



Sveriges Riksbank

# Financial Market Report

I/1998



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# Foreword

Safeguarding the stability of the payment system is one of the Riksbank's primary functions. The purpose of the Financial Market Report is to present the Riksbank's appraisal of tendencies in the financial system and their implications for stability. The report is also intended to stimulate a discussion of matters that concern payment system stability.

The theme of this second issue of the Financial Market Report is credit risk in the banking system and how it is affected by macroeconomic developments. The macroeconomic assessments in the report do not differ from those that were presented in the latest Inflation Report in March 1998, which means that this issue does not contain any monetary policy news. The report is rather extensive because, in order to provide an analytical framework, it was considered important to describe the different types of risk associated with banking and their significance for the Riksbank's concern with stability. Readers who are familiar with these risks can turn directly to Chapter 2, which contains the bulk of the

report and presents indicators that are judged to be appropriate for the analysis of bank credit risks and of where these indicators are currently pointing. The report concludes with Chapter 3, which presents the Riksbank's assessment of payment system stability. A follow-up of the tendencies that were considered in the first issue is contained in an annex.

The work has been undertaken in the Payment System Department of the Riksbank under Kai Barvèll, Head of Department, and Martin Andersson from the Financial Systems Division.

This issue of the Financial Market Report served as a foundation for a discussion of payment system stability by the Governing Board of the Riksbank on 29th April 1998. The conclusions from that discussion are presented in Chapter 3.

*Stockholm, May 1998*

Urban Bäckström  
Governor of the Riksbank

# Risks in the bank sector

*Banking involves risks of various types. As the overseer of the payment system, the Riksbank is most concerned about credit, liquidity and counterparty risks. Historically, it is credit risk that has proved to be most important for the bank sector's stability. In the 1990s it is the level of loan losses that has fluctuated, while operating net earnings have been relatively constant.*

The Riksbank's oversight of payment system stability and the analytical model for this were described in the first issue of the Financial Market Report.

The stability of the payment system is largely a function of the banks' capacity to withstand shocks and this capacity is dependent on profitability, efficiency, liquidity and financial strength. The assessment of the past and future development of these factors calls for information of various kinds. A distinction can be made between three levels of information: company-specific conditions, industry tendencies and the macroeconomic situation.

The first report focused on the strategic risks which determine competitive pressure in the financial sector and are of crucial importance for its profitability. It was concluded that an increase in competitive pressure could be observed but the bank sector seemed to be coping well and exposure to risk did not appear to be rising to an extent that might threaten payment system stability. The discussion is followed up in an annex to this issue, with brief comments on some charts that are intended to illustrate the competitive situation in Sweden's bank sector.

By itself, an analysis of strategic risks does not provide a complete picture of the situation in the bank sector. Compared with other enterprises, a bank is more dependent on the composition of its balance-sheet for its survival. The quality of a bank's assets is particularly important. The credit exposures that bank loan entails are especially important. The

risk positions of individual institutions are related to the systemic risks in the financial system. The bank crisis in the early 1990s showed that systemic risks can arise as a consequence of macroeconomic and structural changes. The extent to which bank lending is vulnerable to such changes is analysed in this report in order to assess the degree of vulnerability in the bank sector in the event of, for example, a macroeconomic change that impairs the solvency of important categories of borrower. The analysis concentrates on the four major banks (Handelsbanken, Nordbanken, S-E-Banken and FöreningsSparbanken), which between them account for approximately 87 per cent of the aggregate balance-sheet total for Sweden's bank sector.

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The different risks involved in banking operations and the Riksbank's appraisal of these risks are described in general terms in this chapter. Credit risk, which the Riksbank regards as the most significant risk for the Swedish bank sector, is considered in more detail in the next chapter. The primary purpose of the analysis is to demonstrate the relationship between credit risk in the bank sector and macroeconomic developments. The extent to which macroeconomic indicators are suitable for assessing

credit risk in banking is discussed and the relevant indicators are used to appraise the current situation in the bank sector in Sweden. The third chapter presents the Riksbank's conclusions about payment system stability.

## A catalogue of banking risks

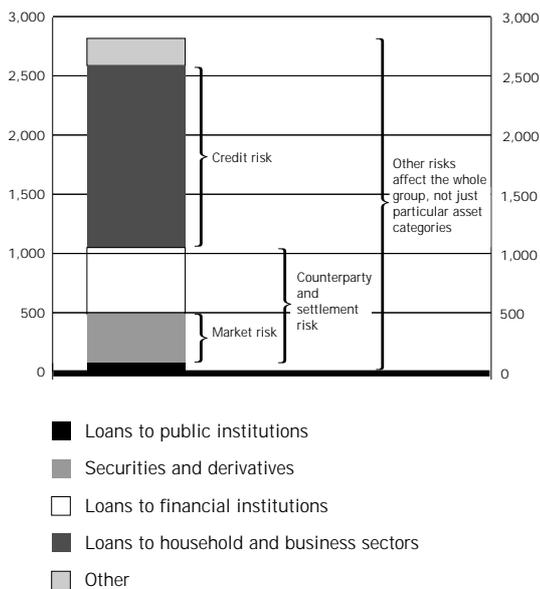
The risks to which banks are exposed can be assigned to the following categories:

- credit risk
- counterparty and settlement risk
- market risk, including total interest rate risk
- liquidity risk
- strategic risk
- operational risk
- reputational risk
- legal and political risks.

**Figure 1:1.**

Assets of the four major banks and their housing credit subsidiaries, December 1997.

SEK billion



Source: The Riksbank.

The different risk categories are interdependent. Each category and the relationships between the sources of risk are discussed in this section. Risks with different origins arise in different segments of banking operations (Fig 1:1).

### CREDIT RISK

Credit risk arises from the probability that a borrower will not be able to pay interest on the loan or repay a part or all of the principal. A bank loan generates a comparatively small surplus (the margin between the lending rate and the bank's financing rate) that is obtained with a high degree of probability, while the probability of it resulting in a loss is low but the loss, if it occurs, is usually considerably larger than the surplus. In that a bank or other credit institution has a portfolio of claims on different borrowers, the diversification this represents means that the consequences of any bad outcomes (loan losses) are offset by the large amount of positive outcomes in the portfolio as a whole. The result is a comparatively even flow of loan losses that hopefully add up to less than the bank's profit before these losses. This effect of diversification presupposes that the loan losses occur relatively independently of each other. Problems may arise if there is a heavy concentration of losses to a particular industry, for instance.

A bank's total loan losses vary both with general factors, such as the macroeconomic situation, that affect the solvency of borrowers and with company-specific factors such as the particular bank's credit policy and risk management system.

The strong co-variation between loan losses and the business cycle is the main reason why bank net earnings fluctuate with economic activity.

The macroeconomic situation affects the credit risks of banks in that the course of general economic activity influences the financial situation and credit-worthiness of individuals and firms. The strong co-variation between loan losses and the business cycle is the main reason why bank net earnings fluctuate with economic activity. Macroeconomic indicators

of financial vulnerability are accordingly one of the more important elements in the Riksbank's oversight of financial system stability.

While macroeconomic changes are important for the financial sector as a whole, the distribution of their effects within the sector may not be uniform because bank specific factors also affect profitability. Different banking operations are affected to different degrees. When economic activity falls, operations that generate income from commissions are only exposed to the risk of decreased income, while traditional bank lending may incur large losses. As regards lending, moreover, the effects of macroeconomic changes differ between customer categories; in a recession, losses on corporate loans have tended to be larger than on household credits. The impact of macroeconomic shocks on loan losses and bank profits is accordingly dependent on the structure of a bank's customers and operations. The macroeconomic situations that may lead to loan losses in the customer segments that dominate the loan portfolios of the banks are discussed in the next chapter. The customer structure of the Swedish bank system is also described there. The bank-specific risk is also dependent on the credit policies and risk management systems of the individual banks but these aspects, which are more a matter for the supervisor, are not included in the following account (see Box, p. 8).

One way of limiting the negative consequences of defaults is to require collateral for loans. The size of the risk then depends on the characteristics of the collateral, for example the possibility of liquidising it without incurring a loss.

#### COUNTERPARTY AND SETTLEMENT RISK

Counterparty risk is a special case of credit risk that arises from lending to other financial institutions as well as from exposures to issuers of securities in the bank's portfolio. Loans to financial institutions and holdings of securities add up to about 30 per cent of the aggregate assets of the bank groups (Fig. 1:1).

A characteristic of lending between financial institutions is that the individual exposures are normally very large, while the probability of losses is

low. Compared with credit risk, the effect of diversification is therefore smaller and even the consequences of a single suspension of payments are liable to be very serious. With the large exposures, moreover, payment difficulties for one institution entail the risk of a domino effect that may lead to widespread and profound disturbances in the financial system. Counterparty risk should therefore be analysed differently from credit risk. Greater importance should be attached to the risk of an individual institution failing to meet its commitments. In view of the mutual exposures of the major banks, the risk of domino effects is the most important aspect of the Riksbank's analysis of counterparty risks.

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An important trend in the interbank market is the growing practice of requiring collateral, particularly from banks in new markets and with a lower credit rating.<sup>1</sup> The increasing use of repos confirms this trend. It helps to reduce the consequences of a counterparty suspending payments, not least the risk of effects spreading throughout the financial system.

Settlement risk arises from the flows between financial institutions and consists of the risk that, in the course of a financial transaction, the delivery of a security, for example, is not arranged simultaneously with the payment for this. If the delivery-versus-payment (DVP) principle is not observed, a counterparty transmitting payment for a security runs the risk of not obtaining the security if the seller defaults before it has been delivered. Achieving DVP eliminates this type of settlement risk by ensuring that both legs of the transaction are completed simultaneously.

<sup>1</sup> *International Capital Markets Developments: Prospects and Key Policy Issues*. IMF, November 1997, p. 11.

## MANAGING CREDIT RISK

The adequate management of credit risk is an essential part of successful banking. Growing competition and narrower margins in the bank market have led to increasingly sophisticated and cost-efficient ways of assessing and managing credit risk. The traditional procedure has been to assess each loan separately and base a decision on the probability of the borrower meeting his commitment. Once a loan has been granted, it has been kept in the bank's own portfolio. Today, the management of credit risk is being developed along three main lines:

### *1 More quantification of default probabilities*

To assess the quality of their loans, banks often use internal credit rating, that is, they gauge the probability of payment being suspended and rate the loan accordingly. Rating scales usually consist of ten categories, from safe credits to loan loss. The factors underlying the internal rating are the bank representative's assessment, statistical estimates that allow for the customer's characteristics, and information from a rating institute or credit information company.

### *2 Portfolio approach to credit risk assessment*

Methods for quantifying and managing risks in the loan portfolio as a whole are being developed rapidly at present. The construction of credit risk models to support a holistic appraisal of credit risk in the loan portfolio is a matter of major importance for banks, as well as for authorities that oversee and supervise the financial system.

The major obstacle to the development of models for credit risk assessment is the lack of statistics.

Adequate data are not yet available on cyclical movements in creditworthiness or on the risk of losses among specific categories of borrower. When such statistics are available, the use of models is likely to accelerate.

### *3 New instruments and insurance solutions for covering risk*

The introduction of credit derivatives and similar instruments enables a financial institution to transfer the credit risk in a loan or a loan portfolio. Credit derivatives give banks opportunities of providing and administering a loan on behalf of a customer without having to retain the risk in their own portfolio. A financial institution can also use credit derivatives to avoid large exposures to an individual customer. With credit derivatives, banks can actively decide which credit risks to retain and thus construct what they consider to be an optimum credit portfolio without having to modify their assortment of customers. This can be important in a period when banks are trying to establish a full service relationship with customers. It also means that banks need not necessarily break a long-standing relationship because the customer happens to be in what may prove to be temporary difficulties.

Developments in the market for these derivatives have been driven by institutional investors who are interested in credit instruments with a higher risk than traditional securities without having to provide loans directly. The instruments can also give banks and investors greater opportunities for diversification in that they can be used to take over credit risks from sectors and geographical areas to which they do not normally have access.

A corresponding settlement risk exists in foreign exchange contracts because the two legs of such a transaction are not normally completed simultaneously. The time lag may be considerable between the payment for the sold currency and the delivery of the purchased currency. This risk in the absence of payment-versus-payment (PVP) is akin to the above-mentioned risk in securities transactions. It is gener-

ally known as Herstatt risk<sup>2</sup> and has attracted international attention, above all through a report from the central banks of the G-10 countries.<sup>3</sup>

The time lag between payment and delivery of different currencies is one of the largest individual risk factors in the international financial system. Studies by the central banks of the G-10 countries show that the lag between payment of one leg in a

foreign exchange transaction and delivery of the other leg is often between two and three days. Time-zone differences contribute to this, as do the banks' internal systems and routines. Daily turnover in global foreign exchange trading has risen rapidly in the past decade; the level in April 1995 is estimated to have been USD 1,200 billion.<sup>4</sup> Together with the long lag, the high turnover means that exposures continuously exceed the aggregate value of bank equity. The settlement risk in foreign exchange transactions exposes the Swedish banks to an amount that corresponds very approximately to between two and six times the value of their aggregate capital base, which gives some indication of the effects that disturbances in these markets might have.

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Settlement risks can be managed by improving the settlement systems. Examples of such improvements are an increased use of real-time settlement, a reinforcement of safety arrangements in netting systems, etc. An important component of the Riksbank's oversight of payment system stability involves promoting improvements in the settlement systems that are used by Swedish banks.

#### MARKET RISK

Market risk has to do with movements in interest rates, exchange rates or share prices. Banks are exposed to market risk mainly in the management of securities portfolios ("Securities and derivatives" in Fig. 1:1, p. 6). Market risk is relevant for stability because unfavourable price movements can entail a substantial reduction in the value of these assets.

While market risk exists mainly in securities portfolios, movements in interest rates, for example, also affect other banking operations. As a rule, the fixed interest rate period for a bank's liabilities is shorter than for its assets; an upward interest rate movement therefore means that interest expenditure rises faster

than interest received, to the detriment of net interest income. Hedging activities in the securities portfolio are often used to protect a bank's entire operations from certain interest rate movements. In order to evaluate an interest rate movement's overall effect on a bank's net earnings, it is therefore necessary to consider all its operations, not just the securities portfolio.

The nature of market risk differs in several ways from that of credit risk. A bank's exposure to market risk is liable to change much more quickly than its credit risk exposure because positions in the securities portfolio can fluctuate at very short notice. Quick changes of exposures in lending operations are considerably more difficult to achieve, at least as long as credit derivatives are not readily available in the market. Bank systems for managing market risks are more sophisticated than for credit risks, mainly because the daily price quotations in the securities market provide a foundation for statistical analyses. Corresponding methods are being developed for the analysis of credit risks but they are still difficult to use in practice. Partly for these reasons, it is comparatively more important for the Riksbank to monitor credit risks.

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A meaningful control of market risks by the authorities should therefore concentrate in the first place on monitoring the banks' internal systems for risk management. This has in fact found expression in the development of capital adequacy rules for market risks, which now permit the use of Value-At-Risk models.

<sup>2</sup> The name derives from the failure of the German banking company, Bankhaus Herstatt, in 1974.

<sup>3</sup> *Settlement Risk in Foreign Exchange Transactions*. Bank for International Settlements, March 1996.

<sup>4</sup> *Central Bank Survey of Foreign Exchange and Derivatives Market Activity*. Bank for International Settlements, May 1996.

#### LIQUIDITY RISK

Banking operations are financed with equity and borrowed capital. Liquidity risk arises in that banks traditionally finance comparatively long-term lending with short-term deposits or other short-term borrowing. This financing can be withdrawn and thereby create major difficulties and even render the re-financing of the non-liquid loan portfolio completely impossible.

In a number of bank crises in recent decades, the primary cause of the liquidity problem has not been a withdrawal of deposits. Instead it has been banks, particularly those in other countries, that have cut off financing in connection with a perceived increase in the risks in a specific bank or banking system. This is what happened during the bank crisis in Sweden and it has also turned out to be a substantial problem during the bank crises that arose in certain countries in Asia during 1997 and 1998.

Some form of deposit insurance or State guarantee for consumers' deposits has become an increasingly common element in legal infrastructure for banks and reduces the risk of a wave of withdrawals by private individuals. Guarantees of this type have been in place in Sweden since 1992, first in the form of an unlimited State guarantee for the entire banking system and then, from 1996, a guarantee for deposit account balances of up to SEK 250,000 per depositor and bank.

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As lender of last resort, the Riksbank is in a position to provide loans without full collateral if it considers that payment system stability is threatened.

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Bank liquidity problems are particularly important for the Riksbank because they are liable to spread rapidly, either through effects on confidence or because payment flows are disrupted. The Riksbank supplies the banks with liquidity in conjunction with monetary policy as well as to facilitate payments. The loans normally have to be collateralised with securities but if a bank has problems with liquidity

and is unable to pledge collateral for loans, it can apply for loans on special conditions. In its function as lender of last resort, the Riksbank is then in a position to provide such loans if it considers that payment system stability is threatened.

#### STRATEGIC RISK

As in other industries, bank sector profitability is susceptible to growing competition and cyclical fluctuations. Strategic risk has to do with such forces that act at the industry level and are liable to occasion industry-specific shocks by impairing profitability in the industry as a whole or for individual institutions. Banks can counter such risks to a varying degree by choosing appropriate strategies. In an international perspective, Swedish banks need to choose a strategy that enables them to survive in an increasingly internationalised market where competition is growing as a result of European harmonisation and the advent of EMU.

The Riksbank is concerned about strategic risks in the bank sector because pressure on profitability tends to induce firms to take increased risks as a means of temporarily restoring profitability to levels that are considered reasonable. This mechanism is particularly relevant in the bank sector on account of the short term positive relationship between risk and the expected return. A short-run improvement in profits can be achieved, for example, by stepping up lending to less creditworthy borrowers. Any losses as a result of increased risk exposure are likely to be triggered by a sudden, unexpected downturn in the macroeconomic situation. This makes it important for the Riksbank to monitor threats to profitability in the Swedish bank sector.

Strategic risks also affect the banks' long-term ability to maintain profitability and thereby their financial strength at a reasonable level. A low long-term level of profitability might erode the banks' financial resilience, leaving them vulnerable to shocks.

#### OTHER RISKS

The other risks considered here are operational, legal, political and reputational risk. *Operational risk* can arise from shortcomings in information systems or internal controls that lead to unexpected losses. The problems may be due to human error, deficient systems, bad routines, inadequate controls or criminal action, for instance. The authorities have become more concerned about operational risks because of the massive losses they have caused in a number of cases. The large, high-risk positions that caused the losses in Barings Bank owed their existence to faulty routines in control systems. For the authorities, the actions necessary to mitigate the results of banking problems occasioned by operational risk are comparatively less troublesome. Today, operational risks are considered to be one of the major risks for individual banks but, as they do not co-vary between banks, they are less of a threat to the bank system as a whole. But if the bank that has to suspend payments is sufficiently large, the losses that other banks incur may be so great that this does jeopardise the entire system.

*Legal risks* in banking have grown in recent years in that financial markets are becoming increasingly integrated internationally. For example, contract terms that cannot be enforced on account of laws or legal practice in the counterparty's home country constitute an appreciable risk that has to be carefully considered in all a bank group's cross-border transactions.

*Political risk* concerns the uncertainty about future laws and regulations that may alter conditions in a financial market. Political risk can entail increased credit, market or liquidity risks. There are historical instances of governments suspending payments (e.g. Mexico in the early 1980s), leading to loan losses caused by a political decision. Devaluations, which entail widely fluctuating markets and thereby market risk, are likewise based on political decisions. New tax legislation may also have consequences for mar-

ket conditions. The tax reform in Sweden resulted in increased borrowing costs, making it more difficult for households to service large loans.

*Reputational risk*, which is being increasingly discussed internationally, consists in a bank or other financial enterprise being affected by risks in other companies with which it is associated (e.g. companies in the same group) but is not formally responsible for. A bank may intervene, for instance, and cover losses in a group company that the latter cannot manage on its own. A case in point is Deutsche Bank's coverage of Morgan Grenfell's client losses when this group company had made imprudent investments on behalf of clients. The importance of reputational risk will grow as the financial conglomerates become increasingly large and diversified in their activities. Opinions about the importance of reputational risk differ. One reason for not assigning too much weight to it is that banks are not compelled to cover the losses. While they may do so when their position is stable, they might refrain if the need arose when their own financial situation was weak. It is primarily in such a situation that this risk might be troublesome for bank system stability.

The Riksbank is less directly concerned with operational risks because such risks are mainly controlled at the institutional level and belong to the domain of the Financial Supervisory Authority. But in view of the risk of domino effects in the event of payment difficulties for a bank, operational risk is indirectly of major importance for the Riksbank. The Riksbank can be said to counter legal and political risks mainly by participating in the development of rules for the financial sector in Sweden as well as internationally, for example in the Group of 10 and the European Union. In this context the Riksbank works for stable and functional rules that provide financial market agents with incentives to act in ways that promote the efficiency and stability of the entire financial system.

