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The Norwegian Banking Crisis

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The Norwegian Banking Crisis

edited by

Thorvald G. Moe Jon A. Solheim Bent Vale

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Preface

It has been ten years since the Norwegian banking crisis ended. Although many papers have been written about the Norwegian banking crisis, it may be time to consider the crisis in retrospect. Actually, it is our impression that a comprehensive, but reasonably compact description in English of the Norwegian banking crisis is lacking. With this publication, we try to fill this gap.

In the first chapter of this publication, Bent Vale gives an overview of the Norwegian banking crisis. Vale discusses the typical features of the crisis in order to see what general lessons can be learned from the Norwegian case. He concludes that there is little doubt that the Norwegian crisis was systemic. During the crisis, banks accounting for almost sixty per cent of bank lending to the non-financial domestic sector were in trouble. The chapter draws on the contributions of the five subsequent chapters, which deal in more detail with the various aspects of the crisis. However, each article may be read independently of the others. Although a major objective of Vale's chapter is to present a comprehensive review of the crisis, it is not our intention that this chapter shall constitute "an official Norges Bank assessment" of the Norwegian banking crisis. Views and conclusions expressed in the various chapters are those of the authors and do not necessarily represent the views of Norges Bank.

In the second chapter, Erling Steigum addresses the lessons from Norway's boom-bust cycle and banking crisis and compares this with what happened in Finland and Sweden. The deregulation of the credit market triggered a lending boom that made the Norwegian economy very vulnerable to adverse shocks when the exchange rate was fixed. A major policy conclusion in this chapter is that the pro-cyclical monetary policy due to the fixed-exchange-rate regime was one of several important factors explaining the weak performance of the Norwegian economy, the sharp decline in real estate prices, and the banking crisis.

In the third chapter, Knut Sandal examines the resolution methods and fiscal costs of the Nordic banking crises. In much of the literature on financial crisis, the Nordic banking crises are regarded as one crisis, or three rather identical ones. However, the three crises differed, even if they had many common features. In fact, the resolution of the Norwegian crisis differed in some important ways

from the resolutions applied in Finland and Sweden.

In the fourth chapter, Cristoph Schwierz reviews previous estimates of output losses for the Nordic banking crises and presents some alternative estimates. The new estimates for output losses are found to be lower than in previous studies. The wide variation of the estimates illustrates the methodological difficulties involved in isolating the effects of a banking crisis per se.

In the fifth chapter, Karsten Gerdrup compares three booms and busts and banking crises in Norway since the 1890s. Although the crises occurred in different institutional environments and monetary policy regimes, it seems that the banking crises reflect an unwinding of financial fragility built up in the proceeding booms. All boom periods were characterized by significant bank expansion, considerable asset price inflation and increased indebtedness.

In the sixth chapter, Hans Petter Wilse deals in some detail with the actual management of the Norwegian banking crisis and the establishment of state ownership of commercial banks. While the solvency problems of the banks up through 1990 were largely handled by the banks' own deposit insurance funds, the crisis reached such proportions in 1991 that extensive government support was necessary. As a result, three major Norwegian banks ended up as government property.

Appendix A contains the concluding remarks of the Parliamentary Commission on various causal factors linked to the banking crisis. The Commission's report also examines possible efforts to prevent future financial crises, and many of these efforts have been followed up. The commission was appointed by the Storting (parliament) in May 1997 and completed its report in June 1998. In Appendix B, Harald Moen describes in some detail the calculations of the present value of government investments in and support to the Norwegian banks during the banking crisis.

The various chapters cover different aspects of the Norwegian banking crisis. While most seem to agree that the resolution of the crisis in Norway was fairly successful, it may be argued that the building up of the crisis could have attracted attention at an earlier stage. Moreover, it may also be asserted that one of the main problems was the commitment to a fixed exchange rate, which led to a procyclical monetary policy in the boom as well in the recession. However, this is said with the benefit of hindsight. In retrospect, it is easy to list factors that could have led to a less severe course of events. The right timing of measures and policy choices will always be complicated, given the political constraints and the information available when the policy decisions have to be made.

In light of the experiences from the previous Norwegian banking crises – and the fact that many other countries have experienced similar crises prior to the 1990s – one may wonder why the experiences from the previous crises were not drawn upon more heavily. During the four decades after WW II, no major changes in the thinking about crisis prevention and resolution appear to have

taken place. This is in sharp contrast to developments since the early 1990s, where issues related to banking and financial system soundness have moved to the centre stage.

The experiences from the Norwegian as well as the Nordic banking crises show that a balanced macroeconomic development is important to secure a stable financial system once the credit markets are deregulated. In an inflation targeting regime, the possible policy conflicts of monetary stability and financial stability are markedly reduced. Furthermore, an important lesson from the crises is the need for macro-orientation of prudential regulation and supervision. In recent years, much has been done, nationally and internationally, to strengthen the macroprudential framework. International organizations such as the IMF, the World Bank, and the BIS, as well as central banks and supervisors, have been working systematically on strengthening the regulatory, legislative and analytical framework for financial stability.

At Norges Bank, we have strengthened our surveillance of the soundness of our financial system. Since 1997, Norges Bank has – as the first central bank – published twice a year its financial stability report. This report adresses the risks to the present and future solvency of the financial institutions in Norway. There is also an extensive exchange of information with supervisors. Moreover, a relatively large part of the Norwegian banking industry is part of Nordic banking groups, and a structure for cross-border crisis management is therefore evolving.

Even though it is important to follow up the lessons learned from the previous banking crises, there is no guarantee that the same recipe will be successful in future crises or in other countries. We will have to consider new approaches to crisis resolution as the financial system and its participants are continously changing. Nevertheless, we hope this publication will not only serve as a review of the Norwegian banking crisis, but also prove useful in preventing and if necessary handling future financial imbalances.

During the work with this publication we have benefitted greatly from comments by our colleagues. In particular, we will mention Solveig K. Erlandsen, Einar Hope, and João Santos. Fredrik Lundberg, who has had an internship in Norges Bank in 2004, has provided invaluable editorial assistance, not the least in transforming the publication into LaTeX. Finally, we owe a great deal to our late colleague Henning S. Strand who initiated this publication and inspired the authors to write their contributions.

Jon A. Solheim

Chapter 1

The Norwegian banking crisis

Bent Vale

1 Introduction

The banking crisis in Norway had many features common with banking crises elsewhere. However, some aspects of the resolution methods differed from those used in other crises. In this chapter we discuss some of the typical features of the Norwegian banking crisis in order to see what general lessons can be learnt from the Norwegian case. A list of these features is followed by a description of the course of events before, during and right after the crisis. Moreover we address the following questions: What was the role of bank behaviour and regulation? Were macroeconomic developments important in contributing to the crisis? Was the Norwegian crisis severe compared with crises in other countries? What were the objectives underlying the government bank rescue operations? Why did the resolution methods applied in Norway in some aspects differ from those applied in other countries? What was the cost to tax payers? And after comparing the recent crisis to previous Norwegian crises, what lessons can be learnt for the future, and what principles should be adhered to in crisis resolution?

Much of the discussion in this chapter draws on the main contributions from the five succeeding chapters.

The author is grateful to Einar Hope, Thorvald Grung Moe, João Santos, and Jon A. Solheim for helpful comments on previous versions

2 Typical features of the Norwegian banking crisis

The Norwegian banking crisis lasted from 1988 to 1993, and banks accounting for almost sixty per cent of bank lending to the non-financial domestic sector were in trouble. The crisis peaked in the autumn of 1991 with the second and fourth largest banks in Norway (with a combined market share of 24%) losing all their capital and the largest bank facing serious difficulties. From 1988 until 1990, the failing banks were mainly local or regional banks. The early part and the peak of the crisis coincided with the deepest post World War II recession in Norway. By late 1993, the crisis was effectively over.

What distinguishes the Norwegian crisis and its resolution from other banking crises – in particular the crises in the other Nordic countries?

