Tier 2 capital is subordinated debentures with a reduction where the remaining maturity is less than five years. In order to calculate the capital base, the sum of Tier 1 and Tier 2 capital is reduced by the book value of holdings in insurance and financial operations exceeding five per cent, which must not be consolidated.

Capital deficit

A person has a capital deficit for taxation purposes if the sum of capital costs is in excess of the sum of capital income, that is, if the sum of financial income plus income from renting out a private residence plus capital gains less capital losses less the cost of administration (> SEK 1,000) less financial expenses, is negative.

Confidence Indicator

FIRMS: The National Institute of Economic Research performs monthly surveys where the business sector is questioned about earnings, the current situation and expectations for important economic variables on which no quantitative data are yet available. The Confidence Indicator is compiled on the basis of several variables (assessment of order books, assessment of stocks of finished goods and production expectations) and attempts to reflect the outlook of firms for the future. Survey responses are reported in net figures, which is the balance between firms that have stated positive and negative expectations respectively for each variable.



HOUSEHOLDS: Statistics Sweden performs monthly surveys of the household sector. Responses are reported in net figures, i.e. the percentage that has answered “improving” less the percentage that has answered “deteriorating” to the questions about the economic situation in Sweden and the household’s own economic situation.

Correspondent bank

In order to effect a payment in a currency other than one’s own domestic currency, a bank commonly uses banks in other countries, correspondent banks. A Swedish bank opens a “nostro account” with the correspondent bank, from which deposits and payments are made. The correspondent banks participate in their respective national payment systems and forward payments to the final payee. The major banks are thereby part of a network of correspondent banks in many different countries.

Cost/income ratio

Total costs in relation to total income, less depreciation according to plan for leased equipment. The cost/income ratio is calculated before and after loan losses, including change in the value of appropriated property.

Debt/equity ratio

A company’s liabilities in relation to its equity.

Disposable income

Income after tax and transfers of public subsidies.

External effect

An external effect of the production or consumption of a player is the effect it has on the utility or production of another player.

Foreign exchange settlement

Foreign exchange trade is based on selling one currency against payment in another currency. In this transaction between two currencies there is a time lag. A bank usually sends a payment instruction to its correspondent bank the day before the settlement date. Depending on the agreement that a bank has with its correspondent bank, payment can then be cancelled up to a certain agreed point in time. On the settlement date, the transfer from seller to buyer takes place for both currencies. Thereafter, the correspondent bank sends a statement to the bank, which can then confirm that the expected payments have been effected. The statement from the correspondent bank usually arrives the day after the settlement date. This means that the time lag between irrevocable payment and confirmed receipt, the bank’s exposure period, is approximately two days.

Foreign exchange settlement risk

The risk that one party in a currency transaction pays an amount corresponding to the purchased currency, but does not consequently receive the purchased currency.



Full credit risk

Full credit risk refers to a situation where the bank stands to lose the entire nominal amount of a transaction if the counterparty cannot fulfil the obligations as stated in the contract.

GDP

Gross domestic product: approximately the total value of the goods and services for end users that are produced for the market and the public sector during a period, usually one year.

Interbank market

The interbank market is a market for deposits and lending primarily between banks, although other large companies also participate to some extent. Banks with liquidity surplus can place this as an interbank loan for a certain period with banks that have a liquidity deficit. The interbank market comprises overnight loans by which banks regulate their daily liquidity requirements, but also loans with a maturity of up to two years. Loans in both Swedish and foreign currencies are available on the interbank market. No collateral is required for loans on the interbank market.

Interest coverage ratio

The interest coverage ratio is the income before provisions, tax, and financial costs divided by financial expenses. A high interest coverage ratio indicates that the company's operating surplus adequately covers financing expenses, while a value below one indicates that the operating surplus is not sufficient to cover financial expenses.

Interest margin

The difference between the average interest on all assets and the average interest on all liabilities.

Investment margin

Net interest income in relation to average balance sheet total.

Loan loss level

Loan losses and changes in the value of appropriated property in relation to the initial balance for lending to the general public, credit institutions (excluding banks) and appropriated property and loan guarantees.

Multilateral netting

When a clearing house is used as an intermediary, it is possible for all participants to offset claims and liabilities against each other. Multilateral netting thus entails that each participant has a maximum of one claim from, or one liability to, the other participants or the clearing house.

Net interest income

Interest income and leasing income, less interest expenses and depreciation of leased equipment according to plan.

Nostro account

In order to be able to effect a payment in a currency other than one's own domestic currency, a bank commonly uses banks in other countries, correspondent banks. A Swedish bank opens a "nostro account" with the foreign bank. This is similar to a normal current account from which deposits and payments are made. The correspondent banks participate in their respective national payment systems and forward payments to the final payee. The major banks are thereby part of a network of correspondent banks in many different countries.

Payment versus payment, P_vP

Simultaneous payment and delivery of currency in a foreign exchange transaction.

Problem loans

Total of doubtful loans and claims subject to interest reduction.

Ratio of doubtful claims to loans

Doubtful claims net in proportion to lending to the general public and credit institutions (excluding banks) and leased equipment.

Return on equity

The net income for the period after appropriations and tax, in relation to the average equity adjusted for new issues and dividends, and including minority interests.

Risk-weighted assets

The volume of risk-weighted assets is determined by placing assets and items that are off-balance sheet in separate risk categories. The assets are weighted with regard to estimated risk to be included in the risk-weighted volume by 0 per cent, 20 per cent, 50 per cent or 100 per cent.

Terms of trade, ToT

A country's terms of trade in foreign trade are the relationship between price levels for the country's exports and imports.

Tier 1 capital ratio

Tier 1 capital in relation to the risk-weighted amount. Tier 1 capital is the part of the capital base which comprises equity, including the proportion of untaxed reserves, with deduction for goodwill.

Volatility

Variations in economic variables such as interest and exchange rates. Greater uncertainty among market players about how the market is going to develop is reflected in greater variability and, consequently, higher volatilities.



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