## Credit risk predominates

This report focuses on credit risk in Sweden's bank sector. Credit risk is the type of risk in the bank system that has constituted the largest threat to the economic position and performance of the banks. This is evident from the banks' performance before and after loan losses in the period 1990–97 (Fig. 1:2).

The net earnings before loan losses has been comparatively stable throughout the 1990s, while loan losses have varied markedly. In this period, the largest impact on the development of the bank groups' net earnings has, in fact, come from loan losses.

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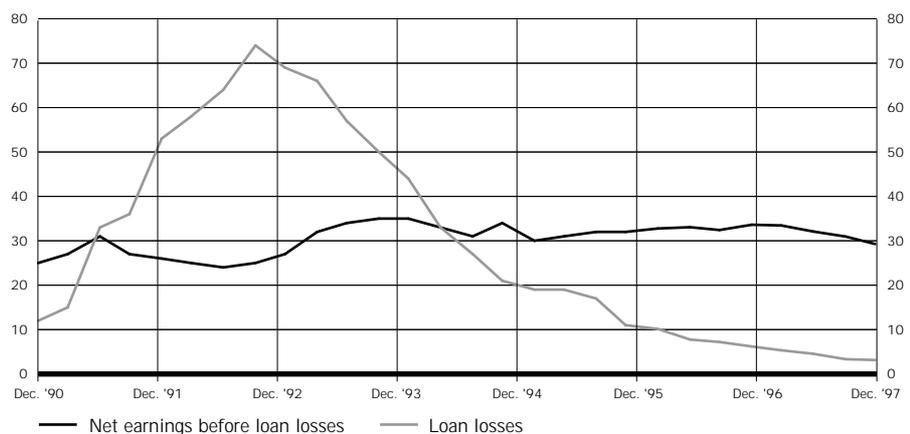
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A bank's capital base serves as a buffer for absorbing losses and avoiding bankruptcy. The importance of credit risks is expressed in the capital requirements that banks have to observe. Banks are required by law to maintain a capital base that is equivalent to at least 8 per cent of their assets, weighted for risk. The weights—100, 50, 20 and 0 per cent—reflect the

amount of risk that a particular type of asset is considered to entail. Assets accordingly have to be covered with capital up to 8, 4, 1.6 or 0 per cent of their value, depending on the risk category. A separate method is used to assess market risks, which in this context are defined as interest-rate, exchange-rate, equity-price, counterparty and settlement risks in the banks' securities portfolios. The fractions of the capital requirement that refer to different asset categories provide an indication of the proportion of the banks' capital base that is maintained to cover different kinds of risk position (Fig. 1:3).

For the four major bank groups, the statutory capital requirement<sup>5</sup> totals SEK 104 billion, of which SEK 93 billion can be assigned to loans to the household and corporate sectors, that is, the segment defined here as credit risk. The capital requirement for loans to financial institutions and securities operations is not as large as the balance-sheet exposures (Fig. 1:1, p. 6) suggest. This is because, as mentioned, some asset categories are weighted down for risk (to 0, 20 or 50 per cent), which means that the amount of risk-weighted capital is less than 8 per cent of the assets' balance-sheet value. It should be noted, however, that the capital adequacy classes are broadly

**Figure 1:2.**  
Net earnings for the four major banks groups. SEK billion, moving 12-month average



Source: The Riksbank.



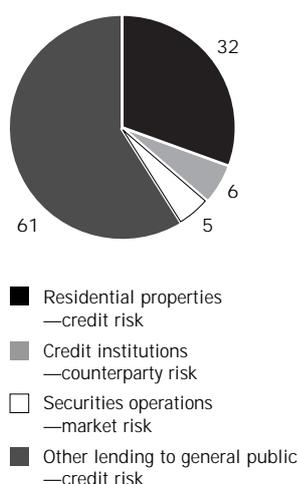
defined and it is debatable whether they are a good indication of the actual risks associated with the different asset categories. According to these rules, a loan to a private individual carries the same credit risk as one to a listed multinational company. Even so, the breakdown does give some indication of the significance of credit risks in relation to other risks in the bank sector.

To sum up, credit risk can be considered to be the type of risk that is most important for the stabil-

ity of the bank system in Sweden. The emphasis in this report is on the analysis of macroeconomic factors that affect financial vulnerability or solvency in different economic sectors and thereby the risk of attendant loan losses occurring in the bank sector.

<sup>5</sup> The aggregate capital base (capital adequacy definition) of these bank groups at end 1997 was SEK 140 billion, which gave a total capital ratio of 10.7 per cent. The capital base consists of equity capital calculated in accordance with the accounting rules, plus certain liabilities (e.g. subordinated debenture loans) that resemble equity.

**Figure 1:3.**  
The four major bank groups' regulatory capital requirement by risk categories, December 1997. SEK billion



Source: Financial Supervisory Authority.

Note to Fig. 1:3. The segments represent the capital requirements for assets with risk weights of 20, 50 and 100 per cent, respectively, and for assets included in the assessment of market risks. They relate to the risk categories in Fig. 1:1. Loans to credit institutions and the associated counterparty risk can be said to correspond to the 20% class, loans to the corporate and household sectors secured with real estate to the 50% class and other loans to the corporate and household sectors to the 100% class, which also includes other assets, e.g. buildings, which cannot really be considered to represent a credit risk. The risks in securities operations are classified here as market risk.



# Credit risks in the banks

*In that bank loan losses vary with the business cycle, there is reason to analyse bank lending in the light of how different borrower categories are affected by macroeconomic developments. Economic activity is currently in an upward phase and there are accordingly no signs of sizeable loan losses in the near future. The analysis of solvency among household and firms shows a good situation at present, though some tendencies towards increased risks have been discerned in the past year.*

## Focus on households and firms

The credit risks of banks are strongly linked to the macroeconomic situation. The general economic situation is highly important for the development of loan losses. The significance of the overall economic trend for the banks' credit risks is discussed in the next section of this chapter.

Bank credit risks differ across borrower categories and the effect of the economic trend is not necessarily uniform. The banks' risk positions with the two major borrower categories—households and companies—are discussed in the third and fourth sections of this chapter. The aim is to identify macroeconomic indicators that are relevant for assessing the solvency of these borrower categories and thereby the banks' credit risk from each. The data presented there represent the greater part of the bank sector's total exposure to different categories of borrower. The analysis can also be used to assess the extent to which individual banks are sensitive to macroeconomic changes.

Differences between personal and corporate bankruptcies mean that, in principle, households as a group are less likely than firms to occasion large loan losses. A bankrupt firm ceases to exist and the

losses incurred by a bank are therefore final, whereas a personal bankruptcy does not release the individual from debt. Firms and individuals can therefore be expected to differ in their response to problems with payments. The owners of a company stand to lose only their equity capital; when this dwindles, they can attempt to overcome the problems by taking risks that either save the business or result in even larger losses for their creditors. Individuals, on the other hand, have reason to act more prudently.

Another difference is that, in an economic downturn, losses on loans to households are likely to arise later than on corporate loans. Households are also in a better position than firms to balance a loss of income by spending less and adjusting their saving behaviour. The household sector also consists of a large number of relatively homogeneous borrowers, which affords good possibilities of acquiring comprehensive knowledge of the credit risks associated with different categories of household.<sup>6</sup>

All this makes it less probable that households cause problems for the banks. Of the loan losses in

<sup>6</sup> Knowledge of the size of the risk of loan losses for different borrower categories can be used in statistical estimates of the credit risk in a loan portfolio (credit scoring).

the four major bank groups at the height of the bank crisis in 1992, only 6 per cent (about SEK 4.5 billion) came from the household sector (Fig. 2:1). In 1997 the corresponding figure was 14 per cent but the increase is hardly a cause for concern because total loan losses were then very low. It is conceivable, however, that the household sector would contribute a larger proportion of the losses in a future bank crisis, which makes it important to include this sector in the discussion of credit risks.

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The importance of loans to non-financial enterprises as a source of credit risk is considerably greater than their share of the total loan stock suggests.

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Loans to non-financial enterprises make up approximately half of the bank groups' total lending to the private sector but their importance as a source of credit risk is considerably greater than this. Corpo-

rate loans are also more difficult to price so that reasonable compensation for this risk is obtained. The problem is discussed more fully in the section on credit risk in the corporate sector.

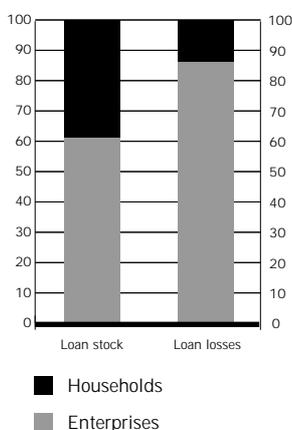
Indicators of borrower solvency pose the general problem, which is discussed for households and firms, of measuring the condition of the sector as a whole rather than individual borrowers. The proportion of borrowers who default on payments is normally very small. A weakening of these borrowers' solvency may not be detectable in the picture for the sector as a whole. Measurement of the spread here has not been feasible to any extent but this is something that ought to be developed. Despite this problem, the average indicators have often proved serviceable.

The sections on the household and corporate sectors focus on the borrowers' solvency and indebtedness. This analysis of financial vulnerability provides an indication of the *probability* of loan losses in the event of macroeconomic changes. In this context it is important that the value of the collateral with which banks have secured their loans is also included in the analysis. The size of the *final loan loss*, in the event of the borrower defaulting, is highly contingent on the value of any collateral that has been pledged. One of the causes of the recent bank crisis in Sweden was that banks had tended to concentrate on the underlying value of collateral at the expense of the borrowers' solvency. The extent to which the banks require collateral for their loans and the development of the collateral's value are discussed in the fifth section of this chapter. Collateral in the Swedish bank sector is dominated by real estate, so the discussion focuses on developments in the real estate sector. The credit risk position with real-estate companies is also considered there because it was this sector that occasioned the largest loan losses in the 1990s.

The sixth and final section concerns the credit risk associated with the banks' transactions with counterparties abroad. The importance of monitoring the banks' risk exposure to particular countries and regions is evident, not least, from the crisis

**Figure 2:1.**

Loan stock and loan losses of the four major bank groups broken down between households and non-financial enterprises, 1997.  
Per cent



Source: The Riksbank.

in Asia. The consequences of an economic crisis in one country can be such that the solvency of borrowers in that country is generally impaired. It is then important to monitor a bank's total exposure to borrowers in that country. The section also deals with an essential risk in the banks' foreign operations that is not strictly a credit risk: the banks' foreign financing and the risk of this being discontinued in times of financial instability. This has been one of the more substantial problems in the Asian crisis.

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Of the risks in bank portfolios, credit risk is the most substantial and is very difficult to quantify.

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Loan losses have been found to be the most suitable variable on which to focus in an analysis of threats to banks. Of the risks in bank portfolios, credit risk is the most substantial and is very difficult to quantify. It might be argued that some indicator of bank profit would have been a better variable in that banks can choose to increase their risks and simultaneously improve the rate of return. Empirical studies of bank failures in the United States in the 1980's have found that a rapid increase in loan stocks relative to other assets predicts bank failures at an earlier stage than net earnings indicators such as returns on assets.<sup>7</sup> Moreover, studies in the United Kingdom,<sup>8</sup> as well as preliminary surveys at the Riksbank, have demonstrated a strong autocorrelation for loan losses: increased provisions for loan losses one year gives a stronger probability of high loan losses in the following year. The suitability of using the bank sector's loan losses as a predictor of its financial performance is discussed in the Box on p. 18.

## The business cycle and credit risk

Financial crises are often preceded by some typical macroeconomic tendencies, such as a rapid increase in lending, a high real interest rate and a steep, marked fall in the rate of inflation. International factors have also contributed, for example the rapid capital outflows and strained exchange rates that were observed in both South Korea and Indonesia.

This makes it important to analyse which macroeconomic situations are likely to generate financial problems.

That bank problems are closely linked to economic changes in general is only natural. Bank lending is strongly interrelated with GDP growth, asset prices and investment (Fig 2:2, p. 19). Financial market activity accordingly follows the business cycle.

Credit risks in the bank sector should be assessed with reference to the economy's current cyclical phase. Two phases are particularly relevant. One consists of rising economic activity, which normally entails increased demand for credit and thereby an increase in bank lending. In this phase the banks are unlikely to incur substantial loan losses. The assessment should concentrate instead on whether any increase in bank lending represents a normal consequence of economic activity's cyclical nature rather than a tendency towards increased risk. The first issue of the Financial Market Report, published in November 1997, described an important factor that induces banks to take more risks: increased competition in the bank market, characterised by a drive for volume growth and a struggle for market share.

The other phase, a downturn in economic activity, is normally associated with increased loan losses. Cyclical fluctuations in loan losses are natural and to be expected but there is always a risk of the losses exceeding expectations. In this phase it is important to try to assess how large the loan losses are liable to become and the banks' capacity to cope with them. Relevant factors here are the depth of the downturn, each bank's access to sources of income that are less cyclically sensitive, and the banks' credit assessments, risk management, etc. Empirical studies suggest that macroeconomic variables can provide signals that a bank crisis is probable. The asset structure and credit risk management of the individual banks determine which of them will become bankrupt.<sup>9</sup>

7 Reidhill, J. & O'Keefe, J. (1997), "Off-site surveillance systems," in *History of the Eighties: Lessons for the Future*, vol. 1. FDIC, pp. 477-520.

8 Davis, E.P. (1993), *Bank Credit Risk*. Bank of England Working Paper, April.

9 González-Hermosillo, B., Pazarbasioglu, C & Billings, R (1996), *Banking System Fragility: Likelihood Versus Timing of Failure—An Application to the Mexican Financial Crisis*. IMF Working Paper, December.

## THE CONCEPT OF LOAN LOSSES

Credit risk is discussed in this report with reference to the risk of loan losses actually occurring. It is high loan losses that are liable to lead to an overall result that is negative, thereby eroding the bank's capital and raising the possibility of bankruptcy. The banks report their loan losses as a net item that consists of losses incurred or for which provisions have been made in the year in question less any reversed provisions for losses booked in earlier years. Reversals represent payments received that were due earlier, as well as assessments that earlier write-downs are no longer necessary.

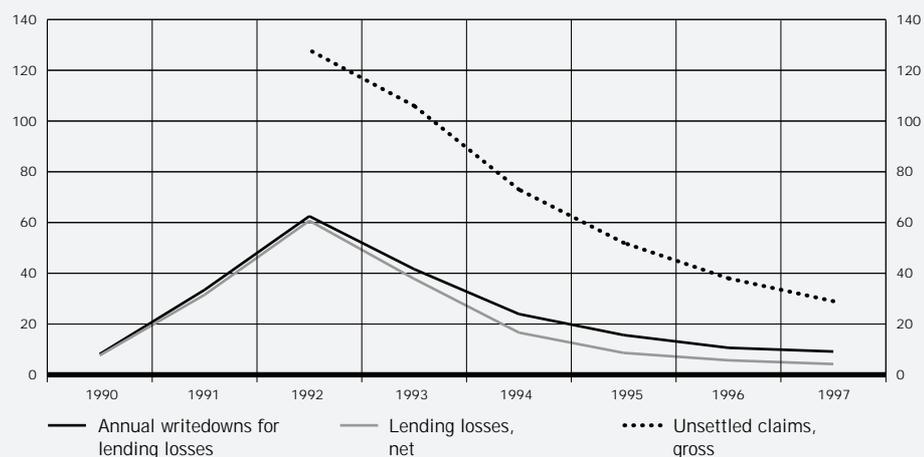
Net loan losses would seem to be the best indicator of how loan losses affect the banks in the longer run because this item shows how loan losses actually affect the net earnings over time. When loan losses are used, as in this report, to obtain a target variable that shows whether problems are on the way in the bank sector, it is more debatable whether this net item is the most suitable alternative. The annual write-down before reversals from earlier years does, in fact, give a better picture of how loan losses have developed in the past year. In the early years of the bank crisis, annual write-downs were very close to net loan losses (Fig. F1), whereas in

recent years they have amounted to approximately twice the net item. In view of the risk of an increase in the year's write-downs being concealed by large reversals, the Riksbank follows both these indicators of loan losses.

Besides reporting the loan losses that have been incurred, the banks present the doubtful claims in their loan portfolios. In connection with problems in the bank sector, an increase in doubtful claims might be expected to precede increased loan losses because a claim often becomes doubtful before a loan loss is booked in the accounts. The picture can also be clearer because it is the total amount of the actual loss that is reported, not just the expected loss.

The banks have reported doubtful claims in some form since 1990 and in a reasonably uniform way since 1992. As earlier data are not available for comparisons, it is difficult to tell from the recent bank crisis whether doubtful claims do in fact grow before loan losses. Still, there is reason for the Riksbank to continue to follow the development of doubtful claims. Today there seems to be no upward tendency in the banks' doubtful claims (Fig. F1).

**Figure F1.**  
The bank groups' unsettled claims and loan losses before and after recoveries.  
SEK billion



Source: The Riksbank.



Macroeconomic variables can provide signals that a bank crisis is probable; the asset structure and credit risk management of the individual banks determine which of them will become bankrupt.

A problem for the banks that is relevant in this context is that the funds which are generated by lending and which include a risk premium intended to provide against future loan losses must be included directly in the net earnings. This makes it difficult to appropriate funds during a positive cyclical phase in order to have a reserve in a downturn. The profits that banks report in an upward phase are therefore in some sense artificially high. Profits are taxed and at least a part is distributed to the owners. In a subsequent downward phase with increased loan losses, these funds are not fully available, which may mean that banks reduce their lending to high-risk projects. Any such reduction may affect innovative enterprises and new small establishments, for which the credit risk is often high. While this may be good for stability, it may be socially detrimental.

Improved methods for assessing credit risk will enable the banks to make more reliable estimates of how much allowance to make for loan losses. The

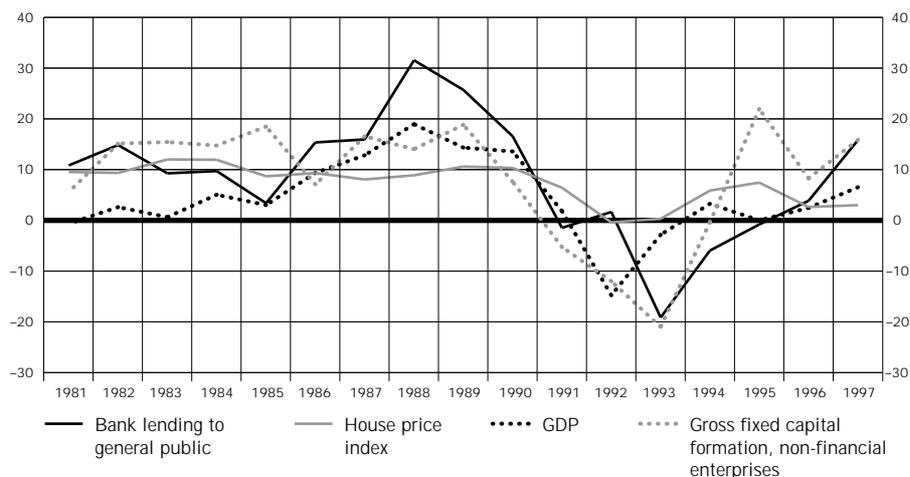
possibility of making such an allowance exists in Canada<sup>10</sup> and proposals in this respect are being debated in Sweden.<sup>11</sup> The matter warrants further discussion by the authorities in the financial sector.

The analysis of credit risks in the following sections includes a discussion of the indicators that are relevant for each of the two typical cyclical phases. The discussion necessarily involves simplifications. Identifying the prevailing cyclical phase is by no means easy and it is even more difficult to assess activity's future course. And even when activity is not falling, there are likely to be situations where individual banks incur large loan losses. Moreover, solvency may deteriorate in different sectors of the economy at different stages of the business cycle. Despite the simplifications, the distinction between the two phases is valuable in that it separates macroeconomic indicators that point to a build-up of risk in the bank sector and those that point to a risk of abnormally large loan losses threatening financial system stability. Before discussing which macroeco-

10 *General Allowance for Credit Risk*, Office of the Superintendent of Financial Institutions, Canada, 1997.

11 Tegin, Å. & Wolrath, E. (1997), "Behövs ett nytt sätt att redovisa kreditförluster?" (Is a new way of accounting loan losses needed?), *Balans* 6–7.

**Figure 2:2.**  
Annual change in key  
macroeconomic variables.  
Per cent, current prices



Sources: The Riksbank and Statistics Sweden.

conomic indicators it is appropriate to follow and where they are currently pointing, there is reason to consider the present cyclical position.