- The Norwegian crisis started before the crises in Finland and Sweden and had its peak one year prior to the other two.
- The stock of non-performing loans as a percentage of GDP in Swedish and Norwegian banks was about the same,[1] but banking problems in Norway started to emerge at some smaller and medium-sized banks about two years before the crisis peaked and was deemed systemic.[2]
- The two bank-owned guarantee funds handled most of the failures in smaller banks by capital injections and guarantees. Unlike deposit insurance funds in the other Nordic countries, and most other European countries, these funds had – and still have – a fairly wide mandate.
- Once the crisis reached systemic proportions the government took swift action, and a separate institution for crisis handling was set up.
- Government support was contingent on strict requirements being met, e.g. existing shareholders accepting a write-down to cover losses to the extent possible.
- The requirements were stipulated as general guidelines, and there was no attempt at micro-management of the banks' operations.
- A separate entity to manage and recover non-performing loans – an asset management company or a "bad bank" – was *not* set up. This was different from the crisis resolution in many other countries (Sweden, Finland, the S&L crisis in the US, and several Asian countries) where government funded asset management companies were used.

[1] Some care must be taken as data for non-performing loans may not be comparable across countries due to different accounting methods etc. See Table 1 in Chapter 3 of this publication.

[2] For details about the Swedish banking crisis, see Englund (1999) and Daltung (2004).

- No blanket guarantee for banks' liabilities was issued by the Norwegian authorities.
- The gross fiscal cost of crisis resolution was 2 per cent of GDP in Norway. This was smaller than in both Sweden and Finland where comparable numbers were 3.6 per cent and 9.0 per cent respectively.[3]
- After the crisis, GDP and bank solvency recovered rapidly.
- Fraud was a negligible issue in the Norwegian crisis, like in the Finnish and Swedish crises.
- The Norwegian government maintained a portion of its bank ownership long after the crisis was resolved. Prior to the crisis, these banks had all been privately owned.

Of course the Norwegian banking crisis had several features in common with crises in other countries. Among them were: prior to the crisis; deregulation of a heavily regulated financial sector immediately followed by an excessive increase in bank lending, and a boom followed by a bust particularly in real estate prices. Moreover, neither supervisors nor most bank managers were sufficiently prepared for banks operating in a new competitive environment.

3 The sequence of the crisis

3.1 Background 1984–1987: Financial deregulation and boom

Quantitative regulation of banks' lending – not as prudential regulation but as a means to control credit flows as part of macro stabilization policy – and a cap on the interest rate charged by banks on lending, were lifted in 1984 and 1985 respectively. These kind of regulations had more or less been applied since 1945 combined with controls on capital inflows from abroad.

The deregulation resulted in a bank lending boom. Between December 1984 and September 1986 the real 12-month growth in bank loans stayed above 20 per cent for all but one quarter. This was accompanied by a boom in both residential and non-residential real estate. Private consumption grew in real terms at a record high of 10 per cent in 1985 and 5 per cent in 1986, and was reflected in a large drop in the households' net financial investments, (cf. Chart 10 in Chapter 2 of this publication).

[3] These figures are simple non-discounted sums of all gross fiscal expenses to faciltate a resolution of the crisis. Figures are measured in percent of GDP in 1997. See Chapter 3 for more details. Sources: Appendix B in this publication for Norway, Jennergren and Näslund (1998) for Sweden, and Drees and Pazarbasioglu (1998) for Finland.

After four decades of strict quantitative regulations of banks, neither bankers nor supervisors had any experience of competitive credit markets. It became evident that many bank managers focused largely on capturing market shares. Thus, several banks expanded into new geographical areas, and the number of bank branches increased.

In 1986, the Inspectorate of Banks – responsible for the banking supervision – was merged with the Insurance Council into the Banking, Insurance and Securities Commission. Prior to, and during liberalisation, on-site inspection had been scaled back in favour of more document-based inspection. While the number of on-site inspections in Norwegian banks was 57 in 1980, it had dropped to 8 in 1985, and down to 1 and 2 in 1986 and 1987 respectively. Nevertheless, from 1988, when the first signs of banking problems had emerged, banking supervision was given high priority by the Commission. In 1989, the number of on-site inspections increased to 44. However, during the late 1980s the Commission had problems in recruiting a sufficient number of experts to carry out the banking supervision.[4]

3.2 The first part of the crisis 1988–1990: failures of small banks

In late 1985 the oil price fell sharply. With its heavy reliance on oil revenues, the Norwegian current account shifted from a surplus of 4.8 per cent of nominal GDP in 1985 to a deficit of 6.2 per cent in 1986. This led to pressure on the Norwegian krone and eventually a devaluation in May 1986. In the months before the devaluation the central bank's sales of foreign currency in defence of the Norwegian krone were sterilised in order to dampen the rise in money market interest rates. This reflected the political authorities' priority at that time of a stable nominal interest rate. The market for government securities in Norway was thin (due to low government debt). Therefore, the sterilisation was carried out by increasing central bank lending to banks from zero to between 10 and 15% of banks' funding. Almost all of this lending was unsecured.

In the ensuing years, both the private sector and public sector consolidated their financial positions, leading to the beginning of a recession in 1988, (see Chart 3 in Chapter 2). Norway like most other small open economies at that time maintained a fixed exchange rate. The credibility of this policy had, however, not been established yet due to a series of devaluations between 1977 and 1986, and consequently interest rates had to be kept relatively high in the late 1980s as the recession set in.

The Norwegian banking industry consisted in 1987 of 193 domestic banks of which 132 each had total assets of less than 100 million USD. The latter, local banks, mainly engaged in retail banking mostly for consumers, and to

[4] See Knutsen and Ecklund (2000b) or the English summary in Knutsen and Ecklund (2000a) for more details about the history of banking supervision in Norway.

some extent for small firms. In addition, 8 subsidiaries of foreign banks had a combined market share of only 0.5 per cent of the domestic market for bank credit. Only two commercial banks were operating nationwide with a combined market share of 27 per cent. In addition, there were three large but mostly regional banks. In between the small single-office banks and the five larger banks there were smaller regional banks. Almost all the local banks, the majority of the smaller regional banks and the fourth largest bank were organized as savings banks, i.e. mutually held institutions. The others and mostly larger banks were organized as commercial banks held by shareholders.

The first Norwegian bank failure after the 1930s occurred in the fall of 1988, when a medium-sized regional commercial bank failed. In the years 1988 to 1990, 13 small and some regional medium-sized banks failed, mostly savings banks. The size of these banks did not yet qualify to call it a systemic crisis. With two exceptions, all these bank problems were solved by merging the failed bank with a larger and solvent bank. The measures necessary to facilitate such solutions were mostly financed by the banking industry's own guarantee funds. In addition, the central bank provided liquidity support on an individual basis.

There were two guarantee funds with mandatory membership, one for the commercial banks, the Commercial Banks' Guarantee Fund; and one for the savings banks, the Savings Banks' Guarantee Fund. The capital in both funds consisted of accumulated annual premiums from member banks. The majority of the funds' board members were appointed by the banking sector. Unlike the case in most countries these guarantee funds had (and still have) a wide mandate. Beyond paying out depositors at failed institutions, they could infuse capital into member banks and issue guarantees against the portfolio of a member institution.

When the guarantee funds were involved in the handling of distressed banks – and in most cases facilitating mergers with a larger and solvent bank – they used these latter measures. This was considered necessary for the acquirer of a problem bank to agree to the takeover.

During the whole crisis period only one small newly established commercial bank was closed and liquidated. This was also the only case in the Norwegian crisis where private creditors of a bank lost money. All depositors, however, were paid out.

In a case of a regional bank failure in Northern Norway in 1989, following close consultations with the political authorities, the central bank contributed to the bank's solvency partly by writing off an unsecured liquidity loan to the failed bank. Other than that, government finances were not involved at this stage of the crisis. An overview of the support measures applied to individual banks can be found in Chapter 6.