#### THE STAGE OF THE BUSINESS CYCLE

In the Inflation Report in March 1998 the Riksbank described the current situation in the Swedish economy as an upward phase. Private consumption is expected to rise in the coming years, accompanied by a comparatively strong investment trend. Increased employment opportunities and investments in education are expected to result in decreased unemployment. With these positive signs, GDP growth is judged to be just over 2.5 per cent in 1998 and about 3 per cent in 1999.

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Loan losses are very low at present and should remain so for the near future.

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In the present context the assessment in the Inflation Report leads to the conclusion that at present the macroeconomic situation is not likely to occasion immediate problems of profitability for Sweden's bank sector. It seems that both the household and the corporate sector face some favourable years, with no risk of a general worsening of solvency. Loan losses are very low at present and should remain so for the near future. In this report there is therefore reason to concentrate the discussion on the build-up of bank risks, though the indicators that point to a risk of loan losses being incurred are also presented and motivated.

#### INDICATORS OF A BANK RISK BUILD-UP

An expansion of lending has already been mentioned as a conceivable indicator of a risk build-up in banks. The global number of bank crises since 1990 lies approximately between 30 and 40, depending on the definition, and most of them have occurred in growth economies.<sup>12</sup> Common features of these crises are a boom in speculative lending without adequate internal controls and supervision, in conjunction with strong economic growth. In the preliminary phase of the crises, the average real rate of increase in domestic lending was about three times

higher than the GDP growth rate. In the downward phase, the proportion of non-performing loans rose to unsustainable levels, often up to 10 or 20 per cent of the total loan portfolio.

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Common features of these crises are a boom in speculative lending without adequate internal controls and supervision, in conjunction with strong economic growth.

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When economic activity picks up, banks, like other economic agents, have difficulty in telling to what extent the upward tendency represents a structural increase in growth as opposed to a cyclical change. This complicates the assessment of the long-term profitability of projects that the banks are financing. A comparison of lending growth and GDP growth (Fig. 2:3) can be used to indicate the extent to which the increase in economic activity motivates increased bank lending. The bank crisis in Sweden was preceded by a considerable period in which growth of the loan stock exceeded economic growth. The deregulation of the Swedish credit market contributed to this expansion of lending. Differences between lending and GDP growth are unlikely to be as dramatic as this in the future but there may still be reason to be alert to smaller discrepancies in this respect.

A contraction of the loan stock after the bank crisis has been followed by a renewed increase in the past two years, though the upward tendency has been fairly cautious. In recent months the increase has been more substantial, particularly for bank lending. Considering the favourable economic prospects for the coming years, this could herald a long-term increase in the growth of the loan stock. There is reason to follow this tendency in more detail. The question of which borrowers have obtained the increased loans is discussed in the following sections on different borrower categories.

Asset prices can have an effect on the banking sectors credit risk. Rising property prices, for example, lead (all else equal) to a decreased direct return (rent income less operating costs relative to the value of the property). A property buyer then either



accepts a lower direct return in the short run or invests in projects with a higher risk. Both cases entail an increased risk for banks; the first because lower income from the asset weakens the borrower's solvency, the other because loans with a higher risk are provided. Rising asset prices indicate an increased risk for banks, particularly when the assets are financed with loans. A good supply of credit may then accentuate price increases. In the period that preceded the bank crisis in Sweden, the growth of lending was accompanied by steeply rising asset prices (Fig. 2:4, p. 22).

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Rising asset prices indicate an increased risk for banks, particularly when the assets are financed with loans.

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An increase in indebtedness began in the 1980s and asset prices then followed suit. This may be an indication that a "bubble" is forming in the economy in that it is credit supply which is pushing asset prices up. The situation today is different. Asset prices have been rising steeply since 1994 but indebtedness did not turn upwards until the end of 1997. This suggests that the risk that the bank sector will experience significant problems in the event of a fall in asset prices is relatively small.

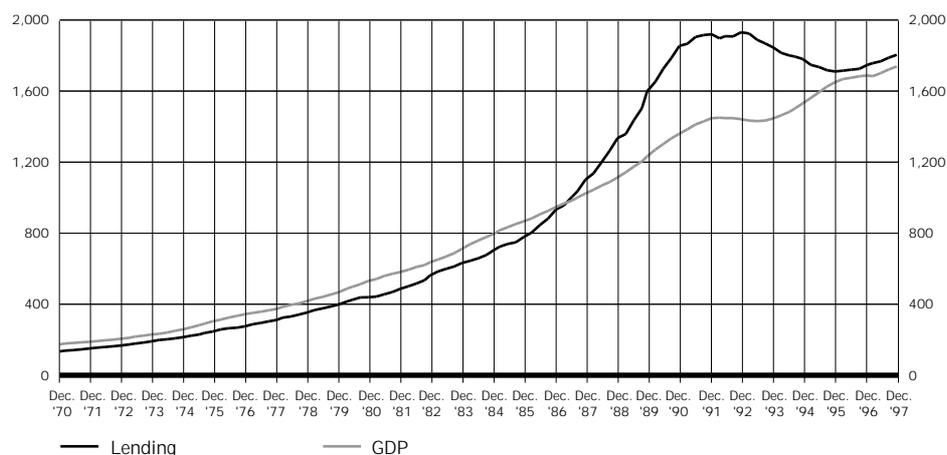
In the present context it is primarily real-estate

prices that are of interest because the banks provide loans for real estate and accept these assets as collateral. A steep increase in share prices is of less consequence for bank risks because the banks do not have large equity positions and only a very small proportion of share holdings in Sweden is currently financed with loans. Share price bubbles have played a larger part in bank crises in other countries, of which Japan is one example. When an economic downturn obliges the borrowers to sell assets in order to pay their loans, the value of the assets falls and this exacerbates the problems for the borrowers as well as for banks. The bank crisis in Sweden involved a marked fall in property prices but as non-performing loans were removed from bank balance-sheets in connection with the management of the crisis, the properties in question did not have to be sold immediately at the prevailing low prices.

After the decline in the wake of the bank crisis, asset prices have been rising for a number of years. The trend for share prices has been particularly strong. Property prices have also recovered, though not as rapidly or to the same extent as share prices.

12 Roche, D. (1998), "Emerging banks: threat of systemic collapse?" *Economist*, January. The exact number of bank crisis varies with how a crises is defined. The figure given by the IMF, for example, is considerably higher.

**Figure 2:3.**  
GDP and lending by  
Swedish credit institutions.  
SEK billion, nominal values



Sources: The Riksbank and Statistics Sweden.

#### INDICATORS OF ACTUAL LOAN LOSSES

There is a strong relationship, as mentioned above, between cyclical activity and the banks' loan losses. It is difficult, however, to determine the timing and strength of upward or downward cyclical phases. It is therefore not surprising that individual households, firms and banks can be mistaken. But, while a bank that misjudges the future macroeconomic situation may incur large loan losses, this will not in and of itself necessarily threaten financial system stability. However, if a number of banks and other economic agents are similarly mistaken, there may be systemic shocks that do jeopardise stability. One explanation for such shared misjudgements is the occurrence of macroeconomic shocks.

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Macroeconomic shocks have been a contributory cause of every financial crisis in the past two decades.

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Shocks are drastic, unforeseen changes that necessitate a wholesale revision of expectations. They can stem from domestic events, such as shifts in economic policy, as well as from external events, such as changes in prices for input goods, interest rates or demand. All these changes can affect households as well as firms in ways that add to the loan losses of

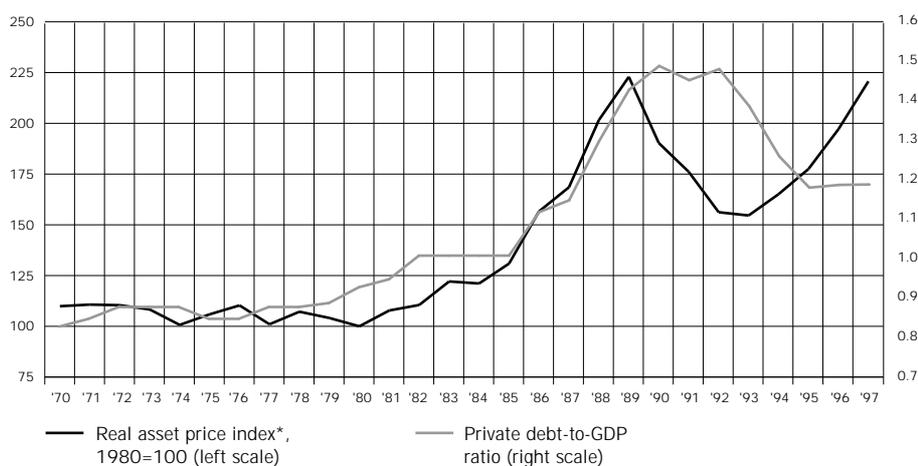
banks. Macroeconomic shocks have been a contributory cause of every financial crisis in the past two decades.<sup>13</sup>

The Swedish economy was subjected to a number of shocks in the late 1980s and early 1990s. As a result of changes in the tax system, the exchange rate regime and monetary policy, a period with a low, even negative, real interest rate was suddenly succeeded by real rates that were unprecedentedly high. This in turn made debt servicing and repayment more onerous. Moreover, these changes coincided with an economic downturn in Sweden and important trading partners.

In the event of a shock, an analysis based on macroeconomic indicators may thus have to be revised at short notice. High debts and interest payments that take a substantial share of income make households and firms more vulnerable to macroeconomic shocks, which may then result in massive loan losses for the banks. A heavy burden of debt therefore increases the probability of serious financial problems in connection with macroeconomic shocks.

For payment system stability, which is the focus of this report, it is of primary importance that ten-

**Figure 2:4.**  
Lending and asset prices.  
Index and per cent



\* Weighted price index for shares, houses and commercial real estate.  
Source: Bank for International Settlements (BIS).

dencies which can subsequently lead to unmanageably large loan losses are detected in good time. A crucial factor in this respect is the solvency of different borrower categories. This is discussed in the next three sections.

## Household sector

Lending to households in the Swedish financial system is dominated by banks and housing credit institutions. This lending consists mainly of house mortgage loans (including loans secured with tenant-owned dwellings) and secured or unsecured loans for consumption. Most of the unsecured loans to households are provided by banks and a smaller share by finance companies, while the house mortgage loans are provided by the housing institutions.

A number of indicators of increased loan losses that stem from the household sector are presented in this section. The order in which they are discussed reflects how early they are likely to signal an increased credit risk for the banks, starting with the earliest. The section opens with a description of how behaviour in the household sector as regards indebtedness and credit risk can be expected to develop with reference to the general economic situation.

### EXPECTATIONS AND THE BORROWING PROPENSITY

The capacity of households to service and repay debt is ultimately dependent on their income and debt burden. These are affected by a number of factors, of which the most important are the level of interest rates, the value of financial and real assets and the rule system for taxes and subsidies. All these factors are affected in turn by the cyclical pattern of macroeconomic development as well as by measures of fiscal and monetary policy. In the first half of the 1990s there were a number of changes that radically affected the economic situation for households and contributed to an increased number of defaults

in the household sector, leading to increased loan losses in the bank sector.

Indicators of household borrowing behaviour can be obtained by analysing patterns of consumption because consumption and borrowing usually follow each other (Fig 2:5, p. 24). This is because a certain portion of household consumption can be assumed to be financed with loans. The current and probable future size of this proportion is more uncertain but is no doubt mainly dependent on household expectations of the future value of real and financial assets<sup>14</sup> and of future income.

The dominant theory for explaining the development of private consumption is the life-cycle hypothesis, which states that individuals plan their consumption in relation to their expected future incomes. Consumers are assumed to aim for a uniform level of consumption even though income is expected to rise. But if they revise their expectations because new information indicates that future income is likely to be higher than envisaged earlier, the level of consumption may be stepped up.

Households are assumed to sum the value of their future incomes to arrive at a present value of wealth. Some consumers consider a shorter time horizon when making economic decisions for various reasons that may have to do with credit market restrictions which prevent them from borrowing against expected future increments to income. For these consumers, current income is more important. As a result, total private consumption is dependent on the development of income as well as wealth.

It follows that household expectations of future wealth and income are important indicators of their propensity to borrow. The theory also explains why

13 Lindgren, C.-J., Garcia, G. & Saal, M. (1996), *Bank Soundness and Macroeconomic Policy*, IMF.

14 Mainly equity, 1- and 2-family houses and tenant-owned dwellings.

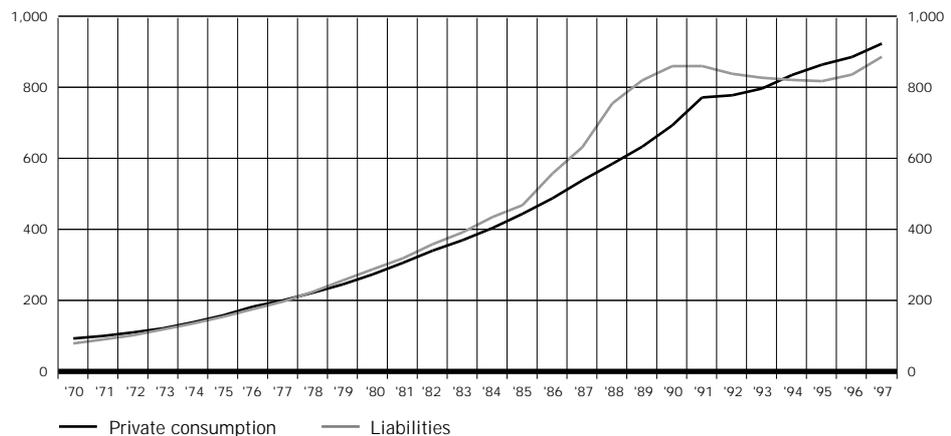
it is natural to have periods when household borrowing rises relative to current income and assets. The increased borrowing may reflect new information that has raised expectations of future increases in asset values and incomes, increases that are anticipated by financing a current increase in consumption to a greater degree with loans. If the expectations are fulfilled, the higher indebtedness will not constitute a threat to the bank sector in the form of destabilising loan losses occasioned by households suspending payments. There is a risk, however, of the expectations not being fulfilled. If unexpected changes, such as real interest rate shocks, falling asset prices and falling disposable income, markedly weaken the financial situation of households, the higher indebtedness may lead to considerable problems in the bank sector. The course of events in the early 1990s is an example of expectations of rising asset prices and incomes that subsequently proved mistaken, which meant that the actual level of indebtedness was excessively high. This led to payments being suspended and to loan losses in the bank sector. It also follows from this that households' personal economic expectations are important indicators of their borrowing propensity.

#### DEBT BURDEN GROWING AGAIN

Credit market deregulation led to a dramatic growth of lending in many countries, followed later by a bank crisis. Discrepancies between the growth of the loan stock and general economic growth usually show up during periods of economic expansion, when banks as a rule have more difficulty in identifying the borrowers that will subsequently be able to cope with a rapid worsening of the economic situation. It is therefore important that tendencies to an excessively rapid increase in lending are detected at an early stage in the business cycle. The course of events before the Swedish bank crisis confirms this. The household debt-to-GDP ratio reached a peak in 1998 at about 68 per cent and fell to a low of 49 per cent in 1996, after extensive debt consolidation.

In the past two years, lending to households by banks and housing credit institutions has risen steadily (Fig. 2:6). In February 1998 the 12-month growth rate was 6 per cent and most of it consisted of bank loans, for which the rate of increase figure was 13 per cent. In a longer perspective, these increases are not particularly dramatic. Today, the nominal level of loans from banks and housing institutions together is much the same as the high in 1992, while the level

**Figure 2:5.**  
Private consumption and households' total liabilities. SEK billion, current prices



Sources: The Riksbank and Statistics Sweden.

of bank loans is still appreciably below the high at the beginning of the '90s. As a large proportion of the bank loans to households are either unsecured or have poorer collateral than the loans from housing institutions, in the context of risk it is an advantage that the housing institutions now have a larger share of lending. It is also possible that households have taken advantage of the additional wealth which higher housing prices entail and obtained mortgage loans to finance consumption.

#### HOUSEHOLDS' PERSONAL ECONOMIC

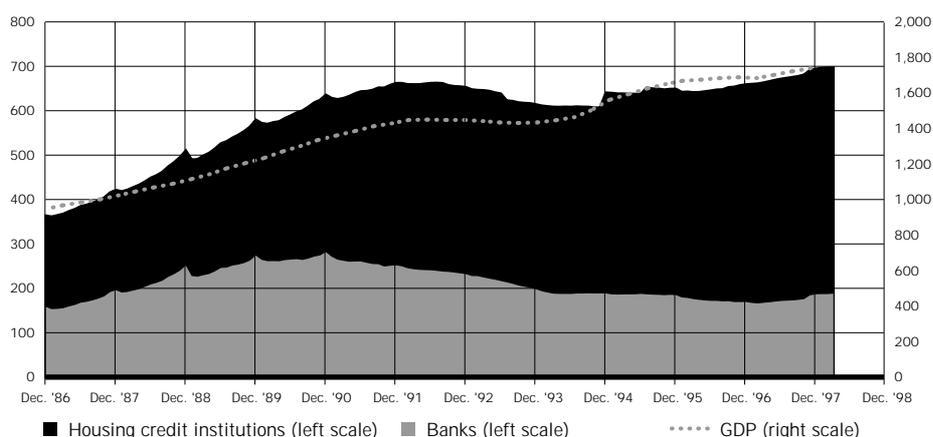
#### EXPECTATIONS INCREASINGLY POSITIVE

Studies at the Riksbank show a strong correlation between private consumption and households' expectations of their own economy. As discussed above, the picture of households' expectations can also provide indications of their borrowing propensity (Fig 2:7, p. 26). This is because there is presumably a close relationship between household consumption and borrowing. The figure for expectations denotes the percentage of households that expect an improvement in their economy one year ahead less the percentage that foresee no change or a deterioration. The figure 5 accordingly shows that the per-

centage of households counting on an improvement in the coming year exceeds the percentage that believe in an unchanged or worse situation by 5 percentage points. Since 1985 the average level of these expectations has been around zero. Household expectations can be seen as an early indicator of the household propensity to borrow more against the prospect of future increases in asset values and disposable income. Whether positive expectations cause problems in the future depends on whether or not they are fulfilled.

Household expectations were an early indicator of the large debt burden that was subsequently accumulated in the period (1985–90) leading up to the bank crisis in Sweden. These expectations were above the normal level throughout this period and they began to fall back before debt stopped rising (Fig 2:7, p. 26). The marked fluctuations in households' personal economic expectations in the period 1990–94 should be seen in the light of great uncertainty about the far-reaching changes that occurred in this period, for example the sharp increase in unemployment, large budget deficits that entailed increased uncertainty about future government action, and the tax reform's altered incentives for

**Figure 2:6.**  
Lending to households by banks and housing credit institutions; GDP.  
SEK billion, current prices



\* The increase which occurred between year-end 1994 and 1995 was caused by a revision in the method of collecting statistics.

Sources: The Riksbank and Statistics Sweden.

borrowing and saving. When lending to households turned upwards again in 1995, the level of household expectations had been positive for approximately a year.

In the first quarter of 1998 household expectations were very high, which suggests that households' confidence in their own economy may be recovering so that the sector's debt burden begins to rise. The high expectations could mean that the observed increase in lending in the past year will continue and perhaps become stronger.

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The high expectations could mean that the observed increase in lending in the past year will continue and perhaps become stronger.

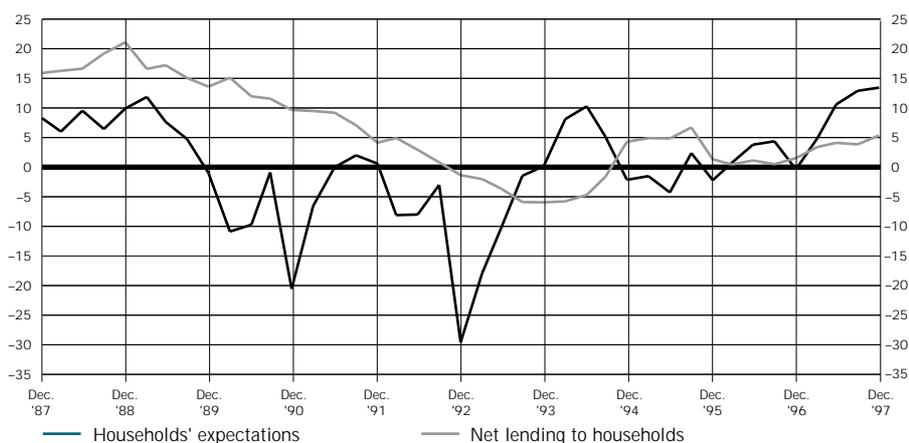
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Another indicator of households' economic expectations is the saving ratio: the proportion of disposable income that is retained for financial and real saving. In the long run it is the level of saving that determines the size of households' reserves, reserves that can be used to reduce debt and pay interest if problems arise from a loss of income, for instance. In the period that preceded the bank crisis, 1985–91, saving was negative or close to zero (Fig 2:8).

To some extent, the appreciation of assets, shares in particular, in recent years points to increased private consumption via profit-taking and increased borrowing. This contributes by definition to a lower saving ratio. The relatively low saving ratio in 1997 could mean that households are using some of the past two years' increase in wealth for consumption and regard the appreciation of their financial assets as a sufficient degree of saving. This explanation is also partly applicable to the low saving ratio in the late 1980s, except that saving was also discouraged at that time by tax rules and low real interest rates. Moreover, share prices did not rise as dramatically as in recent years. And as house prices also rose steeply in the 1980s, the decreased household saving gave more cause for concern because these assets, unlike equity holdings today, were financed with loans.

The saving ratio can also indicate the expectations of households about the economy in general. If households foresee hard times, they may choose to save more and consume less, which can accentuate a downturn in activity. In recent decades the saving ratio has, in fact, often moved in the opposite direction to the changes in real economic growth (Fig 2.8).

**Figure 2:7.**  
Households' personal economic expectations\* and annual change in lending to households by banks and housing credit institutions.  
Per cent



\* Former measurement technique, linked at 1997.  
Sources: The Riksbank and Statistics Sweden.

DEBT RATIO REDUCED BY  
RISING SHARE PRICES

The burden of household debt can be measured as the ratio of debt to financial and real assets. The major financial assets are bank deposits and equity, while the real assets consist above all of houses and tenant-owned dwellings.

When studying the debt ratio there is reason to consider the breakdown between real and financial assets because a relatively large proportion of the real assets is financed with loans, while the financial assets are accumulated in the first place by saving; a very small proportion is financed with loans. Moreover, the real assets are much less liquid than the financial assets, which can be converted into cash at short notice in order to service or repay debt.<sup>15</sup>

Since 1970 the household debt ratio has fluctuated between 25 and 40 per cent (Fig 2:9, p. 28). If households' assets balanced their debts, indebtedness would not be a problem because there would always be sufficient assets to repay the liabilities. This, of course, is not the case; most people have a net asset position and it is only the minority with net liabilities that risk being unable to meet their com-

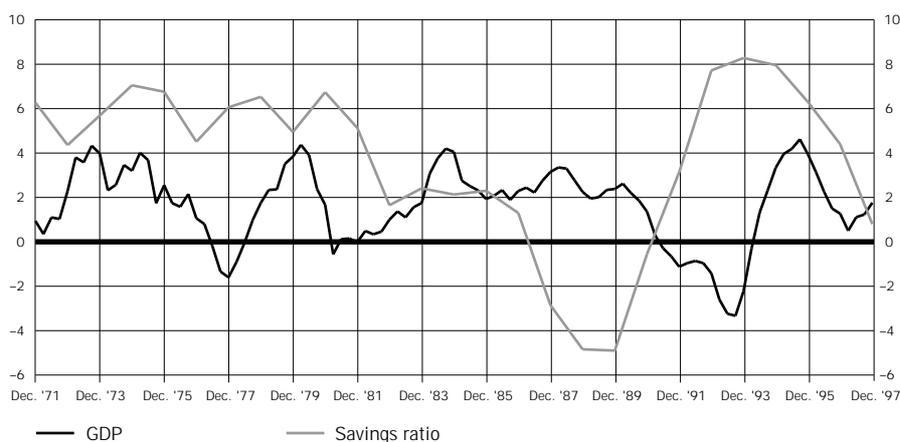
mitments and become bankrupt. As discussed in the introduction to this chapter, a general problem with the indicators considered here is that they show the situation for the sector as a whole, whereas loan losses are caused by a small minority of all borrowers. Even so, the sectorwide debt ratio can point to general tendencies in the debt burden of borrowers.

The household sector's debt ratio rose in the early years after credit market deregulation in 1985. By 1988 the peak had been reached and since then the general trend has been downwards. The reason why the ratio began to fall a number of years before the payment problems in the household sector is that after 1988 asset prices rose faster than debt. The increase in property prices contributed in particular (Fig 2:10, p. 29); from September 1988 to December 1990 the ratio between households' assets and liabilities in 1- and 2-family houses and secondary dwellings fell from 88 to 65 per cent.

The effects of changes in asset prices complicate the interpretation of the debt ratio as an indicator

<sup>15</sup> One exception is those financial assets which constitute some form of pension savings.

**Figure 2:8.**  
Savings ratio and annual  
change in real GDP.  
Per cent and annual  
percentage change



Sources: National Institute of Economic Research and Statistics Sweden.

of a build-up of credit risks. In the run-up to bank crises it has been common for assets that banks use as loan collateral to display “price bubbles”. Such bubbles have often been preceded and accentuated by an increase in lending. They also cause imbalances between asset values and underlying economic developments. These conditions applied in the period that led up to the bank crisis in Sweden. Lending took off before the increase in property prices and the latter continued after growth of the loan stock had slackened. From this it is concluded that the growth of lending and changes in asset values should be followed separately instead of just combining them in a debt ratio indicator.

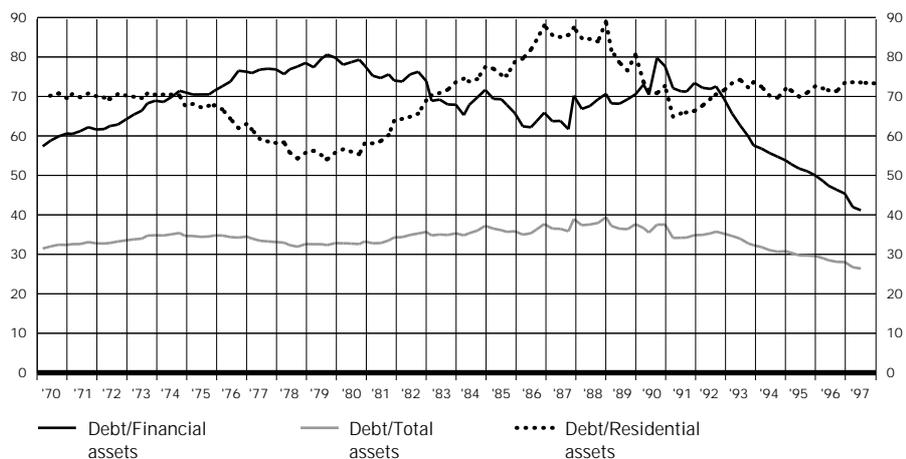
In the event of payment difficulties, households might be expected to liquidise financial assets in order to service and repay debt. The ratio of household debt to financial assets might therefore serve as an indicator of the ability to cope with financial problems. In the years before the bank crisis, this indicator showed a rising tendency, which was mainly due to weak share prices in the period 1990–92 (Fig 2:9).

The development of financial asset prices is also of interest by itself, disregarding liabilities. A

weak stock exchange could be taken as a sign that a deterioration in the Swedish economy is on the way. In times of macroeconomic unrest, moreover, there is also a major risk that prices for one of the most important financial assets—equity—will fall dramatically. This means that household debt relative to financial assets is liable to change very suddenly, which weakens the value of this indicator. At the same time and notwithstanding the tendency for national exchanges to co-vary, the relative increase in investment abroad is making the household sector less vulnerable to a weak tendencies for domestic stock prices.

Another conceivable effect of rising asset prices is that it makes households, according to the life-cycle hypothesis, more prone to increase their liabilities. Household expectations of future capital gains from assets are important for current borrowing and consumption behaviour: the expectations of higher future income can warrant borrowing for consumption today. Rising asset prices can accordingly be an explanation for increased lending. This might apply to the increase in lending that has now begun after a number of years with rising share prices. The sequence is the reverse of what happened before the

**Figure 2:9.**  
Household debt-to-asset ratios.  
Per cent



Source: Statistics Sweden.



bank crisis, when an increase in the loan stock preceded the rise of asset prices. Even in the case of assets that do not constitute collateral for bank loans, the development of a price bubble that then bursts may indicate problems for banks if it coincides with an increase in the loan stock.

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The current increase in lending has not been so dramatic as to call for a warning but a further strong expansion might represent a risk in this respect.

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The current increase in lending has not been so dramatic as to call for a warning but a further strong expansion might represent a risk in this respect. However, the ratio of household debt to financial assets is now considerably lower than at any time since 1970, which indicates good resilience. But it should be underscored once more than this indicator is something of a blunt instrument because the individuals with high liabilities are not normally those who hold a substantial proportion of the financial assets.

#### DEBT-TO-INCOME RATIO RISING AGAIN

When a growing proportion of the disposable income of households is needed to service and repay debt, solvency in the household sector is liable to be

weak. The ratio of household debt to disposable income can be used to indicate the extent to which households pledge expected increases in future income or increases in the value of financial and real assets. This debt-to-income ratio is an important indicator of the household sector's financial stability. It differs from the debt ratio discussed above in that debt is related to income instead of to assets.

In periods of increased financial vulnerability, the debt-to-income ratio tends to fluctuate more sharply than the debt-to-asset ratio because periods of growing financial instability tend to coincide with increases in the value of households' assets. As an indicator, the debt-to-income ratio has the advantage of being unaffected by any price bubbles in asset markets. When any price bubbles burst and house mortgage loans exceed the value of the property, it is disposable income that determines whether households can service and repay their debt or whether the banks incur loan losses instead.

During 1997 the debt-to-income ratio rose about 5 percentage points to 95 per cent, thereby breaking the downward trend that had been observed since 1990 (Fig. 2:11, p. 30). The upward tendency reflects a combination of increased household bor-

**Figure 2:10.**  
House and share price indexes.  
Nominal values



Sources: Statistics Sweden and Stockholm Stock Exchange.

rowing during 1997 and a slight fall in disposable income. As the ratio is now well below the levels in the years before the bank crisis, the trend break cannot yet be regarded as a threat to financial stability. Moreover, the increased lending follows six years with an unchanged or falling loan stock. An upturn is therefore hardly surprising as households' confidence in their own economy has recovered and interest rates have fallen. The decline in disposable income is mainly a consequence of fiscal consolidation, which has involved decreased transfers and increased taxes.

Besides serving as an indicator of lending to the household sector, household expectations can explain an increase in household debt relative to disposable income. Even with no improvement in present income, it is conceivable that households increase their indebtedness provided they count on a future improvement in their economic situation. This may be one reason for the ongoing increase in debt even though disposable income has fallen.

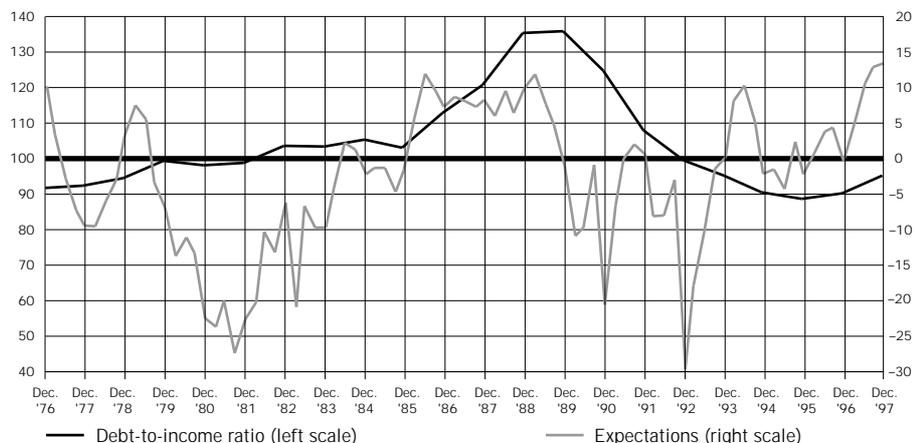
INTEREST EXPENDITURE  
HISTORICALLY LOW

An indicator that is commonly used in credit assessments of firms is the interest coverage ratio, defined as interest expenditure as a percentage of operating

profits including financial income. This ratio indicates the number of times a company's profits cover its borrowing costs. The capacity of households to generate a sufficiently large income surplus to cover their interest payments can be used as an indicator of their creditworthiness. A comparison of this ratio before and during the bank crisis can provide some idea of the levels which can signal potential problems. Such an indicator also supplements the debt-to-income ratio because household solvency can deteriorate, particularly if interest rates move up, without any change in either disposable income or borrowing

The ratio of household interest payments to disposable income reached a high of around 16 per cent in 1990 (Fig 2:12), which coincides with the high debt burden at that time. A sharp increase in interest costs began in 1987 and reached a high in 1989–90. Today, the level of interest payments relative to disposable income has been halved from the high in 1990 and is the lowest since 1980. Part of the reason, at least, is that interest rates are now considerably lower than earlier in the period. As interest rates continued to fall in 1997 and to date in 1998, the expansion of lending in this period is unlikely to have generated any sizeable increases in the household sector's interest payments.

**Figure 2:11.**  
Households' debt-to-disposable income ratio and personal economic expectations.\*  
Per cent



\* Former measurement technique, linked at 1997.  
Source: Statistics Sweden.

## Corporate sector

As mentioned in the introduction to this chapter, there are a number of relatively familiar measures of ability to pay that can be used to assess risk in connection with loans to households. Moreover, the large number of standardised loans make it feasible to price them in a way that allows for expected future loan losses. The development of statistical methods for credit assessment—credit scoring—has contributed to this.

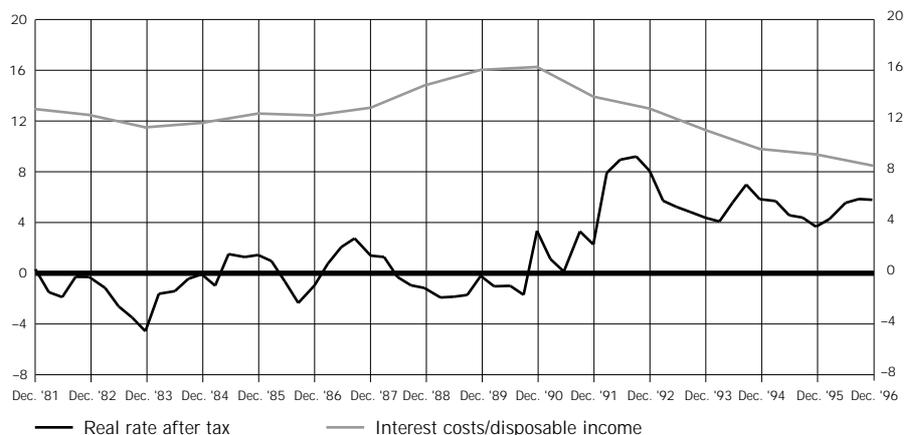
The operations of large companies are complex and may be difficult for a creditor to assess. Access to information from rating companies and quoted prices for certificates and bonds provide a relatively objective foundation for credit assessments as regards large firms. The listed companies are thoroughly scrutinised by exchange analysts and this information can also be used for credit assessments. Compared with other firms, moreover, listed companies have to meet higher standards for the publication of economic information. For companies that have acquired them, ratings can be used for credit assessments and they also facilitate statistical portfolio analyses of the loan stock. All this helps to make bank loans to the large companies comparatively manageable when assessing credit risk.

The situation is probably most complicated for lending to small and medium-sized firms. The information about this borrower category is often inadequate. The income flows of these firms and, accordingly, their ability to meet commitments are also more difficult to assess and more cyclical than those of the household sector. To a large extent, risk assessments and pricing therefore have to be based on more subjective criteria. It is partly these circumstances that make lending to small and medium-sized firms the most risky component of the banks' loan portfolio. It is also in this borrower category that loan losses have been highest in the past.

One cause of the difficulties in making correct credit assessments for firms is the inadequate nature of the statistics and the long time lag with which they are published. This also complicates the present analysis of credit risk in the corporate sector in general. The statistics are based to a considerable extent on the annual accounts of firms and the time required to aggregate this material results in a long lag before the statistics are published. To be useful in practice, indicators of increased credit risk in corporate lending must point to any future problems in the loan stock at an early stage. Otherwise the loan losses are liable to have occurred by the time the statistics become available.

**Figure 2:12.**

The real, after tax interest rate (calculated as the 5 years mortgage interest rate for households adjusted for inflation and tax deductions) and the interest costs of the household sector as a share of disposable income. Per cent



\* The interest cost is a gross cost without the effects of the tax deduction. The tax deduction is considered in that it affects disposable income. The tax rate which was used in the calculation of real after-tax interest rate before the tax reform is one which was calculated by Gunnar Du Rietz, Swedish Employers' Confederation.  
Source: Statistics Sweden.

#### SLIGHT INCREASE IN LENDING TO FIRMS

The corporate borrowing requirement is primarily dependent on opportunities for profitable investment. Firms can finance operations by using profits, issuing equity or borrowing. Loan financing is arranged in two main forms: bank loans or borrowing directly in the securities market by issuing certificates or bonds. In Sweden, as in most other countries in Europe, the market for interest bearing corporate securities is small. To a large extent, financing by Swedish firms is therefore heavily dependent on the domestic banks, though borrowing abroad is an alternative for the large companies.

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Corporate loans have been growing again in recent years but it was not until 1997 that the rate exceeded the GDP growth rate.

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Bank lending to firms rose rapidly in the second half of the 1980s (Fig 2:13). The loan stock grew appreciably more strongly than GDP. This was a clear indication of a build-up of credit risk in the banks. After the bank crisis, bank loans to firms decreased sharply, accompanied by a marked increase in equity financing. In recent years, however, lending has risen again but it was not until 1997 that the rate exceeded the GDP growth rate. In nominal terms, however, the stock of corporate loans is still below the high in 1991, which means that it is even lower in real terms. Consequently this indicator shows no cause at present to be concerned about an increased credit risk in the banks. There might be cause for concern, however, if the increase to date were to continue at the same rate for a considerable period.

#### LOW DEBT RATIO FOR LISTED COMPANIES

The ratio of borrowed to equity capital is a conceivable indicator of credit risk in the corporate sector. Firms with large liabilities will be more sensitive to operating losses, while low equity means that losses

do not have to be all that large to result in payment difficulties for the firm.

As up-to-date statistics on liabilities in the total corporate sector are not available, the listed companies have to serve as an approximation. Preliminary tests of the extent to which the limited companies represent the total corporate sector point to a high co-variation.

The statistics on listed companies show a slight increase in the debt ratio in the period between credit market deregulation and the years of the bank crisis (Fig 2:14, p. 34). The ratio then fell sharply in the years immediately after 1992, since when it has been stable at the lowest level in the past decade. The improvement has been achieved through good profits that enabled firms to repay debt. The current debt ratio for the Swedish listed companies—both the average level and the median—is lower than when the credit market was deregulated. This suggests a better capacity to cope with negative economic trends but the indicator should be interpreted with some caution because it did not show particularly clear signs of increased indebtedness in the run-up to the bank crisis. There is also the risk of the ratio for listed companies deviating from the rest of the corporate sector, though the historical co-variation has been high.

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This indicates that high indebtedness may contribute to future payment difficulties.

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Evidence that the debt ratio may still be relevant can be found in data from Statistics Sweden on firms that went bankrupt in 1997. In 1995 the debt ratio for these firms was 4.6, which was appreciably above the average for the listed companies. This indicates that high indebtedness may contribute to future payment difficulties.

Statistical averages may be misleading because in practice bank loan losses tend to come from just a few companies. The picture presented above can therefore be supplemented by examining the most



indebted firms. Figures<sup>16</sup> from Statistics Sweden show that, for the 10 per cent of firms with the highest debt ratios, in 1996 the average ratio was 24.8, whereas in 1991 it had been 35.3. The 10 per cent with the next highest ratio had an average of 7.0 in 1996. This shows that very high indebtedness is confined to relatively few firms and this group may therefore constitute a particularly high-risk borrower category. In 1996 the interest-bearing liabilities of the most indebted firms totalled over SEK 53 billion.