3.3 The peak 1991–1992: Systemic crisis

By 1990, Norway's fixed exchange rate regime had regained credibility as the Norwegian krone had not been devalued since May 1986. This provided room for a lower interest rate differential against the Deutsche Mark. However, as Germany was reunified in 1990, the Bundesbank had raised the interest rate. In Norway, this implied that high interest rates were maintained through 1990–1992, despite the slowdown of the Norwegian economy. The turbulence in the foreign exchange markets in the fall of 1992 resulted in even higher Norwegian interest rates, (see Chart 15 in Chapter 2).

In 1990, it was decided that Norway should gradually adopt the Basel 1988 Accord, with full implementation from end-1992.

By the end of 1990 the situation also deteriorated in the largest banks. Both the capital of the Commercial Banks' Guarantee Fund and that of the Savings Banks' Guarantee Fund were effectively depleted and they could no longer insure deposits. Thus the government proposed to the Storting (the Norwegian parliament) to set up a Government Bank Insurance Fund (GBIF). The fund was established in March 1991 and was granted a specific amount of capital from the Storting. The GBIF had a mandate to extend loans to the two bank guarantee funds to allow them to invest equity capital in distressed banks. The loans were to be paid back with interest over several years. The GBIF could impose conditions on the fund and the bank benefiting from such a support loan. For instance the government got the majority of the board members in both of the banks' own guarantee funds. Further conditions would include:

- writing down of original shareholders' value according to the bank's losses
- change of board of directors and management
- restrictions on the bank's activities
- programmes for cutting operating costs and branch network.

Such support loans were granted in the summer and early fall of 1991. By October 1991 the crisis reached systemic proportions as the second largest bank lost all its equity capital and the fourth largest bank had lost all its original shareholder capital. In addition it was evident that the largest bank also had lost a substantial portion of its capital. At this stage the Storting granted additional capital to the GBIF and it was now mandated to inject capital directly into problem banks, i.e. bypassing the banks' own guarantee funds. The GBIF injected capital into all the three major problem banks applying the conditions set out in its mandate. Thus the private shareholders were wiped out of the two banks where all the private equity was lost.

Further government measures of bank assistance applying to all banks were announced in October 1991. Among them:

- Loans from the central bank at interest rates below market rates. At this time, approximately 10 per cent of the banks' funding were loans from the central bank.
- A grant from the Storting to the Savings Banks' Guarantee Fund.
- Banks' annual premium to their own guarantee funds was cut by three quarters.
- To counteract the generally low supply of equity capital during the banking crisis, a separate Government Bank Investment Fund was set up. The fund could take part in capital investments in banks on commercial terms.

During 1992, the banks suffered further losses, and in the fall of 1992 more capital was injected by GBIF into the three large problem banks. Further conditions were imposed on the banks with these injections.

A more detailed description of the government support measures through the GBIF is given in Chapter 6.[5]

3.4 Out of the crisis 1993–1994

On 10 December 1992, Norway de-peged its currency from the ECU, and the krone started to float. In turn this made possible considerable reductions in Norwegian interest rates during 1993. The real mainland GDP started to grow more rapidly and households' collateral values started to increase (cf. Table 5 in Chapter 2). Loan losses fell from 1992 to 1993 and by 1994 the losses were minuscule. Both commercial and savings banks became profitable again during 1993 (cf. Chart 8 in Chapter 2).

No depositors lost money during the Norwegian banking crisis. Only in the case of one smaller newly established commercial bank did money market lenders (among them the central bank) lose money.

By the end of 1993, the second largest bank was able to raise equity in the market. Furthermore, in late spring of 1994, the largest bank raised equity in a joint operation with the GBIF selling out part of its shares to the market.

4 The main issues of the crisis

4.1 Regulation and banking behaviour leading to crisis

Banks had been exposed to little credit risk during the regulatory regime that had more or less been in place between 1945 and 1984, partly because of relatively stable macroeconomic developments and partly because the regulatory

[5] For details about the failure and problems in the two largest banks, see the Norwegian texts by Lie (1998) and by Knutsen et al. (1998).

regime did not allow any bank to expand its lending rapidly. Furthermore, the regime implied a rationing of credit that allowed banks to pick mainly the best credit risk among the queue of unsatisfied credit demand. Thus, when the quantitative regulation was lifted, banks had hardly any experience in how to operate in this new much more competitive environment.

Many banks, in particular the larger ones, started to expand their lending and fight for market shares. This strategy was reflected in their remuneration schemes for branch managers which was based on growth in lending. Can such behaviour leading to potential crises be explained by economic theories based on rational behaviour in the banks? Or is the only viable explanation simply inexperienced bankers?

The theory of herd behaviour may explain why it can be rational for the manager of an individual firm to follow the behaviour of other managers and ignore the private information he has.[6] Such behaviour can lead to excessive aggregate risk taking. There is evidence[7] that several (but not all) medium-sized and smaller banks chose to follow what apparently was the strategy of the largest bank.[8] While economic theory may contribute to our understanding of the excessive credit growth preceding the Norwegian banking crisis, there is little doubt that bank managers' lack of experience in the new environment and general economic optimism in the mid-1980s also were major factors in explaining banks' loan expansion after the deregulation.

The bank regulation that was in place between the end of World War II and 1984-85 did not have prudential purposes. The main purpose of the quantitative regulations of banks was to control aggregate credit supply as a substitute for a market-based monetary policy. For instance, high capital requirements were not considered important. Since the early 1970s there had in fact been an effective relaxation of the banks' capital requirements.[9] Hence Norwegian banks were not faced with stricter capital requirements as they entered the new competitive regime. On the contrary, in 1987 – three years after bank lending had been liberalised – capital regulation was loosened. Perpetual subordinated debt was approved on equal footing with equity for capital requirements, following strong demands from the industry. Higher cushions of capital at the time of deregulation in 1984 could perhaps have made a difference. A comparison with

[6] See for instance Scharfstein and Stein (1990).

[7] See Høyland et al. (1992).

[8] There are other theories that can also shed light on at least some of the observed banking behaviour. According to the theories of lock-in it can be rational for banks to compete aggressively for new borrowers in the first place by lending at such low interest rates that the banks initially have negative profits from these borrowers. These losses will be more than recaptured later on when borrowers become locked in the bank-borrower relationship, and the banks can charge monopoly rents from these borrowers. See Sharpe (1990) and von Thadden (2004). Furthermore, following the so called charter value hypothesis, increased competition among banks that erodes their charter value, will give banks incentives to take on more risk. See Keeley (1990).

[9] See (Norwegian Official Reports, 1992, pp. 21–24).

the development of bank problems in Denmark illustrates this point:

During recessions in Denmark in the late 1980s and early 1990s, Danish banks suffered loan losses similar in size to those at Norwegian banks. However, this did not result in any major bank failures in Denmark. One of the differences between the Danish and the Norwegian regulatory regime at that time was a much stricter capital requirement in Denmark. Requirements that were, in fact, stricter than the Basel 1988 Accord. Hence, when the 1988 Accord was implemented in Denmark in 1991, the banks already had a relatively large capital buffer that helped them to withstand the loan losses.

4.2 Macroeconomic background

The lifting of the quantitative restrictions on bank lending in 1984 was the end of the credit rationing regime. Borrowers previously denied credit could now be served by the banks. At this time Norway had for a long time had a tax system with relatively high marginal tax rates, and all nominal interest payments by households were deductible before tax. Coupled with a high rate of inflation, this implied a real after-tax interest rate of only 1 per cent at the time of deregulation, and -4 per cent just two years before deregulation (cf. Chart 5 in Chapter 2). Furthermore businesses also had quite favourable rules for capital depreciation in the corporate tax law. In the early 1980's the housing market had been deregulated and there was an ensuing rise in house prices. With pent-up credit demand and increased value of collateral, once the credit market was liberalized, the stage was set for a lending and consumption boom. As depicted in Chart 10, of Chapter 2 the household savings rate turned negative. Although this development in household saving contributed to the boom bust cycle, the major part of the banks' losses was on loans to businesses.