REAL INTEREST RATE MOVEMENTS MAY  
INCREASE CORPORATE CREDIT RISK

The real interest rate plays a major part in theoretical studies of financial crises. The underlying idea is that only projects with a high return are viable when the real interest rate is high. As such projects normally carry a higher risk than those with a lower return, the level of risk in bank credit portfolios is liable to rise.<sup>17</sup>

Firms take the expected real interest rate into account in investment decisions. This rate is difficult

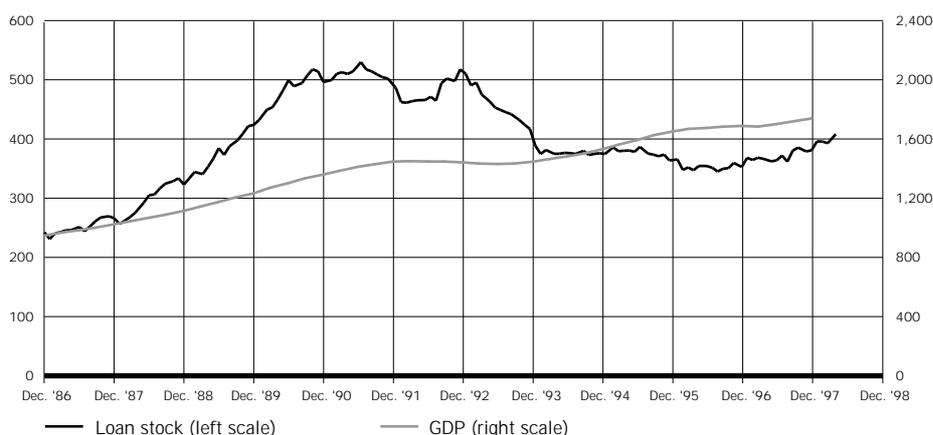
to pin down statistically. The bank crisis in Sweden was preceded by periods when the real interest rate was negative and this is likely to have created expectations that it would remain low. Thus, the situation in the late 1980s was not characterised by high real interest rates that would have led to a preponderance of high-risk loans from the banks. Instead, the low real interest rate may have had the opposite effect in that even investments with a very low real return could be financed. Later, when the current real interest rate rose (due to decreased inflation accompanied by high nominal interest rates), firms had problems in financing interest payments of earlier investments

Compared with earlier monetary policy regimes, in recent years monetary policy has focused more directly on combating inflation and has also been more successful in this respect. The rate of inflation

16 Based on non-financial companies with at least 50 employees.

17 Mishkin, F (1994), *Preventing Financial Crises: An International Perspective*, Working Paper no. 4636, NBER.

**Figure 2:13.**  
Bank loans to enterprises  
and GDP.  
SEK billion, current prices



Sources: The Riksbank and Statistics Sweden.

has been stable for a number of years and this situation can be expected to continue. With the present direction of monetary policy, there is therefore no reason to expect such dramatic movements in the real interest rate as in the early 1990s.

BUSINESS PROFITS WELL ABOVE  
INTEREST COSTS

The interest coverage ratio is an indicator of the capacity of firms to service their loans and is defined as the ratio between the operating net earnings, including financial receipts, and interest costs. The ratio shows the number of times a company's surplus covers its fixed financing costs (interest costs) and the size of the remaining surplus for tax payments and dividends. A ratio of less than 1 implies that interest costs exceed profits, which means that the firm shows a loss. This does not mean that the firm is incapable of meeting its commitments but it does indicate that in the longer run the situation is not sustainable.

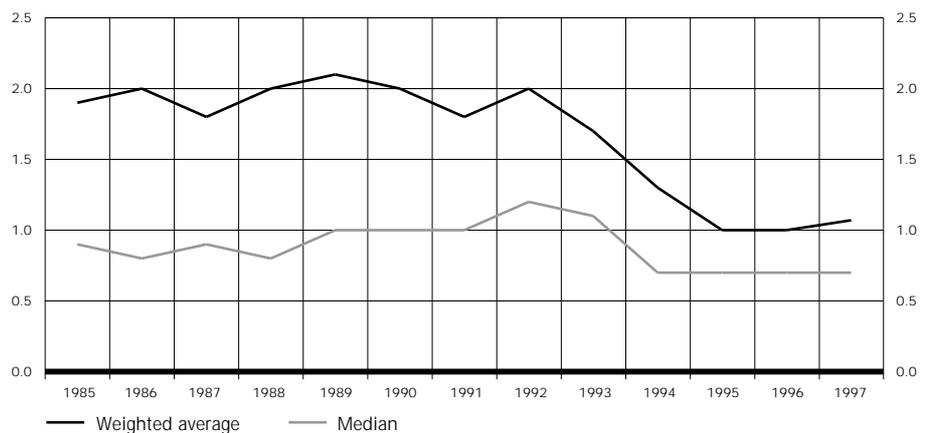
As an indicator, the interest coverage ratio has the advantage of responding to changes in the operating net earnings as well as in interest rates. This

means that the same indicator catches a deterioration in net earnings as well as increased interest rates, which may be due to macroeconomic as well as company-specific factors. If operating net earnings weaken in conjunction with rising interest rates, as can be the case in many industries, this will cause the interest coverage ratio to deteriorate very rapidly. This possibility of rapid changes means that a favourable interest coverage ratio today does not guarantee that the situation will remain reassuring for any length of time.

Interest coverage ratios are presented in Fig. 2:15 for the listed companies according to their annual accounts and for the total corporate sector according to the national accounts. Differences in definitions partly account for the total sector's lower ratio. What is of interest is the similarity in the trends, which suggests that the listed companies can be used to represent the total sector. This is important because up-to-date statistics are easier to obtain for the listed companies.

In the late 1980s the interest coverage ratio for the listed companies fell markedly (Fig. 2:15), from a level in 1988 where operating income including

**Figure 2:14.**  
Debt-to-equity ratio for listed companies (interest-bearing debt/equity capital).  
Share



\* The values for 1997 are based on preliminary estimates made by the Riksbank.  
Source: SIX.



financial receipts was almost three times interest expenditure to around the break-even point in 1992. For the median firm, the ratio in 1992 was less than 1, which means that operations did not generate a sufficient surplus to cover interest costs. After that, the interest coverage ratio rose steadily and is today still relatively high in a historical perspective.

According to Statistics Sweden, for firms that went bankrupt in 1997 the average interest coverage ratio in 1995 was 1.04. This strengthens the impression that this ratio can be used as a warning of increased credit losses on the banks' corporate loans.

In the discussion of the debt ratio it was mentioned that the 10 per cent of firms with the highest liabilities could be seen as a borrower group with a particularly high risk. For these firms the interest coverage ratio in 1991 was very low, 0.35. In 1996 the corresponding figure was 1.23, which represents a considerable improvement in the situation for this group of borrowers.

On the whole, the interest cover situation seems to be favourable at present even though the positive trend has been broken. If the ratio were to go on falling, however, it would imply a loss of resilience

to economic problems in a future economic downturn. This indicator should therefore be monitored continuously.

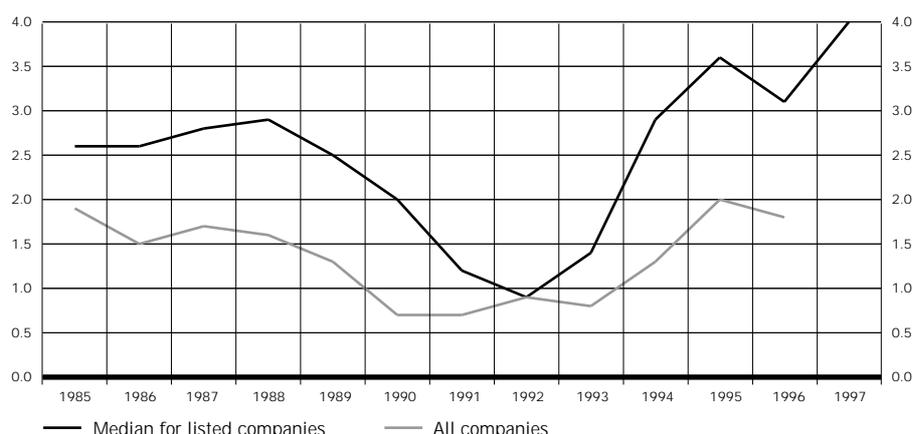
RISK OF BANKRUPTCY HIGHER  
IN NEW FIRMS

Business failures are an important factor behind increased loan losses in the bank sector. The loan losses may not be actually incurred, however, before the firm has gone bankrupt,<sup>18</sup> while the banks make provisions for losses as soon as a possible loss has been detected. When a firm goes bankrupt, the bank will normally have realised earlier that the risk of a loan loss existed but it may have been mistaken about the *size* of the loss. The large reversals of provisions for expected loan losses after the bank crisis (see Box on p. 18) suggest that during the crisis the banks made provisions that exceeded what subsequently proved necessary.

As business failures occur after or at the same time as the loan losses are incurred, the bankruptcy

18 The bankruptcy statistics show the number of legal entities that have ceased to exist; the activities of some of these entities may survive in another form.

**Figure 2:15.**  
Interest coverage ratio for listed companies (annual reports) and all non-financial enterprises (national accounts).  
Per cent



Note. The ratios differ in that the national accounts record profits after a standardised deduction for capital depreciation. This contributes to the lower level compared with listed companies and also means that a value below 1 does not necessarily indicate a loss-making situation in practice.  
Sources: SIX and Statistics Sweden.

statistics cannot be used as an indicator of future loan losses (Fig. 2:16). This makes it important to analyse the factors behind bankruptcies. Studies of bankruptcy risks by McKinsey Company show that macroeconomic changes explain variations in the number of bankruptcies; important determinants are GDP growth and unemployment.<sup>19</sup>

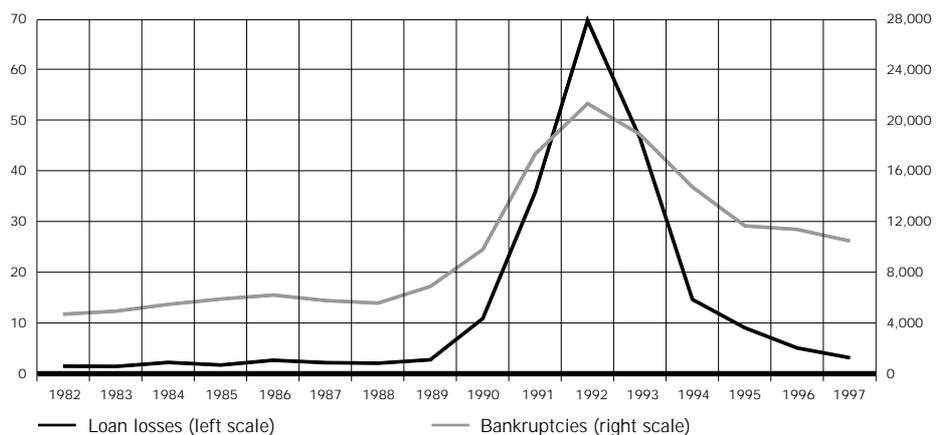
The statistics on new establishments show a pattern that resembles the bankruptcy statistics except that new establishments tend to rise about two years before bankruptcies. An economic upswing is heralded by the establishment of numerous new firms. Credit assessments of new firms are comparatively difficult, partly because there are no historical net earnings from which to judge the viability of their operations. An economic upswing is also associated with more new products and new services, often supplied by new firms. A firm operating in a new market may be more difficult to assess than other firms. At the same time, new establishments run a large risk of failing when activity turns downwards again. An increase in the number of new firms may therefore entail an increased credit risk for the banks.<sup>20</sup>

The statistics show that new, small establishments account for a relatively large proportion of business failures.<sup>21</sup> Compared with the years of high activity in the late 1980s, when Sweden was in a similar cyclical phase, since 1994 the level of new establishments has been very high.<sup>22</sup> Part of the explanation may lie in political measures to encourage new enterprises, for example the “Start Your Own” subsidy. This situation should be born in mind because there is a risk of it showing up in bank loan losses in a future downturn or an interest rate hike. However, the number of new firms would be a better indicator of loan losses if it were combined with information about lending to these firms. At present no such information is available.

#### INCREASED FINANCING VIA SECURITIES MARKET

While investment financing in the household sector has to be arranged from savings or in financial institutions, other alternatives are available to firms, at least the large companies. Their financing can also be arranged by issuing shares and borrowing in the securities market.

**Figure 2:16.**  
Bank loan loss provisions\*  
and corporate bankruptcies.  
SEK billion and number



\* Loan losses in 1997 estimated from the accounts for the largest banks (pending figures for all banks).  
Sources: Business & Credit Information Agency (UC) and Statistics Sweden.



The Swedish market for corporate securities grew up in the second half of the 1980s. In the early 1990s the financial crisis made investors in the securities market less inclined to accept credit risk and borrowing in this market became more difficult. In recent years, however, corporate borrowing via the securities market has risen (Fig 2:18, p. 38).

The companies that borrow directly in the securities market are mainly those that are most credit-worthy. This explains the low interest rate margin between company certificates and treasury bills. The low historical level of direct market borrowing has to do with the high information costs that market issues entail. Now that rating is becoming more common, with increased competition between rating institutions, issuing costs are likely to be lower in the future. The European Monetary Union is also expected to result in a more attractive market for corporate securities denominated in euro. It is therefore probable that, in time, large and medium-sized firms will be able to reduce their borrowing costs by resorting to direct market borrowing to a greater extent. The increased volume of issues in recent years is an indication of this.

For the banks, increased direct market borrowing by the major companies means that their most established corporate customers tend to disappear from their loan portfolio. A relatively larger market for corporate securities would leave the banks' loan portfolios with a larger proportion of loans to small and medium-sized firms, which are more difficult to assess and therefore more of a risk for the banks. These firms also tend to be more dependent on the domestic market and are therefore more vulnerable to shocks there. All else equal, this may therefore lead to an increased credit risk in the banks' loan portfolio.

An increased risk in the banks' loan portfolio as a result of a shift to direct corporate borrowing in the securities market does not necessarily imply an overall loss of stability in the bank sector. Banks could reduce the proportion of loans on their bal-

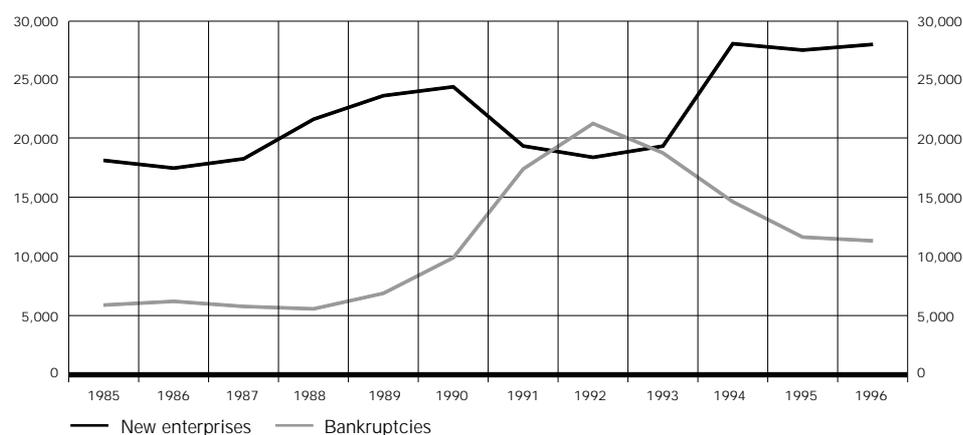
19 Wilson, T. (1997), "Portfolio credit risk 1", *Risk* vol. 10:9, September.

20 Gavin, M. & Hausmann, R. (1996), "The roots of banking crises: the macro-economic context," in Hausmann, R. & Rojas-Suárez, L. (Eds.), *Banking Crises in Latin America*. Inter-American Development Bank, Washington DC.

21 Less than 1 per cent of bankrupt companies had more than 100 employees.

22 *Småföretagen i Sverige 1996* (Small companies in Sweden 1996), NUTEK, pp. 17-26.

**Figure 2:17.**  
New enterprises and  
bankruptcies.  
Number



Source: Statistics Sweden.

ance-sheets in favour of assets with a lower risk; a lower customer concentration in the form of large exposures is also to be expected. While a smaller proportion of loans would be likely to lower the average operating net earnings as a consequence of decreased margins, there would also be a reduction in the banks' total risk. The assessment of risk would also be easier because market prices make the securities portfolio generally easier to value than the risk in loans to firms. Furthermore, corporate bonds are generally rated. A conceivable outcome is that the banks invest in bonds issued by the companies that previously borrowed from them, in which case the banks would still carry the credit risk. This arrangement, however, has the advantage that business credit in the form of bonds is priced in a market and is more liquid, which means that it can be sold if the bank faces problems.

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In the past year the interest rate margin on the banks' corporate loans has narrowed, despite the increase in bond issues.

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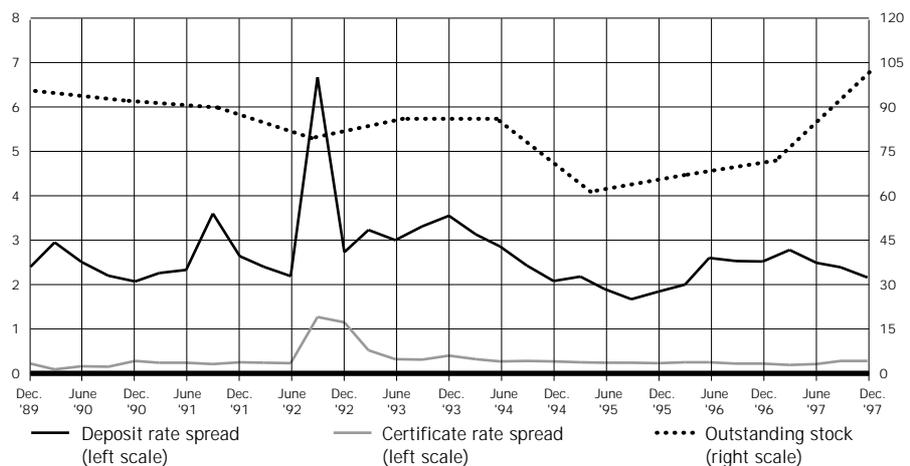
Increased corporate borrowing directly in the securities market should lead to a larger margin between bank lending rates and market borrowing rates

because, all else equal, the remaining borrowers must represent a higher credit risk. In the past year the interest rate margin on bank loans to companies has actually narrowed despite the increase in bond issues (Fig 2:18). However, bank loans to firms, instead of falling, have grown by roughly the same amount as bond issues. This could mean that large companies have increased their debt by issuing securities, so that the increase in bank loans has gone mainly to smaller firms. The decreased bank interest margin must be seen as a warning that the banks have increased their exposure to corporate credit risk at the same time as they have reduced the fraction of the margin that represents compensation for expected loan losses. This behaviour might be a consequence of increased competition. While there are several sources of uncertainty in the argument, there is reason to follow this indicator.

#### A CONCENTRATION OF LOANS TO CERTAIN INDUSTRIES MAY RAISE CREDIT RISK

Banks that concentrate on one or a number of industries run a higher risk of problems when profitability in those industries declines. In that the capital adequacy requirements are silent about this

**Figure 2:18.**  
Bank deposit and commercial paper rate spreads, expressed as the difference from the 3-month T-bill rate, and outstanding stock of certificates and bonds.  
Percentage points and SEK billion



Source: The Riksbank

type of concentration in bank loan portfolios, there are no restrictions on a bank focusing its lending on one industry or a homogeneous segment of customers. For the Riksbank it is therefore important to monitor the industry composition of bank loan portfolios.

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In as much as there is no restrictions on a concentration of bank loans to one industry, it is important for the Riksbank to monitor the industry composition of bank loan portfolios.

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The statistics on bank lending to the corporate sector show that a few industries account for a large proportion of the commitments (Fig. 2:19). This makes bank net earnings heavily dependent on profitability in these industries. The risk is even greater in the event of large exposures to individual companies in these industries and, at least in the real-estate sector, if the geographical concentration is high.

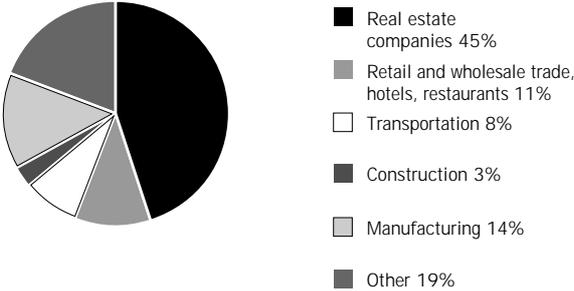
Loans for real-estate management account for a large part of the banks' loan portfolio as well as a large share of their loan losses. A particular risk with property loans is that they are often secured with the same property, giving a strong correlation between the value of the collateral and the company's income

flows. The question of collateral and the real-estate industry is discussed in more detail in the next section. The rest of this section therefore concentrates on other industries of importance for bank credit risks.

One approach to the identification of particularly high-risk industries involves studying the statistics on business failures (Fig. 2:20, p. 40). Measured as the number of bankruptcies in relation to the number of firms in the industry, the risk of bankruptcy is highest for hotels and restaurants; it is also relatively high in wholesale and retail trade, in construction, and in data processing and other services. According to figures from the Business Credit Information Agency (UC), it was mainly these industries that were most exposed to bankruptcy in 1997.<sup>23</sup>

A good indicator of future payment difficulties for firms is, as discussed earlier, the interest coverage ratio. In 1996 this ratio was lowest for the transport industry, construction, and hotels and restaurants, which accounted between them for 22 per cent of

**Figure 2:19.**  
Industry breakdown of three\* bank groups' loans to non-financial enterprises, December 1997.  
Per cent



<sup>23</sup> A press notice dated 4th February 1998 listed the industries as Hotels & restaurants, Wholesaling, Retailing, Publishing, and Construction.