Like most other small open economies at that time, Norway had a fixed exchange rate. Since control of international capital movements had been almost completely lifted, monetary policy could not be used to stabilize domestic demand.

As described in sections 3.2 and 3.3, the circumstances caused monetary policy to work procyclically during the start and the peak of the banking crisis. This can be illustrated by comparing the actual path of the money market interest rate to the interest rate path that would have resulted from the adoption of a Taylor rule (cf. Table 3 in Chapter 2 and the ensuing discussion there). However, one may ask if replacing the fixed exchange rate regime with a monetary policy regime aimed at domestic stabilization was a realistic option for Norway in the late 1980s. At that time, all small open economies had fixed exchange rate systems, and establishing credibility in a policy regime hardly known to small countries in the late 1980s might have proved quite difficult. Norway's history of relatively high inflation and successive devaluations during the late 1970s and the early to the mid-1980s would not have made it easier.

Fiscal policy was also procyclical during the boom preceding the banking crisis and turned around too late to have any strong countercyclical effects after the bust occurred in 1988. In fact, it generated weak negative impulses into the economy during the first years of recession (cf. Chart 3 in Chapter 2). Nevertheless, in 1992, fiscal policy contributed to dampening the recession. With the benefit of hindsight, one might ask whether the government underestimated the automatic stabilization from the household sector and thus contracted fiscal policy too much in 1988. After the borrowing and consumption boom of 1985 and 1986, there was a need for financial consolidation among the households, as they could only temporarily increase their borrowing. In evaluating fiscal policy, however, one has to bear in mind that both in 1987 and in 1988 there were episodes of strong pressure on the Norwegian krone. In countries with a not yet credible fixed exchange rate regime, one has often seen that increased fiscal deficits lead to pressure on the exchange rate. Thus, it is far from obvious that a more expansionary fiscal policy in 1988 could have been carried out without problems.

A gradual reform of the tax system was started in 1987. The main aim was to lower the very high marginal tax rates applicable to both capital income and interest expenses. From 1992, a major overhaul of the tax system came into force, and the marginal tax rate applicable to tax expenditures had been lowered to 28 per cent for all tax payers. Before 1987 it was between 40 and 70 percent for most tax payers. Combined with high nominal interest rates and falling inflation, the change of the tax rule caused the real after-tax interest rate for an average household to increase from 0 in 1987 to more than 7 per cent in 1992. Thus, the timing of the tax reform also turned out to be procyclical. In retrospect, it can be argued that introduction of the tax reform before deregulation of the credit markets could have resulted in a more favourable path for the Norwegian economy. However, before 1987 there was not sufficient political support for such a reform.

In the post-war period to the beginning of the 1980s macroeconomic fluctuations had been relatively small in Norway compared with other countries. Thus, the much more volatile economic environment from the mid-1980s and until mid-1990s presented a challenge to all analysts of the Norwegian economy. Macroeconomic indicators are not realtime data. For instance national accounts figures for one year are usually revised as long as two years later.[10] This implies that it can be difficult for the fiscal, monetary or supervisory authorities, and also for the banks, to assess the current situation of the economy. This was particularly so when the economy fluctuated more widely than previously, as was the case in the boom and bust periods before and during the banking crisis. Thus, the problems facing the banks may easily have been underestimated in

[10] As an illustration, the growth of mainland GDP for Norway in 1989 was by February 1990 estimated at -0.9 percent. Two years later the revised national account figures showed a growth of -2.4 percent for mainland GDP in 1989.

the early stage of the crisis.

4.3 How severe was the Norwegian crisis?

The size of the Norwegian banking crisis was comparable to the crises in Finland and Sweden. If one, for instance, looks at loan losses at the peak of the crisis as a percentage of GDP, the Norwegian crisis was somewhat smaller than the Swedish and Finish ones. In Norway the number was 2.8%, in Sweden 3.8%, and in Finland 4.4% (cf. Table 1 in Chapter 3). When comparing these numbers, though, one has to keep in mind that unlike the crises in Finland and Sweden the peak of the Norwegian crisis was preceded by a couple of years with failures in smaller and some medium-sized banks (cf. Figures 7–9 in Chapter 3). Thus, the accumulated loan losses over the whole banking crisis period may not be that different between Sweden and Norway.

Compared with the banking crisis in the Asian countries in the late 1990s, however, the Norwegian crisis may appear rather modest. At the peak of the crisis non-performing loans in per cent of total loans outstanding was 9 per cent for the entire Norwegian banking sector whereas corresponding figures for both Korea and Thailand were between 30 and 40 per cent.[11]

There can be little doubt that by 1991 the Norwegian crisis was systemic, though it was smaller in extent than crises in several Asian countries. A few numbers can serve to illustrate this: The three major Norwegian banks that either failed or faced serious problems in the fall of 1991 accounted for half of the market for bank credit to the domestic non-financial sector. By the end of 1988 all the banks that either would fail or require capital support from the GBIF or the banks' own guarantee funds during the crisis, had 57.5 percent of all bank lending to that sector.[12]

4.4 The purpose of the rescue operations

The purpose of the rescue operations was to avoid what could have culminated in a collapse of the banking system. Consider what might have happened if the banks that encountered problems during the systemic part of the crisis had been forced to close: Insured depositors would probably not have lost a substantial amount. However, the situation for borrowers might have been serious if they had been forced to repay their loans early. Given the state of the Norwegian economy at that time, finding a new bank willing to extend sufficient credit would no doubt have been difficult – we would most probably have experienced a severe credit crunch that would have deepened the recession.[13] When the

[11] Sources: Norges Bank and Kane and Klingebiel (2002). Data for non-performing loans may not be directly comparable across countries due to different accounting standards.

[12] Source: Norges Bank.

[13] Peek and Rosengren (2000) look at the loan supply shock facing US firms borrowing from Japanese banks during the banking crisis in Japan. They identify a substantial impact on US

crisis was about to reach systemic proportions the rescue operations prevented such a scenario from becoming reality. Banks receiving a capital injection from the government were able to continue their normal bank lending and other banking operations. Empirical studies indicate that the credit conditions for firms borrowing from these troubled banks were no worse than for borrowers at non-crisis banks.[14]

At the early stages of the crisis – before it became systemic – there was a distinct fear that the failure of several medium-sized and small banks could have contagious effects on the larger banks through their overseas funding. Foreign money market investors with less detailed information about the Norwegian economy and the banking sector in particular, might have been much more sensitive to bad news than domestic money market investors. By the end of 1988 foreign short-term funding accounted for 23 per cent of the commercial banks' net lending.[15] A sudden outflow of foreign deposits might have left them with serious funding problems. A major purpose of the rescue operations during the first stage of the crisis was to forestall such funding problems.

Thus, any successful resolution method during a potentially systemic banking crisis must seek to restore confidence in the financial system among all market participants, domestic and abroad. To achieve this at least two conditions have to be met:

1. The government must demonstrate that it recognizes there is a major financial crisis and that it is willing to take necessary measures.

2. The commitments made by the government in handling the crisis must be credible, i.e. the government must not overstretch its fiscal capacity.

The decision to set up the GBIF when it became evident that the crisis might be systemic – and the extra measures announced in the fall of 1991 when the crisis actually had reached systemic proportions – made it clear to the general public and market participants that the government realized the situation was serious.[16] Furthermore, given the relatively strong fiscal position of Norway there was little doubt that the government would be able to fulfil the commitments made to deal with the crisis. As a result, one did not observe any run on banks among depositors or any major outflow of short-term funding from Norwegian banks during the crisis. Confidence in the Norwegian financial system was for all practical purposes maintained.[17]

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real estate activity from this supply shock.

[14] See Ongena et al. (2003) and Vale (2002).

[15] Short-term funding is funding with a maturity of less than 1 year.

[16] A comparison of this relatively swift reaction to the more hesitant reaction by the Japanese government can be found in Allen and Gale (1999).

[17] Further evidence in support of this can be found in the event studies by Ongena et al. (2003).