\* Handelsbanken (the fourth major bank group) has been excluded because the industry breakdown it reports differs markedly from that of the other groups.  
Sources: Annual reports.

the banks' corporate loan portfolio in 1997. The latter two industries have also had a relatively high exposure to bankruptcy. As these industries are vulnerable to cyclical fluctuations, they tend to feature prominently in bank loan losses when activity is falling. A large exposure to these industries may therefore represent a high risk.

## Bank loan collateral

Bank credit risk is not solely a function of the borrowers' solvency. If a borrower defaults, the bank can avoid a loan loss if the loan has been secured. In order to avoid a loan loss, the value of the collateral when the bank disposes of it must at least equal the size of the loan and any other costs, such as interest due and expenses connected with the sale of the collateral. In an assessment of bank credit risks it is therefore relevant to study the extent to which loans are secured, the collateral that is used and changes in the value of collateral. It should be added that a fall in the value of collateral is a problem for the bank only if the borrower suspends payments. However, the value of collateral and the solvency of

borrowers tend to co-vary because both are dependent on cyclical activity.

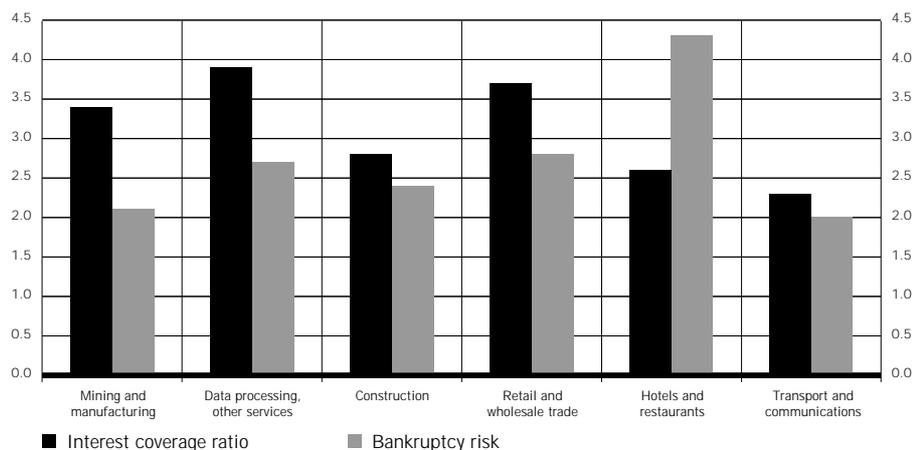
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The trend for the unsecured loans has been upward in recent years and it is this component of lending that is currently growing fastest.

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The stock of bank loans to households and firms consists of three roughly equal components: loans secured with real estate, loans with other collateral and unsecured loans (Fig. 2:21). The trend for the unsecured loans has been upward in recent years and it is this component that is currently growing fastest. This can be attributed to the upward economic phase, with an increased demand for operating credits and loans for consumption. The credit risk in this component is solely dependent on the solvency of the borrowers. All else equal, this implies an increased element of risk in bank loan portfolios. At the same time, compared with secured loans, the risk premium in this component is normally higher in the form of a higher interest rate that is intended to compensate for the higher risk.

**Figure 2:20.**  
Bankruptcy risk (no. of bankruptcies divided by no. of firms in that industry) and interest coverage ratio, by industries, 1996.  
Per cent



Source: Statistics Sweden.



Real estate is of major importance as bank loan collateral; in addition, real-estate management companies currently account for almost half of corporate loans from the bank groups.

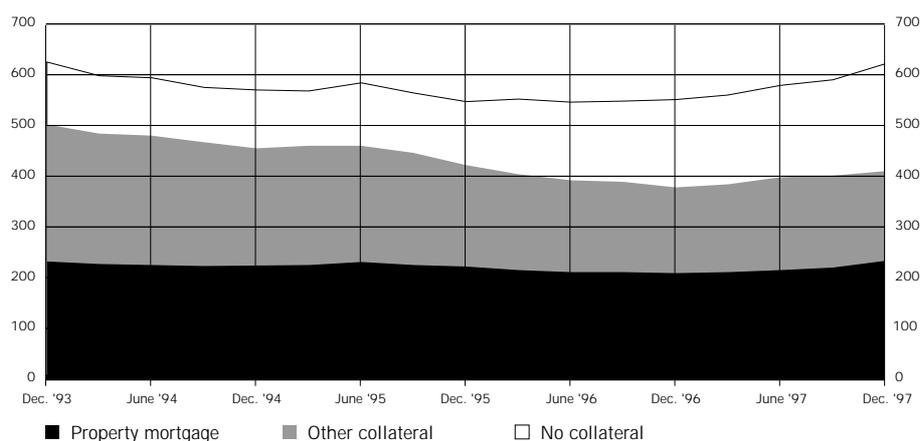
Real estate is of major importance as bank loan collateral and the property market is also significant for the banks in a wider perspective, in that real-estate management (including construction companies) currently accounts for almost half of corporate loans from the bank groups. Besides the third of loans from the parent banks that are secured with real estate, the major bank groups are even more exposed to the property sector via their housing credit institutions. The solvency of real-estate companies and the value of their pledged properties are strongly interrelated. Real estate as collateral is considered in the next sub-section, followed by a sub-section on other developments in the real-estate industry. Other collateral, which is more heterogeneous, is then discussed more briefly.

#### REAL ESTATE AS LOAN COLLATERAL

The major part of the four largest bank groups' loans secured with real estate is arranged in their housing credit institutions, SEK 673 billion compared with SEK 242 billion in the parent banks. The loans provided by the housing institutions are inherently more secure in that they are limited to certain mortgage classes. To some extent, moreover, they tend to be more secure in that by far the largest proportion consists of loans for residential properties (Fig 2:22, p. 42). Residential property is considered to be more secure than other property, mainly because housing rents, vacancy ratios and property prices normally fluctuate less than for other types of real estate.<sup>24</sup> An indication of this is that the direct return on residential properties is lower than on commercial real estate (Fig 2:24, p. 45). Investors presumably accept a lower direct return on residential property because residential investment entails a lower risk. In the case of the banks, on the other hand, almost half of the loans are for non-residential property.

<sup>24</sup> The law can be said to confirm this assessment in that the capital adequacy standards put loans secured with residential property in the 50 per cent risk class and loans secured with other real estate in the 100 per cent class.

**Figure 2:21.**  
Bank loans to household and business sectors, by type of collateral. SEK billion



Source: Financial Supervisory Authority.

The reliability of real estate as loan collateral is dependent on the development of property prices. A price fall constitutes a risk that the loans are no longer fully secured. The real estate market tends to be weakened by an economic downturn and rising interest rates, factors that also have negative effects on the solvency of households as well as firms. There is therefore presumably a co-variation between the solvency of the borrowers and the value of the pledged properties.

The collateral for bank loans to households consists mainly of 1- and 2-family houses and tenant-owned dwellings. The value of the assets that the banks accept as loan collateral, together with the level up to which the assets are mortgaged, is an indicator of the bank sector's exposure to payment suspensions in the household sector. Moreover, the value of the collateral tends to co-vary with payment difficulties. This is because widespread payment difficulties in the household sector, obliging many households to liquidise their fixed (residential) assets, are likely to result in a buyer's market for houses and tenant-owned dwellings. This could cause the value of these assets to fall substantially, as they did in

the recent bank crisis. The housing credit institutions guard against price and liquidity risks of this type by generally limiting their mortgage loans to 75–80 per cent of the collateral's market value. Any additional financial requirement is arranged as final borrowing, often in the parent bank of the housing institution. Although this final borrowing is secured, the value of the pledge in such cases tends to be weak on account of the limited price fall that serves to eliminate the whole or a part of this component. In this context it should be noted that there are signs at present of strong competition in the market for housing loans, which could induce market agents to take increased risks in order to gain market share.

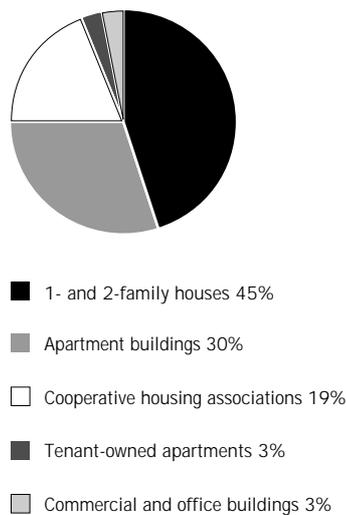
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There are signs at present that competition in the market for housing loans is so strong that there may be an inducement to take increased risks in order to gain market share.

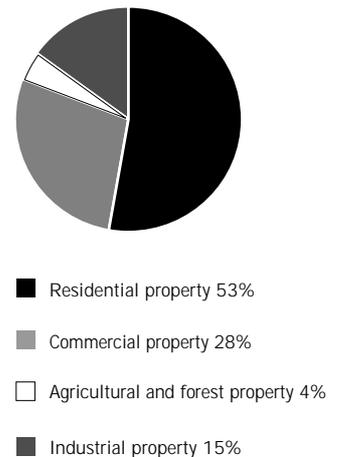
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During the bank crisis, house prices fell steeply (Fig. 2:10, p. 29). A comparatively moderate rise from 1993 accelerated to an annual rate of over 6 per cent in 1997. At current prices, the level is still below the high in 1991. In that the increase has been moderate

**Figure 2:22.**  
Mortgage loans to household and business sectors, by type of real estate. Per cent  
From housing credit institutions (SEK 673 billion)



From banks (SEK 242 billion)



Sources: Financial Supervisory Authority and the Riksbank

and the level is still comparatively low, house prices are hardly an appreciable cause for concern. But the acceleration during 1997 does indicate that a more substantial price rise that resembles the trend in the late 1980s could be imminent, with the attendant possibility of a stronger build-up of credit risk in the banks.

#### THE REAL-ESTATE INDUSTRY

The significance of the real-estate industry for risks in the bank sector was evident not least in the bank crisis, which began with problems in this sector. The steep price rise during the second half of the 1980s turned downwards in 1991, when vacancies rose and rents fell because demand for premises and office space declined with the fall-off in economic activity. The expectations of rising rents and property values that had promoted property investment in the 1980s also changed, partly because inflation fell without a corresponding effect on interest rates. This accentuated the fall in property prices. In some regions the price changes were even more marked than shown in Fig. 2:23. In Stockholm, for example, prices fell more than 50 per cent from 1990 to 1993 and in many

areas the level of vacancies rose very suddenly from 2 to around 15–20 per cent. A major factor behind the banks' problems was their large credit exposure to the real-estate sector

The real-estate sector is still the dominant segment in the banks' problem loans. In 1997, loan losses connected with real-estate management and construction companies accounted for 70 per cent of the total loan losses of the bank groups. It is also conceivable that losses attributed to the rest of the corporate sector and the household sector may have been incurred because the value of property pledges was not sufficiently high when the borrowers suspended payments.

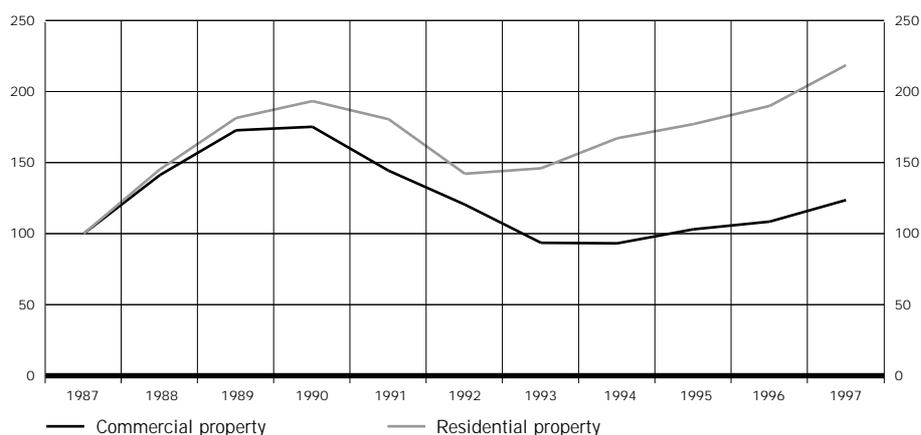
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Loan losses connected with real-estate management and construction companies accounted for 70 per cent of the total loan losses of the bank groups in 1997.

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Factors of importance for the expected return on real-estate investment include economic growth and the level of interest rates. Increased economic activity leads to stronger demand for commercial and industrial premises, as well as for housing, and this

**Figure 2:23.**  
Property prices in the metropolitan regions. Index (based on price per sq. m.): 1987=100



Source: Calculations based on data from Catella Information.



in turn leads to increased rents and rising property prices. Lower nominal interest rates imply lower financing costs for real-estate companies, with a positive effect on the value of the properties.

Rising economic growth and lower interest rates have contributed to some recovery in property prices after the fall in the early 1990s. This applies above all to residential property, for which the nominal price level in the metropolitan regions is now above the high before the property crisis. In the case of commercial property, it is primarily in Stockholm that the recovery has been fairly substantial.

Compared with the more general increase in the 1980s, the upward tendency in property prices in recent years has been more selective and clearly confined to areas where conditions for growth are good. This points to less risk of marked set-backs in property prices. During 1997, however, prices in regional centres<sup>25</sup> rose comparatively strongly (14 per cent) for commercial as well as residential property. In small centres the increase was strong for commercial property (22 per cent), while prices for residential property were unchanged. The marked acceleration may herald a period of more general price increases. Such a situation heightens the risk of "price bubbles" that may be followed by a steep fall in property prices at a later stage of the business cycle.

The direct return on real estate can be used as an indicator of the expected future increase in value. The direct return is the net operating income the property generates, expressed as a proportion of the property's value. It is used to cover interest expenditure as well as the required return on capital. The direct return is therefore crucial for the capacity of the real-estate sector to service and repay loans. A direct return that does not cover interest expenditure implies that property investors accept a current loss because they expect a future increase in income. In other words, the value of the property or the rent

income associated with this is expected to rise. Investors may therefore accept what appears to be a bad deal because they count on a future increase in the operating surplus or expect to be able to sell the property later at a higher price. Property investment of this type involves a large financial risk in that it is based on expectations of future increases in rents or value. If the expectations prove to be wrong, the result may be a widespread suspension of payments in the real-estate sector.

In the late 1980s the direct return in the real-estate sector fell as prices rose and were expected to go on rising (Fig. 2:24). The bank crisis involved a steep price fall and expectations that property prices would remain low caused an increase in the direct return. Since 1993 the direct return has been falling continuously again but the levels remain higher than in 1997 and in relation to the nominal interest rates the situation is appreciably better. The fall in the direct return in recent years has also been more differentiated and come mainly from the more expansionary metropolitan regions, which suggests that there is more substance in the pattern of expectations. Another important factor is that inflation is now expected to remain low, whereas in the late 1980s property prices were driven by an expectation that inflation would remain high.

The levels of rents and vacancies determine conditions for generating income on real estate and are highly important for the direct return, which then determines the value of the properties. An increase in property prices may be due either to an increase in current income or to expectations of a future increase. If a favourable development of rents and vacancies accompanies a price rise, the latter may be motivated by a current increase in income. A price rise without a favourable trend in vacancies and rents probably indicates expectations of a future increase in income.

The increase in property prices that was dis-

cussed earlier can be explained to only some extent by lower vacancies and rent increases. Other factors like falling interest rates have probably been of major importance. An improvement in rents as well as vacancies has occurred in recent years in the metropolitan regions (Table 2.1, p. 46). No such changes lie behind the price increases in the regional and small centres; there has been some increase in vacancies in residential properties but little change in commercial properties, while the level of rents has hardly changed for commercial properties and risen somewhat more than inflation for residential properties. This suggests that the price increases reflect expectations of future increases in income. As these expectations contain a greater degree of uncertainty, the price increases should be regarded as more of a risk. This strengthens the impression that a more unbalanced property price rise, involving larger risks for the banks, may be imminent.

The risks to which banks are exposed through their loans to real-estate companies are dependent on the latter's capacity to cope with financial problems. Two indicators—interest coverage ratio and debt ratio—are considered here. Sufficiently up-

to-date data are available for the listed real-estate companies.

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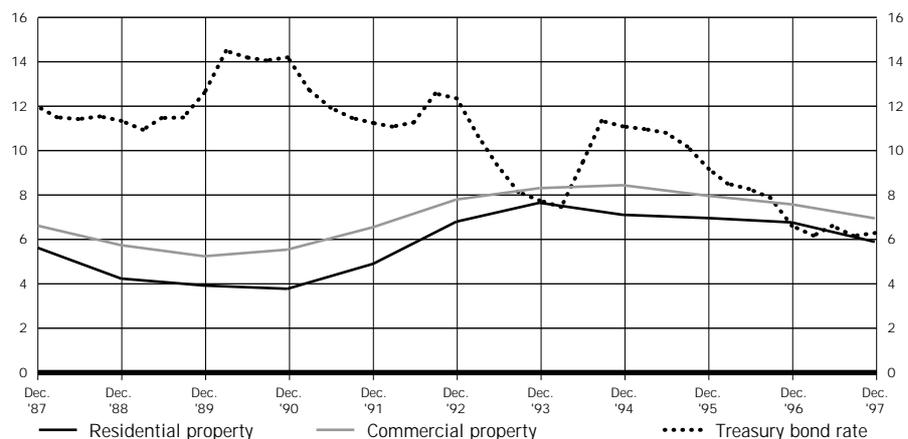
The debt ratio has been more than halved but interest payments still absorb a comparatively large fraction of the real-estate companies' operating surplus.

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The position of the listed companies has improved appreciably since the real-estate crisis (Fig 2:25, p. 47). The debt ratio has been more than halved and the net operating surplus has covered interest expenditure since 1994; however, interest expenditure uses up a fraction of the surplus that is still comparatively large. The improvement in the debt ratio comes mainly from capital contributions by owners and the introduction of new listed companies that were separated from the banks with a comparatively low debt ratio. The explanation for the low debt ratio is that the banks have absorbed losses on the properties that are now owned by the new real-estate companies, leaving the latter with a lower level of liabilities.

25 Figures based on information from Catella. The data for regional centres refer to the property markets in a sample of cities that are regional centres; those for small centres come from a sample of smaller cities.

**Figure 2:24.**  
Direct return on property in the metropolitan regions and the 5-year treasury bond rate.  
Per cent



Source: Calculations based on data from Catella Information.

#### OTHER COLLATERAL

Real estate is the only type of collateral that is involved in a substantial proportion of bank loans. The other two types of collateral of importance for the banks are corporate mortgages and guarantees, neither of which can be valued on a general basis. In a corporate mortgage the company pledges its assets, with some exceptions, as security for a loan. One of the most important assets in this context is often the stock of goods. The value of corporate mortgages largely depends on the composition of the company's assets. In most cases the value should be relatively closely associated with the company's solvency. A corporate mortgage normally reduces a bank's loan losses if the company goes bankrupt but the size of this effect can hardly be assessed in general terms.

Guarantees should be a very good form of security when the borrower and the guarantor are both private individuals because the risk of an individual suspending payments is very small. Moreover, provided the borrower and the guarantor are econom-

ically independent of each other, the risk that both of them will fail to pay is appreciably less than the risk of one of them failing to do so. Corporate guarantees should also be seen as a good form of security but they do involve a number of legal complications.

The Swedish banks use equity as collateral to only a limited extent and this practice has decreased in the 1990s. A price fall on the stock exchange would lead directly to extensive problems for the banks only if substantial proportions of their share holdings were mortgaged and/or the bank system had large speculative equity positions. In such a situation the bank system would be exposed to the risk of large price losses on its own speculative share holdings and of incurring loan losses on loans secured with equity. As the Swedish banks have a limited stock of loans secured with equity, however, there is no cause for concern on this account. The banks' own equity holdings are relatively small and restricted by law. The total equity holdings of the banks, apart from shares in related companies, are equiva-

**Table 2:1.**

Vacancy ratio and rent in different geographical locations.  
Per cent, SEK/sq. m. and percentage change

	1995	1996	1995/96	1997	1996/97
<b>Vacancies</b>	Per cent	Per cent	Percentage change	Per cent	Percentage change
<i>Commercial properties</i>					
Metropolitan regions	12.00	11.00	-8	9.67	-12
Regional centres	8.33	8.48	2	8.60	1
Small centres	8.54	8.50	0	8.57	1
<i>Residential properties</i>					
Regional centres	1.84	1.76	-4	2.09	19
Small centres	3.62	3.37	-7	3.73	11
<b>Rents</b>	SEK/sq. m.	SEK/sq. m.	Percentage change	SEK/sq. m.	Percentage change
<i>Commercial premises</i>					
Metropolitan regions	1,242	1,333	7	1,433	8
Regional centres	899	911	1	903	-1
Small centres	814	823	1	824	0
<i>Residential premises</i>					
Metropolitan regions	702	723	3	744	3
Regional centres	637	659	3	681	3
Small centres	638	660	3	686	4

Source: Catella Information.

lent to approximately 13 per cent of their aggregate capital base. This means that the banks are exposed to a comparatively small risk in the form of stock exchange fluctuations. This low risk exposure reduces the likelihood of domino effects from problems in different segments of the financial system.