4.5 Resolution policies in the Norwegian crisis

A common feature of almost all the resolutions for the banks failing in the first part of the crisis was the involvement of private capital. As described in Section 3.2, capital injections and guarantees to facilitate solutions were financed by the banks' own guarantee funds. Although membership of these funds was – and still is – mandatory for Norwegian banks, their capital was private as it was collectively owned by the member banks. By the end of 1990, as a result of their decisions during the early part of the crisis, these funds had exposed almost all of their capital to ensure the continued operations of failed banks or problem banks. The alternative of closing and liquidating the failed banks while paying out the depositors had been considered, but was found to be more costly for the funds. This was particularly so as the real estate market was in recession also at the early stage of the crisis. The capital injections from these funds were the only private contribution to bank recapitalization during the Norwegian crisis. During the peak of the crisis, when large banks had failed, attempts to find private investors willing to invest new capital into these banks were unsuccessful. Experience shows that in times of recession and high uncertainty investors will be extremely reluctant to take on new risk.

In 1991, when major banks had failed or were close to failing, it was essential to avoid loss of confidence in the financial sector and a major credit crunch while the economy was already in a recession. With no private capital available, the one remaining alternative was to inject government capital into the failed banks. The central bank could provide liquidity support only once solvency was assured.

Infusion of government capital was done through the GBIF. But only on certain conditions like:

- the management and board of directors of the bank were replaced
- the existing share capital was written down to cover losses to the fullest extent possible
- the bank's operating costs were reduced and some of its activities scaled down
- measures were taken to restrain growth in the bank's total assets.

These conditions did not seem attractive to the bank managers or bank owners. One thereby avoided capital from the GBIF appearing like "free lunches" for the banks. The management of a troubled bank should have strong incentives to try other solutions before approaching the GBIF.

Curbing the activities of banks receiving capital from the GBIF was done to avoid giving these banks a competitive advantage over rival banks that did not receive this kind of support.

In cases where the losses exceeded the existing share capital, the entire capital would be written down to zero. Such decisions would normally have to be

made by the banks' General Meetings. In order to avoid a stalemate if a majority at the meeting objected to the decision, the Storting (parliament) had one month earlier made an amendment to the Commercial Bank Act. This amendment entitled the government by Royal Decree to write down the share capital of a bank against losses in the audited interim accounts, if the shareholders' General Meeting did not do so. This authority was used in two instances where shareholders refused to write down a bank's shares as required by the GBIF. Shareholders in one bank brought the case to the courts, but lost.

By writing down the share capital according to the losses, the banks' owners were the first to shoulder the banks' losses. This principle, which reflects the normal role of equity as junior to all other claims, was consistently adhered to in all the bank rescue operations in Norway. Finland and Sweden did, however, in two cases allow the shareholders to maintain some of their stakes in the banks although the banks' share capital was lost, (see Chapter 3 for more details on these cases).

As a consequence, the government became the major or sole owner of the largest banks. In a way, the government acted as the "owner of last resort". However it was the intention that the government should sell its shares in these banks when conditions improved. Thus, the government-owned banks could be considered as "bridge banks" between the old failed banks and the banks that would become privately owned again once the government had sold parts of or all its shares in the market.[18] Government acquisition has been a fairly common way of dealing with severe bank problems also in other countries. In 13 of 18 banking crises studied by Lumpkin (2002) this method was applied.[19]

The Norwegian government still holds a large part of the shares in one of the three banks it acquired during the crisis. The government's declared intention is to make sure that at least one large bank maintains its corporate headquarters in Norway. Currently, three of the seven largest banks operating in Norway have their head offices in other Nordic countries.[20] The Swedish government has also maintained a significant part of the shares in one of the former problem banks.

It was decided not to establish a separate asset management company – a "bad bank" – to handle the failed banks' problem loans in Norway. There were several reasons for this:

- In none of the problem banks in Norway was the ratio of non-performing loans considered to be of such magnitude that it would require so much attention from the management of the bank that it would distract them from their main goal – bringing the bank back to profitability.

- An asset management company would have had to be completely financed

[18] See (Dewatripont and Tirole, 1994, pp. 68–69).

[19] Chapter 6 provides an extensive overview of the government's investments in and later sales of bank shares.

[20] Size is measured by loans to the domestic non-financial sector in Norway.

by the government, particularly since attempts to raise new capital for the distressed banks from private investors did not succeed. Thus, more government money than that already infused as equity into the troubled banks would have had to be put at risk. Although not the case for Norway, at least for a fiscally constrained government the added gross cost of resolution if one sets up a "bad bank" should be a major concern.

- Handling of problem loans will always be part of a large bank's business, and transferring employees with this expertise to a separate company might have left the banks more vulnerable when they encountered new problem loans.

- Setting up a "bad bank" and selling bad loans from the banks to the "bad bank" would have required considerable extra accounting and legal work. In particular, it would have been very difficult to find a fair price at which the loans should be transferred.

- The responsibility of handling the problem loans should remain with those who had the most to gain from a successful handling – the banks.

Both in Sweden and in Finland "bad banks" were set up, as further described in Chapter 3.

An explicit blanket guarantee covering all liabilities (except equity) of all the banks was not issued by the Norwegian authorities. However other countries, for instance Finland, Korea, and Sweden have applied such guarantees.[21]

To a fiscally constrained government, a blanket guarantee can be attractive; it will normally serve to restore or maintain confidence in the financial system, while potential government outlays are delayed. There is, however, a major potential problem associated with using a blanket guarantee; an explicit guarantee of all bank liabilities gives rise to moral hazard. The bank shareholders have all the upside, but their downside is limited to the value of the bank's capital. Beyond that the tax payers have all the downside risk. Therefore, managers of economically insolvent banks may be tempted to use the government guarantee to "gamble for resurrection" by taking on highly risky projects with high yields if they succeed. Such a bank manager will not worry about equally large downside risk, since that is covered by the government through the blanket guarantee. Thus, banks' extra risk-taking triggered by such a guarantee implies that the future expected government outlays increases. This increase may very well more than offset the benefit of delaying the potential outlays.[22]

Nevertheless, when the Norwegian crisis emerged, it was made clear both by the Minister of Finance and by Norges Bank that measures necessary to bolster

[21] See Chapter 3 and (Lumpkin, 2002, p. 126).

[22] See Kane and Klingebiel (2002) who give a highly negative assessment of the use of blanket guarantees in banking crises.

confidence in our financial system would be taken. No assurances, however, were given that individual banks would be rescued. Hence, if any bank manager had considered "gambling for resurrection" by issuing debt with a government guarantee, he was not given that option.

To summarize the discussion in this section, if a banking crisis is considered to be of a nature where the resolution requires government assistance, there is no recipe for resolution methods fitting all situations. The three main methods considered here are:

1. conditional government capital injection or government take-over as a "bridge bank" operation
2. setting up and funding of an asset management company
3. a blanket guarantee for all bank liabilities.

For a government with fiscal manoeuvrability both 1 and 2 are feasible. 1 is preferable to 2 when only gross fiscal costs are considered. However, if the crisis is heavily concentrated in one bank, a "bad bank" can help the managers of the remaining healthy bank focus on the future operation of that bank instead of being distracted by large work-out operations of bad loans. For a government that lacks fiscal freedom, a blanket guarantee can serve to delay government outlays. However, the moral hazard problem associated with such guarantees can cause the proportions of the crisis to grow, thus making the eventual resolution even more costly.

The Norwegian authorities chose not to issue a blanket guarantee nor to set up an asset management company. In this respect the resolution strategy in Norway differed from those in Finland and Sweden. Conditional capital injection by the government was done through a separate institution set up specifically for that purpose. As most of the government bank shares have later been sold, this strategy can be considered a "bridge bank" operation. The Norwegian experience shows that a major banking crisis can be quickly resolved through temporary government acquisition. If this resolution method is chosen it is important to apply strict conditions to the banks benefiting from government capital injection, as was done in Norway.

4.6 The costs of the banking crisis

How large were the fiscal costs associated with the resolution of the Norwegian banking crisis, and how do they compare to fiscal costs of banking crisis resolution in other countries? The overall size of the Norwegian banking crisis was about the same as the Swedish crisis, although the time pattern was somewhat different (see Section 4.3). Thus it makes sense to compare the accumulated fiscal costs between Norway and Sweden. Looking at simple non-discounted sums of all gross fiscal expenses to facilitate a resolution of the crises, the fiscal costs

in Sweden were 3.6 per cent of GDP and only 2.0 per cent in Norway.[23] The higher fiscal costs in Sweden may be due to the use of the "bad bank" strategy in Sweden, a strategy that was not applied in Norway.

For net fiscal costs[24] a similar pattern emerges. By mid 1997 – five years after the peak of the crisis in Sweden – net costs to the Swedish government were estimated at 1.4 per cent of GDP.[25] The figure for Norway – four years after the peak of the Norwegian crisis – was 0.9 per cent (cf. Table 3 in Chapter 3).

The total social costs or welfare costs of a banking crisis will of course be more than just the fiscal costs. Both bank shareholders and creditors may lose. Parts of these costs may be pure transfers between the failed borrowers and the bank stakeholders. As such, they are not part of the social costs of a banking crisis. However, to the extent the bank losses are due to unprofitable investments there is a social cost of misallocated capital. Similarly, when a banking crisis occurs bank lending may be hampered and there may be social costs associated with profitable investment projects not being carried out. Thus it is possible to draw up guidelines as to what elements should be part of the social costs of a banking crisis. Nevertheless, it is almost impossible to get the data necessary to estimate such costs.

As a proxy for the social costs of a banking crisis, some attempts have been made at estimating the reductions in GDP associated with the crisis. This is usually done by estimating the deviation of GDP during the crisis from a trend. Hoggarth et al. (2002) estimate these costs for a number of countries that have experienced severe banking problems or crises. For the Norwegian crisis, they present estimates of the accumulated loss in GDP ranging from a low of 9.8 per cent to a high of 27.1 per cent. In Chapter 4 of this publication, these estimates are further discussed and some alternative estimates are made for the Nordic countries. The estimates for Norway vary between 12.9 and 21.6 per cent, and are thus narrowed somewhat compared with those referred in Hoggarth et al. (2002). However, if one includes the GDP growth exceeding the trend during the boom preceding the Norwegian banking crisis the net cumulative output loss is estimated to 6.8 per cent. This wide variation in the estimates illustrates the methodological difficulties involved in isolating the effects of the banking crisis per se. As mentioned in Chapter 4 to truly identify the GDP effects of a banking crisis one would ideally need a structural econometric model.

[23] Figures are measured in percent of GDP in 1997. See Chapter 3 for more details. Sources: Appendix B and Jennergren and Näslund (1998).

[24] Net fiscal costs is the the discounted value of the gross government oulays in handling the crisis minus the discounted value of the revenues from sales of the government's shares in banks and the value of its remaining bank shares.

[25] This figure excludes the loss to the Swedish state as shareholder in one large failing bank at the outset of the crisis.

5 Historical perspective and lessons learnt

The crisis between 1988 and 1993 is not the only banking crisis Norway has experienced. Between 1899 and 1905 there was a severe crisis, though concentrated among banks operating in and around the capital. The next crisis – in the early 1920s – affected a number of banks around the whole country. In Chapter 5, these two episodes are discussed and compared with the most recent crisis. Although the Norwegian economy and society have changed enormously over the last hundred years, there is at least one striking common feature of the three crises: They were all preceded by strong boom periods and financial fragilities were allowed to develop before each crisis. Characteristics were expansion of bank lending, asset price inflation, and increased indebtedness of non-financial sectors. In general, there seems to be a strong link between a lack of overall macroeconomic stability and banking crises. The experiences also from the last crisis in Norway and the crises in the other Nordic countries show that booms accompanied by sharp asset price inflation and accumulation of financial imbalances can lead to severe banking problems once the asset bubble bursts.

The best contribution from macroeconomic policy for avoiding such developments is to aim for domestic stability. A monetary policy geared at achieving an inflation target within a reasonable horizon will contribute to stability both in nominal prices and low fluctuations in output. Low and stable inflation therefore provides the best foundation for financial stability. The two objectives normally underpin each other.

However, recent experience in Japan and the US has shown that there may be situations where inflation is low and the level of output is close to capacity, but where there is a sharp rise in asset prices accompanied by increased lending. It has been discussed whether monetary policy should react with a rise in interest rates in such a situation in order to avoid the buildup of financial imbalances, see for instance Borio and Lowe (2002). However, it is quite difficult to determine whether a rise in asset prices represents a bubble that can lead to financial instability. For a further discussion of this issue in relation to Norwegian monetary policy, see Gjedrem (2003).

Inadequate supervision and regulation, in particular when the economy is booming, can lead to excessive risk-taking by banks and serious problems when or if the boom turns into a bust. Supervision should also be geared up when external conditions for the banking industry change significantly, for instance when competition intensifies markedly. Similarly, adequate capital buffers in banks can serve as a first line of defence against losses in severe periods. The challenge is to induce banks to set aside sufficient buffers in good times.

With the banks' equity as the first line of defence the banks' owners were the first to shoulder the losses in the Norwegian banking crisis. The second line of defence was the bank-owned guarantee funds. Only when both the first line

and the second line of defence proved inadequate was a third line of defence, the Government Bank Insurance Fund, set up. By and large the crisis was resolved relatively quickly in this way, and at a low cost to tax payers. However, there is no guarantee that the same recipe will be successful in the future or in other countries. In recognition of this and to avoid moral hazard, the law establishing the GBIF has now been repealed and the Fund has ceased its operations. Even if government capital injections in the large problem banks were the right resolution method in the early 1990s, it is far from evident that such a rescue operation would be the right method should a large bank fail in the future. Nevertheless, some principles applied in the crisis more than ten years ago should be adhered to:

- The focus must be on saving the financial system, not the individual bank.
- Owners should be the first in line to take losses.
- The board and senior management responsible for the failure of a bank should not be allowed to continue.

Today, a large part of our banking industry is part of Nordic banking groups. This raises the question of whether a model for crisis resolution only based on national considerations would work. In light of this challenge, Nordic central banks have issued a memorandum of understanding setting out principles for the establishment of a structure for crisis management and the handling of information if a pan-Nordic bank should encounter problems. Nevertheless, the emergence of multinational banking groups – not only in the Nordic countries – raises the question of whether some banks may be "too big to save".

References

Allen F. and Gale D. (1999). Bubbles, Crises, and Policy. *Oxford Review of Economic Policy*, 15(3), 9–18.

Bergo J. (2003). Crisis Resolution and Financial Stability in Norway. Speech by the Deputy Governor of Norges Bank at the 50th Anniversary of Bank Indonesia. www.norges-bank.no/english/speeches/2003-12-10/speech-2003-12-10.html.

BIS (1993). 63rd Annual Report. Basel, Switzerland. Chapter VII.

Borio C. and Lowe P. (2002). Asset prices, financial and monetary stability: exploring the nexus. BIS Working Papers 114, Bank for International Settlements.

Daltung S. (2004). The Swedish banking crisis. In J. Reidhill (ed.), *Bank Failures in Mature Economies*, Working Paper No 13. Basel Committee on Banking Supervison, Basel.

Dewatripont M. and Tirole J. (1994). *The Prudential Regulation of Banks*. The Walras-Pareto Lectures. MIT Press, Cambridge, MA.

Drees B. and Pazarbasioglu C. (1998). The Nordic Banking Crisis: Pitfalls in Financial Liberalisation. IMF occasional paper, International Monetary Fund, Washington DC.

Englund P. (1999). The Swedish Banking Crisis. *Oxford Review of Economic Policy*, 15(3), 80–97.

Finansdepartementet (1994). Bankkrisen og utviklingen i den norske banknæringen. Stortingsmelding nr. 39 (1993–94), Oslo.