## Exposure to the rest of the world

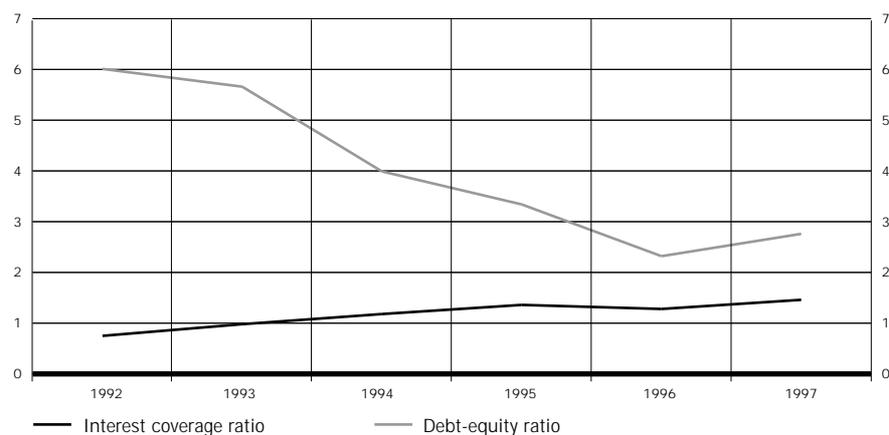
This analysis of the banks' exposure to credit risk has focused up to now on different categories of domestic borrower: households, firms and real-estate companies. It is also important to take a closer look at the banks' exposure to the rest of the world. This is evident from the financial turbulence in Southeast Asia which began in the early summer of 1997.

The risk inherent in an exposure to the rest of the world is that a country, or a region, can be hit by an economic or financial shock that affects the solvency of all economic agents. Besides studying the banks' lending to households and firms, it is therefore relevant to consider interbank lending.

Of the Swedish banks' total loan stock of SEK 1,448 billion in September 1997, loans to the rest of the world accounted for SEK 564 billion. Of this component, only about 25 per cent consists of loans to households and firms and about 75 per cent of interbank loans. A substantial proportion of the Swedish banks' exposure is to countries in the Nordic area and in the Group of Ten (Fig. 2:26, p. 48). The economies of each of these countries resemble Sweden's in many respects, with a financial sector that is currently stable. Today, therefore, there is no particular cause for concern about these countries in the context of stability. But there is a risk of the banks incurring substantial losses as a result of financing projects with which they are not sufficiently familiar. This was the case in connection with a number of international property transactions in the late 1980s.

In that experience shows that financial crises often occur in growth economies, there is reason to be alert to the activities of the banks in such regions. This is illustrated, not least, by the crisis in Asia. The Riksbank regularly collects statistics on the country composition of the Swedish banks' assets and liabilities. These statistics give a breakdown of loans to

**Figure 2:25.**  
Interest coverage ratio and debt-equity ratio for some listed real-estate companies.  
Per cent



Sources: Annual reports.

the bank and the non-bank sector, respectively, that is, the exposure to counterparty risks and credit risks.

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In that experience shows that financial crises often occur in growth economies, there is reason to be alert to the activities of the banks in such regions.

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Asia, Latin America and Eastern Europe are important growth regions and accounted between them for about 14 per cent of external lending by the Swedish banks. Japan is presented separately on account of the financial problems in the bank sector there. These problems may be exacerbated in that the Japanese banks have relatively substantial exposures to the Southeast Asian market.

The exposures of the Swedish banks to these growth regions are modest (Fig. 2:27). Non-financial firms account for a considerable part of the exposures, which is not unimportant for stability. Although, as mentioned earlier, the risk of losses on corporate lending are greater than on lending to banks, the consequences of the latter may be

more serious. To a large extent, the corporate lending to these regions consists of loans to Swedish companies' establishments there. As many of these establishments produce for external markets, they should be less affected by problems in their domestic economy. On the contrary, they may benefit from the depreciation of the domestic currency. Moreover, the Swedish parent company is likely to be disinclined to let its subsidiary go bankrupt. Except for Indonesia, the main problems in the Asian region, including Japan, have been in the financial sector, which means that the risk is to be regarded as greater for interbank loans in these countries.

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The exposures of the Swedish banks to these growth regions are modest.

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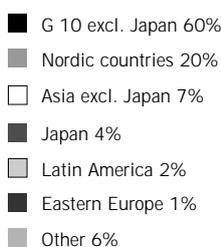
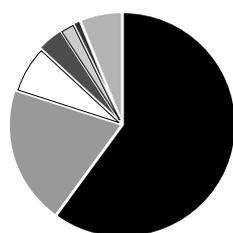
In that the banks' exposure to the Japanese financial sector, with all its problems, is relatively large, there is reason to follow it more closely. An important factor here is the Japanese banks' large exposure to the rest of Asia, particularly in the financial sector. This means that the Japanese institutions can incur large losses as a result of bank failures in other countries in Southeast Asia. In this way the Swedish banks could be hit indirectly by problems in countries or regions where their own direct exposure is rather limited. Besides following the Swedish banks' exposures to new growth regions, there is therefore reason to consider indirect effects of this kind.

Another problem that has attracted attention in connection with the crisis in Asia is the difficulty in obtaining up-to-date and reliable economic and financial statistics from these countries. It is then more difficult to assess country risks, which in these cases are liable to be substantial.

#### FINANCING ABROAD BY SWEDISH BANKS

The foreign operations of the banks are of significance not only as regards exposures on the asset side. The extent of the Swedish banks' financing in foreign banks may be highly important for bank system

**Figure 2:26.**  
The banks' loans to nonresidents, by groups of countries, December 1997.  
Total: SEK 564 billion



Source: The Riksbank.



stability, though it should be underscored that this is a question of liquidity risk, not credit risk. In the period before the bank crisis in Sweden, a substantial proportion of the banks' lending was financed with short-term loans from foreign banks.<sup>26</sup> When problems among the Swedish banks attracted attention abroad, in certain cases it ceased to be possible to prolong the loans. As the loans that the Swedish banks had provided could not be terminated at the same rate, a shortage of liquidity arose. A similar course of events was observed for Korean and Indonesian banks during the crises last autumn. The work that was done in international central bank cooperation focused on solving the liquidity problems. During the crisis in Sweden, the Riksbank found it necessary for a time to assist with financing in foreign currency.

Substantial short-term financing via the international interbank market can lead to an increased risk when a country is going through a period of financial turbulence. The statistics on the foreign assets and liabilities of the Swedish banks show that the banks increased their foreign financing dramatically in a period from the beginning of 1987 up to

the spring of 1991, after which the level fell back sharply (Fig 2:28, p. 50). Since 1994, financing in foreign banks has risen again but lending to foreign banks has grown more rapidly. This is mainly a result of the increased activity in the international inter-bank market, the repo market in particular.

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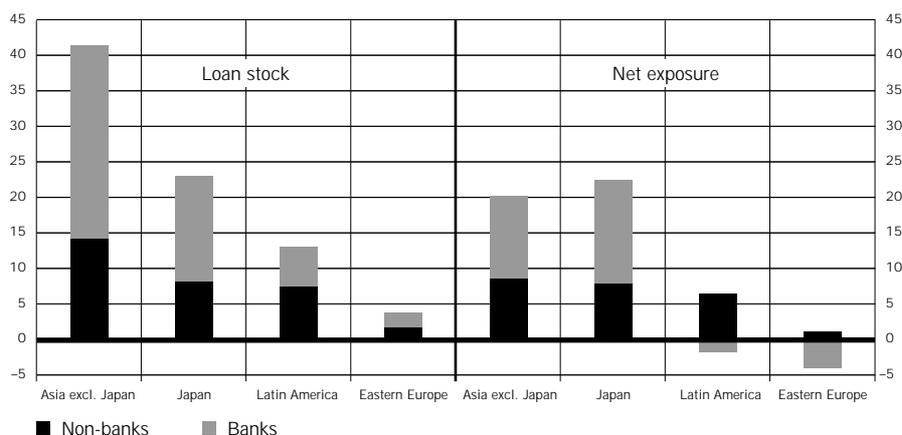
Today, the net financial position of the Swedish banks in foreign banks is modest.

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Today, the net financial position of the Swedish banks in foreign banks is relatively modest, which has to do with the prevailing deposit surplus. This situation may change, however, if the expansion of lending that is now discernible continues for some time. A large loan stock, together with a tendency for households to invest a growing proportion of their savings in mutual funds and other products that do not feature in bank balance-sheets, may lead in time to a greater need of alternative financing by the banks. One such alternative is financing via the

<sup>26</sup> It was necessary to borrow from foreign banks in part because the Swedish government had a policy of not borrowing abroad. This meant that the private sector had to seek financing abroad. As a result of this Swedish banks borrowed large amounts in foreign currency on the international interbank market.

**Figure 2:27.**  
The banks' exposure to Asia, Latin America and Eastern Europe, December 1997.  
SEK billion

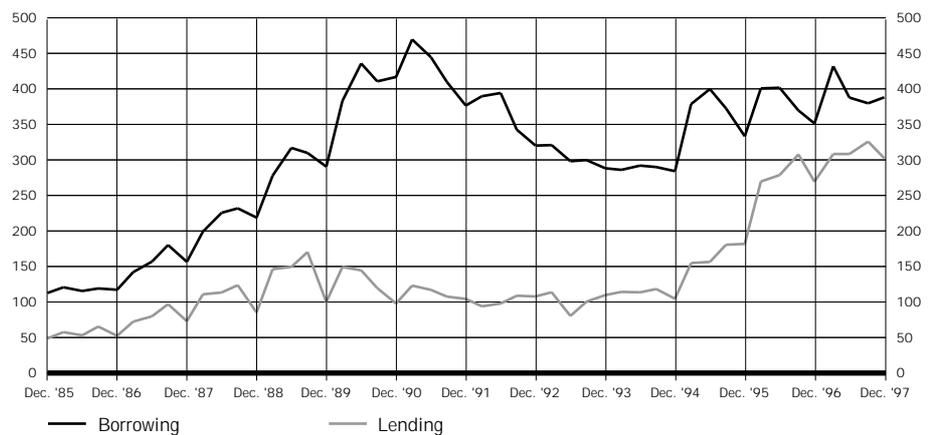


Source: The Riksbank.

international interbank market, though this is often short-term and more costly than deposits. There is therefore reason to watch how the banks choose to finance any future expansion of lending. This will be particularly important if, for some reason, there were to be a loss of confidence in the Swedish econ-

omy or Sweden's financial sector. Problems with international financing could arise, however, even without such a loss of confidence. Major international financial shocks could lead to lower activity throughout the global interbank market, with negative effects on access to liquidity.

**Figure 2:28.**  
Swedish banks' borrowing  
from and loans to foreign  
banks.  
SEK billion



Source: The Riksbank.

# Conclusions concerning stability

*The present state of stability in the bank sector appears to be good, though a number of indicators do show tendencies to an increased credit risk. If these tendencies become stronger, there will be reason to be on guard lest risks are built up to such an extent that the bank sector encounters problems in an economic downturn.*

This Financial Market Report focuses on credit risks in the bank sector. The aim has been to identify macroeconomic indicators that are capable at an early stage of showing whether the banks are moving towards a situation that is liable to involve substantial loan losses. As a first step, indicators have been considered that, in theory, are capable of pointing to an increased credit risk in the banks. Their suitability has been discussed by considering what they indicated in the run-up to the bank crisis in Sweden. In some cases there is reason to believe that indicators which did not point to problems before that crisis may still yield useful information before the outbreak of a future crisis. This is because the causes and courses of financial crisis are liable to differ. The indicators that appear to be useful have been analysed with reference to the current situation. The conclusions concerning bank system stability that can be drawn from the analysis are summarised in this chapter.

Experience shows that loan losses in the bank sector correlate strongly with economic activity. As Sweden is now in an upward cyclical phase, it is natural not to find signs of risks that substantial loan

losses will occur in the near future. Still, it is often during an upward phase that the risks in bank loan portfolios are built up. When the future is generally perceived as positive, increases in debt and asset prices, for example, may exceed what is warranted in real economic terms. If the positive expectations prove to be mistaken, the problems come to the fore when activity weakens. In this way, banks may incur large loan losses in a downward phase. To some extent, the banks can handle these losses by setting the lending rate to provide for the expected loss. There is a risk, however, that strong competition results in lending rates being lower than is needed to cope with the risk of loan losses in a downward phase.

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As Sweden is now in an upward cyclical phase, it is natural not to find signs of risks that substantial loan losses will occur in the near future.

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An important aspect here is that, partly for tax reasons, when times are good the banks have a limited ability to set aside appropriations in their accounts to cover future losses. The use of high interest margins to cover future loan losses during an economic

upturn results in a higher profit that is then taxed and available for dividends. When times are hard, the banks no longer have funds for the expected losses, at least not in full. There is then a risk that the capital required by regulation is not sufficient to absorb losses. With improved methods for assessing credit risk, the banks will become increasingly proficient at making reliable estimates of the reserves that are needed to provide for loan losses. The possibility of building up such reserves deserves further discussion by the authorities in the financial sector.

#### INCREASED LENDING TO HOUSEHOLD SECTOR

Lending to households has been rising in recent years but it was not until 1997 that the rate of increase exceeded GDP growth. As the *household debt-to-GDP ratio* fell continuously from 1988 to 1996, the ongoing increase in lending is hardly remarkable but if it were to continue for some time there might be cause for concern. The price rise for 1- and 2-family houses—the main form of collateral for bank loans to households—has not been particularly dramatic since the bank crisis, though it did tend to accelerate in the past year. Consequently it seems that the increase in lending to households is not pushing property prices up to the same extent as before the bank crisis. Even so, the increase in household sector indebtedness and the upward economic trend should lead to heightened attention being paid to any signs of imbalances.

The *household debt-to-income ratio* gives an indication of the debt burden in this sector because debt servicing and repayment are primarily financed from disposable income. This indicator shows that the financial position of households is satisfactory but a break in the trend does suggest that an unfavourable development may have begun. Households' personal economic expectations one year ahead, the growth of lending to date in 1998 and the low level of

interest rates all suggest that this unfavourable tendency may continue. But as the debt-to-income ratio fell for a long time before rising again in 1996 and 1997, there is not much cause for concern in this respect either. But a continued increase in debt relative to income might lead to a build-up of more substantial credit risks in the banks' loans to households.

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A continued increase in the debt-to-income ratio might lead to a build-up of more substantial credit risks in the banks' loans to households.

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The *household debt-to-asset ratio* has fallen in recent years, which mainly reflects the appreciation of households' assets, equity in particular. The recovery of house prices has also contributed to the improved ratio, as has the high level of saving in the early 1990s, which largely involved increased investment in equity.

Together with households' positive personal economic expectations, the share price rise, which generates increased financial wealth, may have made households confident enough to build up liabilities relative to current income. There is reason to follow the development of share prices and positive expectations to detect any risk of an excessively high increase in household indebtedness. If share prices fall or the positive economic expectations prove to be unfounded, households could have difficulties in carrying the increased debt burden. If this were to coincide with a general economic downturn that results in decreased disposable income, the problems might become serious. Today, however, everything suggests that such a situation is a good way off.

#### NO SIGNS OF INCREASED LOSSES ON CORPORATE LOANS

The work of identifying useful indicators of credit risk in bank loans to the corporate sector has encountered difficulties in obtaining up-to-date statistics on the corporate sector. To a large extent, the

official statistics suffer from a long time lag. There is a need of available statistics that facilitate assessments of the corporate sector because it is in this sector that the largest loan losses normally occur in connection with financial crises.

The *stock of corporate* loans showed an appreciable build-up of credit risk in the banks prior to the bank crisis. As the loan stock at current prices today is still below the high in 1991, the ongoing increase in lending is hardly alarming. But the growth of lending in 1997 was comparatively strong and if this rate were to continue for some time, it might give cause for concern.

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Today, the loan stock at current prices is still below the high in 1991 but the growth of lending in 1997 was comparatively strong; if this rate were to continue for some time, it might give cause for concern.

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The *interest coverage* ratio, the ratio of interest costs to profits, is the indicator that, together with changes in the loan stock, provided the clearest signals of problems in the recent bank crisis in Sweden. Data for 1997 are available only for listed companies but they have previously shown a high co-variation with the total corporate sector. The interest coverage ratio has increased considerably since 1992 and is at a high level in a historical perspective.

Business borrowing in markets for company certificates and bonds has grown in recent years. As the companies that have used these markets to date are mostly those with a good credit standing, this tendency may mean that to some extent the banks are losing their soundest borrowers. *The banks' interest margin on corporate loans* should then rise to compensate for a higher risk in the loan portfolio. In recent years, however, interest margins have been falling, which indicates a possibility that margins have decreased relative to the risk in the loan portfolio.

As the frequency of bankruptcies among new enterprises is higher than among more established

firms, there is reason to follow the *number of new enterprises*. In the period 1994–96 the annual number of new firms was higher than in the previous upward phase in the 1980's. If problems are widespread among these new firms in the next downward phase, it might create problems for the banks.

A particularly high risk of bankruptcy has been found in certain industries, such as construction and the hotel and restaurant sector. These industries account for a comparatively large proportion of bank loans. An increased exposure to these industries may entail a higher credit risk in the banks.

#### RISING PROPERTY PRICES

An industry breakdown of the loan losses of Swedish banks in the past decade shows that the losses have clearly been largest in the real-estate industry. Moreover, real estate is by far the most common form of collateral in the loan portfolio of the bank groups. In an analysis of bank system stability, there is therefore reason to pay particular attention to developments in the real-estate sector.

The current situation in the real-estate sector appears to be stable. It is disconcerting, however, that property prices have been rising comparatively sharply, mainly in the metropolitan regions but also, during 1997, in smaller cities. The price increases are not fully motivated by an increased earning potential in the real-estate sector and to some extent they presumably reflect expectations of a better earnings potential in the future. The price increases are also stronger than general economic development warrants and, if they continue for some time, there is a risk of a price bubble being built up. In that case, a future fall in value might be a serious threat to the banks when economic activity weakens. At the same time it should be noted that it is not until increased indebtedness accompanies a price rise that the latter becomes a problem. It is when property investment includes a very marked component

of loan financing that the situation becomes vulnerable and it is particularly serious if it is the increased lending as such that pushes property prices up. Such a situation renders the real-estate market very sensitive to interest rate hikes or other events that reverse expectations of a future increase in value. *The debt ratio of the listed real-estate companies* has fallen appreciably in the 1990s and their *interest coverage ratio* has also improved, which points to a less vulnerable position in the event of a fall in the value of property.

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The current situation in the real-estate sector appears to be stable, though it is disconcerting that property prices have been rising comparatively sharply.

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The component of bank lending that is growing fastest at present is *unsecured loans*. This has to do with the upward economic phase, which involves increased demand for operating credits and loans for consumption. At the same time, it represents an increased element of risk in the loan portfolios of the banks. The occurrence or otherwise of future losses on these loans is solely dependent on the capacity of the borrowers to service and repay their debts.

#### MODERATE EXPOSURE TO THE REST OF THE WORLD

Many bank crises have arisen in countries where economic growth is strong, financial markets have recently been deregulated and confidence in the future is high. The crises in Asia are examples of this. In that a profound financial crisis is liable to hit borrowers in general in the country in question, there is reason for banks to monitor the size of their *exposures to individual countries and regions*. Today, the exposures of the Swedish banks to growth regions in the rest of the world are relatively moderate. An exacerbation of the problems in the Japanese bank sector constitutes the greatest threat because the Swedish banks' exposures to Japan are relatively large. The extent to which such a scenario represents a serious problem for Swedish banks would be highly depen-

dent on how the situation is managed by the Japanese authorities. They have expressed a determination to take vigorous action in order to avoid a deeper crisis.

The ways in which the banks finance their lending are important for stability. Experience from earlier financial crises shows that banks which are heavily dependent on interbank financing abroad are liable to face acute problems with liquidity. The Riksbank therefore continuously monitors the financing activities of Swedish banks in the international interbank market. As their net financing in this market is moderate at present, there is no cause for concern in this respect either.

#### OVERALL SITUATION STABLE BUT SOME WARNINGS

The analysis of credit risks in the bank sector gives no cause for concern today. The situation appears to be satisfactory. The economy is in a phase with strong confidence in the future. In such a situation, the banks tend to provide loans that turn out to have been more risky than they appeared to be initially. Signs that such a tendency may be at work now are an accelerating growth of lending, rising prices for real estate and equity, and a growth of liabilities relative to current income. Whether the credit risks are built up to such an extent and in a way that threatens the banks will depend on whether the tendencies that were discernible during 1997 turn into a trend that lasts for a number of years rather than being more temporary.

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It is clear that profitability is being pushed down and that the capacity of the banks to generate profits from their structural rearrangements last year will be important for their future net earnings.

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Up-dated versions of the indicators of profitability that were discussed in the previous issue of the Financial Market Report are included in an annex after this chapter. These indicators do not give any



cause for concern either, though it is clear that profitability is being pushed down and that the capacity of the banks to generate profits from their structural rearrangements last year will be important for their future net earnings. An accentuation of the negative trend in results would make it even more important

for the Riksbank to monitor risks in the banks' operations so that any attempts by the banks to improve profitability in the short run by taking increased risks can be detected in time. Today, however, there do not appear to be any clear tendencies in this direction.

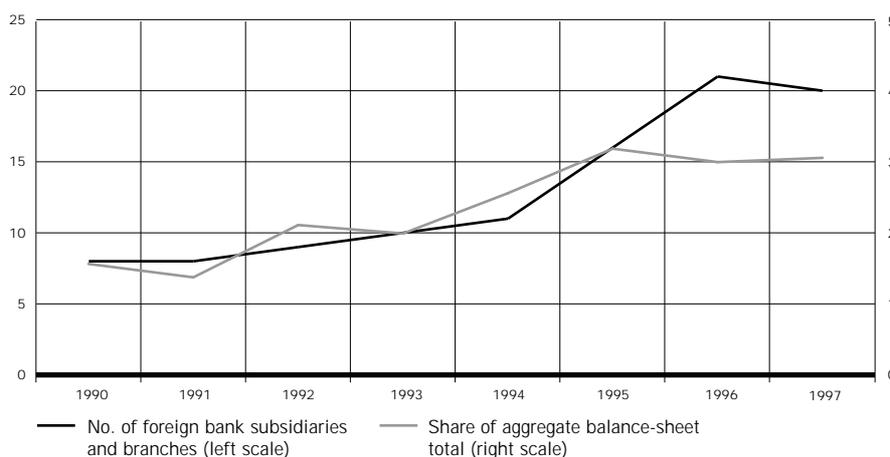
# Annex

The purpose of this annex is to review tendencies of significance for financial system stability. The macro-economic indicators considered in this issue are of greatest importance in this respect but they have not been reproduced here; in future issues, however, they will make up a considerable part of the annex. On this occasion, some tendencies that were discussed in the previous issue are followed up here, together

with the development of profitability and efficiency in the four major bank groups. All the figures are weighted averages for the four major bank groups, using consolidated pro forma accounts for 1996 in order to have a better foundation for comparisons with 1997. Moreover, the Trygg-Hansa Group has been incorporated in the figures for S-E-Bank for 1996 as well as 1997.

## Internationalisation

**Figure 1.**  
Foreign banks in Sweden.  
Number and share of  
aggregate balance-sheet  
total

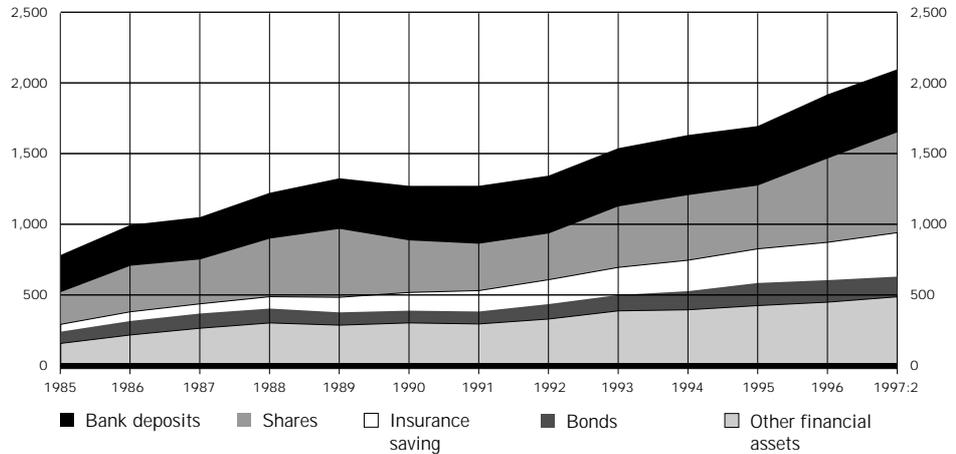


\* Östgöta Enskilda Bank, which was taken over by Den Danske Bank in 1997, was not included in this year's figure because the banks size would make comparisons with previous years' figures difficult.  
Source: The Riksbank.

Sweden's financial market displays pronounced trends towards internationalisation, above all in securities and currency trading, corporate consultancy and the market for financial services for large companies. The foreign banks still account for just a modest proportion of total bank assets despite the internationalisation of some banking products.

Assets and liabilities in the corporate and household sectors

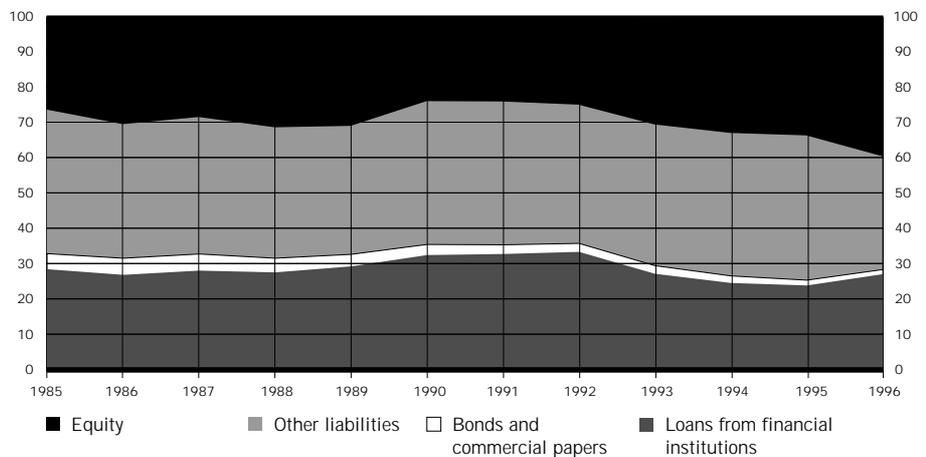
**Figure 2.**  
Household sector: structure  
of financial assets.  
SEK billion



Source: Statistics Sweden.

There has been a continuation of the trend for household assets to be placed in instruments that do not feature on bank balance-sheets, above all mutual funds of various types. The large net flows, to equity funds in particular, continued at a rapid pace in the second half of 1997 as well as to date in 1998.

**Figure 3.**  
Financing structure of non-  
financial enterprises.  
Per cent of total

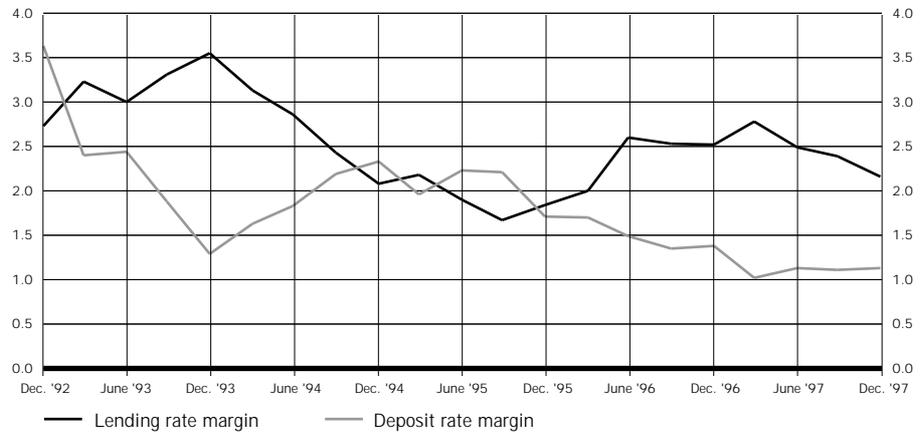


Source: Statistics Sweden.

There are no signs to date that business borrowing in the banks is being replaced by direct borrowing in the securities market. The proportion of securities financing in total corporate financing decreased, if anything, in 1996 and the proportion of loans from financial institutions rose. As can be seen in figure 2:18 on page 38, the volume of interest bearing corporate securities has increased in absolute numbers particularly during 1997. This increase may have been augmented by the development of the European Monetary Union which will probably lead to an efficient and liquid European market for corporate bonds. The effect in that case would be decreased bank lending to large and medium-sized firms in particular.

## Deposit and lending margins

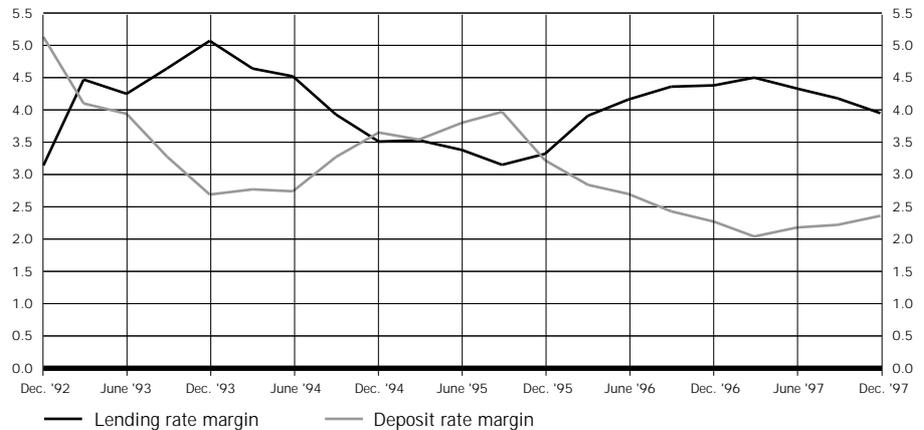
**Figure 4.**  
The banks' deposit and lending rate margins for enterprises, expressed as the margin to the 3-month T-bill rate.  
Percentage points



Source: The Riksbank.

After a falling trend since 1992, margins on corporate deposits have stabilised at a relatively low level. Bank lending to enterprises, which has risen in the past two years, is exposed to strong competition, as can be seen from the decreased margin.

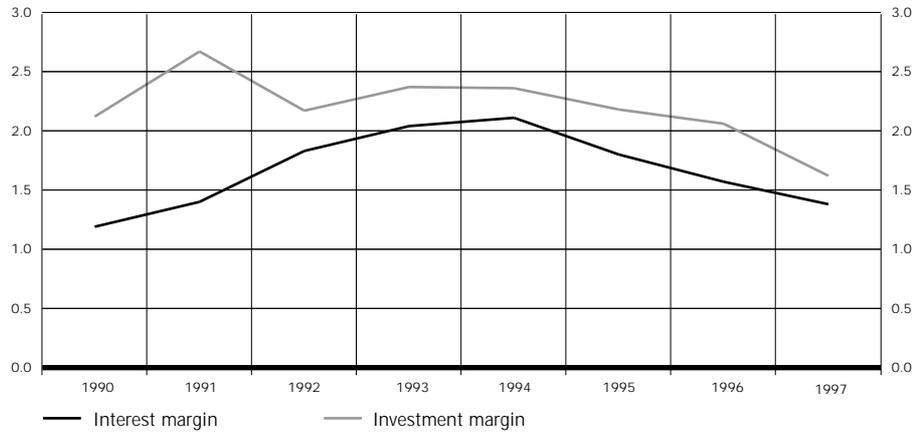
**Figure 5.**  
The banks' deposit and lending rate margins for households, expressed as the margin to the 3-month T-bill rate.  
Percentage points



Source: The Riksbank.

In the household market, the effect of competition is clearest on the deposit side, though margins here recently began to recover. The shift in saving to new instruments and the establishment of niche banks have contributed to the decrease in deposit margins during the past few years. The recovery of lending to households appears to have been followed by increased competition here, reflected in a slight fall in the deposit margin.

**Figure 6.**  
Interest margin and investment margin.  
Per cent

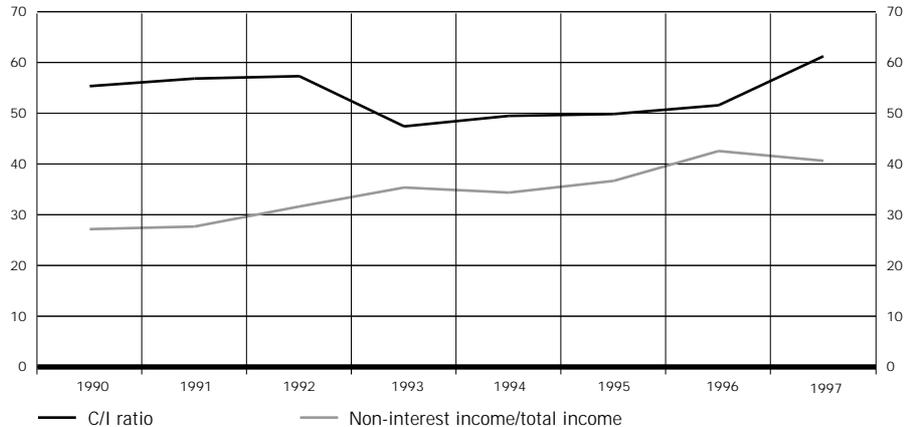


Source: The Riksbank.

1 Interest margin = interest income as a percentage of balance-sheet total less interest expenditure as a percentage of balance-sheet total excluding equity capital. Net return on assets = net interest income as a percentage of average balance-sheet total.

The combination of stronger competition and the reallocation of household savings is exerting downward pressure on the banks' interest margin and net return on assets.<sup>1</sup>

**Figure 7.**  
Operating costs before loan losses in relation to total income and non-interest income in relation to total income.  
Per cent

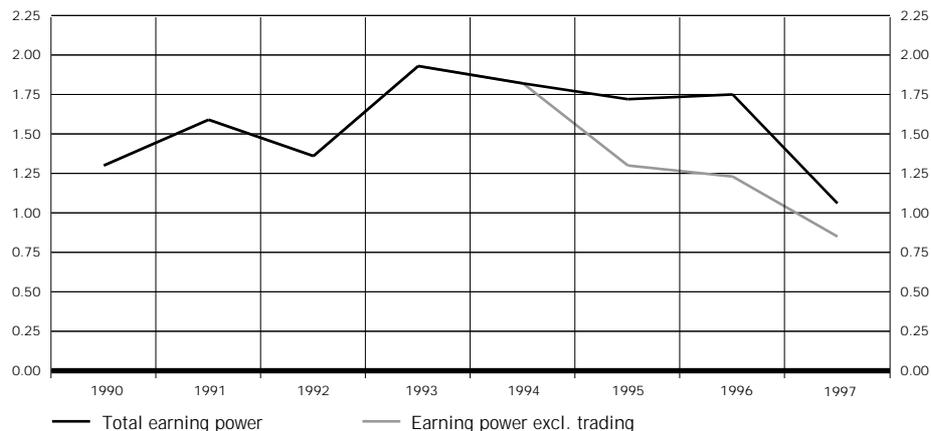


Source: The Riksbank.

2 Net financial transactions, net commission income and other non-interest income as a percentage of total income.  
3 Ratio of total operating expenditure, before loan losses and tax, to total operating income.

The banks have succeeded in countering a depressed interest margin by increasing their non-interest income.<sup>2</sup> Efficiency in the major bank groups, measured as the C/I ratio,<sup>3</sup> decreased during 1997, partly as a result of rising IT costs, lower interest income and decreased trading profits. Transitory expenditure on structural changes was also a considerable burden in 1997.

**Figure 8.**  
Earning power before and  
after net financial  
transactions.  
Per cent

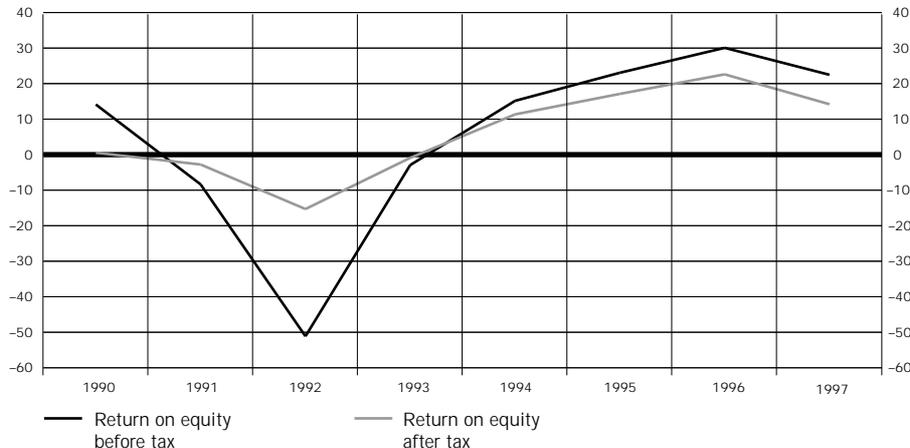


Source: The Riksbank.

4 Net earnings before loan losses as a percentage of the average of the balance-sheet totals at the beginning and end of the year. Earning power excluding trading = net earnings before loan losses and excluding net financial transactions as a percentage of the average of the balance-sheet totals at the beginning and end of the year.

Narrowing margins and rising costs have been depressing the underlying earning power<sup>4</sup> of the banks. The trend is even clearer when the banks' profits from their own trading positions are excluded. These profits are likely to decrease in the future in view of stable interest rates in a low-inflation environment. Earning power has also been burdened by transitory expenditure on structural changes.

**Figure 9.**  
Return on equity before  
and after tax.  
Per cent



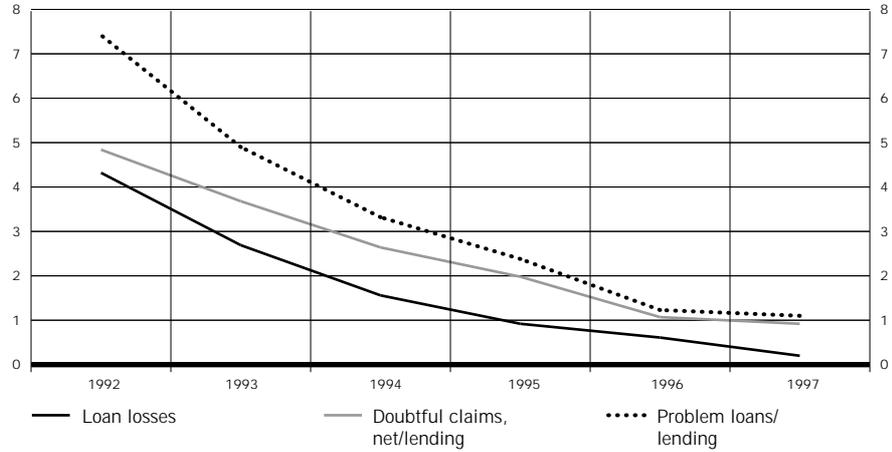
Source: The Riksbank.

5 Average return on equity capital = net profit as a percentage of the average of equity capital at the beginning and end of the year. Average return on equity capital before tax = operating net earnings as a percentage of the average of equity capital at the beginning and end of the year.

The level of profitability, measured as the return on equity capital,<sup>5</sup> is still high but it is being depressed by rising costs and falling income. The expected synergy potential from the extensive consolidation in the bank sector may have a positive effect on future profitability and efficiency. Studies of bank mergers show that realising any synergy potential usually takes up to three years.

**Figure 10.**  
Ratios of problems loans,  
loan losses and doubtful  
claims to lending.  
Per cent

<sup>6</sup> Level of loan losses = loan losses as a percentage of loans to the non-bank sectors, pledges taken over and credit guarantees at the beginning of the year. *Problem loan* = claim subject to interest reduction, doubtful claims and assets taken over to protect claims. *Claim subject to interest reduction* = claim for which lower interest rate terms have been agreed to provide for an improvement in the situation of a borrower who is temporarily insolvent. *Doubtful claim* = a loan for which interest, repayment or a debit balance is more than 60 days past due or where other circumstances give rise to uncertainty about repayment and the value of any collateral does not cover the principal and interest due with an adequate margin.



Source: The Riksbank.

All the indicators of the quality of the banks' loan stock<sup>6</sup> point to an improvement since the bank crisis. As the current level of loan losses is very low, more than a further marginal reduction is presumably not feasible. But there are no signs today that asset quality will deteriorate before economic activity turns downwards.