Gjedrem S. (2003). Financial stability, asset prices and monetary policy. *Economic Bulletin*, 74, 58–66. Norges Bank, Oslo.

Hoggarth G., Reis R., and Saporta V. (2002). Costs of banking system instability: Some empirical evidence. *Journal of Banking and Finance*, 26, 825–855.

Høyland E., Johnsen T., Meyer C.B., Reve T., Steigum E., and Sættem F. (1992). Bankkrisen i Norge. R 29, SNF, Bergen.

Jennergren P. and Näslund B. (1998). Efter Bankkrisen: Vad blev notan för skattebetalarna? *Ekonomisk Debatt*, (1), 69–76.

Kane E.J. and Klingebiel D. (2002). Alternatives to blanket guarantees for containing a systemic crisis. www2.bc.edu/ kaneeb/.

Keeley M.C. (1990). Deposit Insurance, Risk and market Power in Banking. *American Economic Review*, 80, 1183–1200.

Knutsen S. and Ecklund G.J. (2000a). Protection against Crises? A Century of Financial Supervision in Norway. Publication, Kredittilsynet.

Knutsen S. and Ecklund G.J. (2000b). *Vern mot Kriser? Norsk finanstilsyn gjennom 100 år*. Fagbokforlaget, Bergen.

Knutsen S., Lange E., and Norvik H.W. (1998). *Mellom næringsliv og politikk: Kreditkassen i vekst og kriser: 1918-1998*. Universitetsforlaget, Oslo.

Lie E. (1998). *Den norske Creditbank 1982-1990 : En storbank i vekst og krise*. Universitetsforlaget., Oslo.

Lumpkin S. (2002). Experiences with the Resolution of Weak Financial Institutions in the OECD Area. *Financial Market Trends*, (82), 107–149. OECD, Paris.

Norwegian Official Reports (1992). Report by the Commision on the Banking Crisis. NOU 1992: 30E, Royal Ministry of Finance and Customs, Oslo.

Ongena S., Smith D.C., and Michalsen D. (2003). Firms and their distressed banks: lessons from the Norwegian banking crisis. *Journal of Financial Economics*, 67, 81–112.

Peek J. and Rosengren E.S. (2000). Collateral damage: Effects of the Japanese Bank Crisis on Real Activity in the United States. *American Economic Review*, 90, 30–45.

Scharfstein D.S. and Stein J.C. (1990). Herd Behavior and Investment. *American Economic Review*, 80, 465–479.

Sharpe S.A. (1990). Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationships. *Journal of Finance*, 45, 1069–1087.

Stortinget (1998). Rapport til Stortinget fra kommisjonen som ble nedsatt av Stortinget for å gjennomgå ulike årsaksforhold knyttet til bankkrisen. Dokument nr. 17 (1997–98), Oslo.

Vale B. (2002). Firms' inventory investments, financial conditions and banking crisis. In I. Hasan and W.C. Hunter (eds.), *Research in Banking and Finance*, vol. 2, 179–198. JAI Press.

Vale B. (2004). The banking crisis in Norway. In J. Reidhill (ed.), *Bank Failures in Mature Economies*, Working Paper No 13. Basel Committee on Banking Supervison, Basel.

von Thadden E.L. (2004). Asymmetric Information, Bank Lending, and Implicit Contracts: The Winner's Curse. *Finance Research Letters*. Forthcoming.

Chapter 2

Financial deregulation with a fixed exchange rate: Lessons from Norway's boom-bust cycle and banking crisis

Erling Steigum

The Norwegian 1991-1992 banking crisis was the first manifestation that something had gone terribly wrong in the previously very stable and well-run Nordic economies. This paper compares the Norwegian boom-bust cycle, macroeconomic policies and the banking crisis with what happened in Sweden and Finland shortly afterwards. The deregulation of the credit market triggered a lending boom that made the Norwegian economy very vulnerable to adverse shocks when the exchange rate was fixed. We argue that the pro-cyclical monetary policy due to the fixed-exchange-rate regime was one of several important factors explaining the weak performance of the Norwegian economy, the deep decline in real estate prices, and the banking crisis.

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1 Introduction

The Norwegian 1991-1992 banking crisis was a dramatic manifestation that something had gone terribly wrong in the previously very stable and well-run Nordic economies. As the problems in the Norwegian banking sector escalated in 1989-1991, most observers thought that this was a uniquely Norwegian phenomenon, caused by idiosyncratic factors such as widespread bank management failure after the financial deregulation process was accelerated in 1984-1985, as well as the political failure to use fiscal policy counter-cyclically to prevent excessive aggregate demand from being built up in 1985-1986. Now, more than ten years after the banking crisis, we know that the Norwegian boom-bust cycle and banking crisis were far from unique happenings. Sweden and Finland experienced even more dramatic boom-bust cycles, banking crises and speculative attacks on the fixed exchange rate than what Norway had been exposed to. Moreover, in emerging market economies, there have been several recent examples of financial crises involving speculative attacks on fixed exchange rates and depressions in the wake of financial liberalization and lending booms, for example in Mexico, East Asia and Argentina. Lending booms triggered by financial deregulation do not have to end in a crisis, however. On the contrary, cross-country studies suggest that although a lending boom typically follows financial liberalization, most lending booms end with a "soft landing" and no financial crisis, see for example Gourinchas et al. (2001). Therefore, an important question is why the business cycle downturns were so severe in Norway, Sweden and Finland as to trigger systemic banking crises.

This paper offers a fresh look at the Norwegian boom-bust cycle and banking crisis in the light of what happened in the other Nordic economies and other countries that have deregulated their financial markets and capital accounts.[1] The Norwegian boom-bust cycle and banking crisis appear to be surprisingly similar to what happened in Finland and Sweden a couple of years later, see Jonung, Kiander and Vartia (2004), Englund (1999), and Englund and Vihriälä (2004). There are interesting differences though. Most noteworthy, the economic crisis in Norway was not as severe as those in Finland and Sweden.[2] It also took a much longer time for the banking crisis to materialize in Norway after the peak of the business cycle compared with what was the case in Finland and Sweden, and in the end, the net fiscal cost of the Norwegian government's rescue operation appears to be *negative* in present value terms. Still another

[1] For a comparison between the East Asian and the Nordic crisis, see Kokko and Suzuki (2004).

[2] See Bergman (2004). Jonung and Hagberg (2004) compare the costs of the Swedish and Finish economic crises using estimates of output foregone. They find that the economic crisis in Finland was much more costly than the crisis in Sweden. Although similar calculations have not yet been done in Norway, the cost is probably smaller in Norway than in Sweden. In Chapter 4 of this publication, an output loss analysis is carried out for Finland, Norway, and Sweden for the years defined as years with a banking crisis, i.e. not necessarily the timespan of the entire economic crisis.

difference is that the speculative attack on Norway's fixed exchange rate took place *after* those in Finland and Sweden, whereas the Norwegian boom-bust cycle and banking crisis were ahead of corresponding events in Sweden and Finland by several years.

In order to understand the Norwegian financial and economic crises, answering the following question is crucial: Why did the previously very stable Norwegian economy become so unstable in the 1980s and early 1990s? To address this question, we take a closer look at important macroeconomic shocks as well as factors that may explain a change in the propagation mechanism of business cycles after financial deregulation. We also discuss the role of fiscal and monetary policy, in particular the pro-cyclical monetary policy due to the fixed- exchange-rate regime.

In addition, there are more specific issues that we intend to address in what follows:

- Was the financial deregulation policy itself poorly designed?
- Does widespread bank management failure alone explain the large losses that triggered the banking crisis?
- Could the prudential supervision authorities have prevented the banking crisis?
- Was there a credit crunch?
- How successfully did the government handle the banking crisis in 1991-1992?
- How significant was the speculative attack on the currency in December 1992?

A well-known difficulty when addressing questions about the relative importance of various factors and causes is the *identification problem*. It is not sufficient just to look closely at what happened because the data are consistent with several reasonable stories explaining the events that unfolded. Ideally, one needs a good structural quantitative model with which to run counterfactual experiments. There are in fact some papers that have used a macro-econometric model of the Norwegian economy to analyze business cycles in the 1980s and 1990s, see for example Johansen and Eika (2000). However, existing large-scale macro-econometric models have also been subject to critique. In particular, the practice of identifying shocks through exclusion restrictions may not be consistent with economic theory on how shocks are influencing the economy.[3] There is

[3]For an alternative VAR-analysis of Norwegian business cycles, see Bjørnland (2000a, 2004). This analysis highlights the asymmetric nature of the oil price shocks for Norway.

also another problem with large-scale macro-econometric models estimated on data before financial deregulation. Typically, important behavioral equations tend to break down. Indeed, the dramatic drop in the savings rates of households in Norway, Sweden and Finland was impossible to predict in advance with econometric consumption functions estimated on older data. Moreover, previously estimated investment equations did not perform satisfactorily during the boom-bust cycle.

The identification problem could be regarded as a failure of macroeconomic theory. Before the Nordic crisis, almost no attention had been paid to lending booms and financial crises in macroeconomic theory, apart from the destabilizing role of bank runs for the supply of inside money emphasized by Milton Friedman and others.[4] This theoretical void may explain why nobody foresaw the strong business cycle impulses released by financial deregulation and the escalating problems in the Nordic banking industry. Since then, an upsurge of international theoretical and empirical research has cast new light on financial instability and the interactions between the financial sector, asset markets and the real economy during boom-bust cycles. Although many questions are not yet settled in the international research in this area, the recent literature gives a far better theoretical and empirical basis for understanding the main causes of the Norwegian problems than, was the case in the early 1990s.

Another advantage is that empirical research on data after the boom-bust cycle has brought forward new information about interest rate sensitivity of aggregate demand and the effects of monetary policy. In the 1980s, econometricians had a hard time finding *any* interest rate effects at all in their econometric investigations of private consumption and investment in Norway. Such findings may explain why many believed that the real interest rate was not important for aggregate demand and that monetary policy was ineffective. This view has now changed.[5] Norway adopted inflation targeting in 1999.[6] The interest rate

[4] A notable exception is Minsky (1977). Minsky's financial instability hypothesis plays an important role in Kindleberger's (1978) famous review of historical episodes of financial crises. For a review of older literature, see Mullineux (1990). It is fair to say that postwar Keynesianism downplayed Keynes' own ideas about financial instability due to shifting expectations, uncertainty and speculation. Also the debt-deflation hypothesis by Irving Fisher (1933) was largely ignored until its revival in the 1990s. In the older literature on trade cycles, however, financial instability and banking crises played a much more prominent role, see Haberler (1958). According to John Stuart Mill (1867), trade and credit cycles have basically moral and psychological causes, leading to speculation in commodities often backed by "irrational extension of credit". He claimed that a sudden increase in the demand for credit would occur quite regularly (about every ten years), followed by destruction of credit. The credit cycle upturn breeds optimism with turns into "recklessness" and leads to a crisis. Also Marshall and Marshall (1879) emphasize the relationship between economic crises and "reckless" extension of credit.

[5] Eika and Hove (1994) report increased interest rate sensitivity of aggregate demand using data after 1986.

[6] On March 29, 2001, Norges Bank received a new set of guidelines for monetary policy, involving an operational inflation target of 2.5 percent, but already in January 1999, Norges Bank began to set its interest rates in accordance with an inflation-targeting framework for

setting of Norges Bank appears to have significant and predictable effects on aggregate demand, just as in other inflation targeting countries. This information allows us to look back on the Norwegian boom-bust cycle with a better understanding of the importance of the real interest rate. In addition, since then Norway has experienced a new boom in 1995-1998 involving rapidly increasing real housing prices and a substantial rate of real credit growth. This time, the boom ended without a bust, and no abnormal bank losses were recorded.[7] Comparing the previous business cycle with the next one may help to identify the crucial factors that explain the macroeconomic instability and stabilization policy failure of the former.

And finally, we now know a great deal more about what happened in the other Nordic countries. This helps us to look for common explanatory factors as well as to account for interesting differences. Such comparisons also reduce the identification problem. More formal quantitative analysis of the Nordic business cycles and interactions between the real and the financial sectors must however be left for future work.

Most of the previous research on the Norwegian crisis has focused on the banking sector and the causes of the banking crisis, see for example Steffensen and Steigum (1991), Johnsen at al. (1992), Steigum (1992), Berg (1993, 1997), Drees and Pazarbasioglu (1998), as well as books on the two largest commercial banks in Norway by Knutsen, Lange and Nordvik (1998), and Lie (1998). Papers that have looked more closely at macroeconomic policies and the boom-bust cycle include Steffensen and Steigum (1991), Steigum (1992), Rødseth (1994), and Hove and Moum (1997) and Drees and Pazarbaşioğlu (1998). Although the latter papers agree on a number of issues, there is no strong consensus with regard to the importance of the fixed exchange rate policy for the boom-bust cycle and the banking crisis.

For example, the influential paper by Drees and Pazarbaşioğlu (1998) on the Nordic banking crises does not explicitly discuss the role of, fixed exchange rates for the pro-cyclical monetary policy, but criticizes the governments for too expansionary fiscal policies, inadequate prudential supervision and poorly prepared financial deregulation.[8] In contrast, in this paper we argue that the

monetary policy. For a recent evaluation of Norwegian monetary policy, see Svensson et al. (2002).

[7] A moderate recession occurred in 2002:4 and 2003:1, however. External shocks and a too restrictive monetary policy, which generated a large temporary real appreciation in 2002, are the most likely causes.

[8] In the concluding section they write the following about Norway, Sweden and Finland: "Monetary policy was constrained by the fixed-exchange-rate regime, and the stance of fiscal policy was not tightened in a timely manner and to a sufficient extent." They also emphasize that the Nordic governments did not take "[...] adequate measures to minimize the adjustment costs in the aftermath of the financial deregulation. The authorities failed to tighten prudential bank regulation and to create an adequate supervisory framework to take into account the substantial increase in banks' exposure to real estate lending in foreign currency. The favorable tax treatment of interest payments was not reformed until well after the credit boom."

fixed exchange rate policy and the pro-cyclical monetary policy are crucial in explaining the astonishing macroeconomic instability in Norway after the deregulation of credit markets and capital accounts. This combination undermined the stability of the Norwegian economy and made it very vulnerable to credit supply shocks and external interest rate shocks. It is unlikely that a systematically tighter fiscal policy or attempts to move fiscal policy counter-cyclically could have prevented a boom-bust cycle in Norway after financial deregulation.

In the next two sections, we take a closer look at the macroeconomic instability in the Norwegian economy after 1980, with particular emphasis on the critical years 1984-1992. Section 4 deals with financial deregulation and the lending boom, and in section 5 we discuss the change in the behavior of banks. Section 6 considers boom-bust cycles and the role of the fixed exchange rate, and in section 7 we review the macroeconomic shocks and the fiscal policy responses. Monetary policy and the rate of inflation are the topics in section 8, and in section 9 we discuss the real estate price bubble in the light of recent economic theory. Section 10 discusses the Norwegian government's handling of the banking crisis, and in section 11 some remaining issues are addressed. The conclusions are summarized in section 12.

2 Macroeconomic instability

In the post-war period up until the beginning of the 1980s, aggregate output and employment fluctuations in Norway were remarkably small, significantly smaller than in the rest of the OECD. Surprisingly, in the 1980s the Norwegian business cycles became much more pronounced. Why did this happen in one of the most stable economies in the OECD?

Let us start with Norway's economic policies in the 1970s. Due to the emerging petroleum sector, OPEC I in 1973-1974 had a strong *positive wealth effect* as well as a resource movement effect in Norway as expected oil revenues increased substantially.[9] This shock triggered a rapid increase in aggregate demand, real appreciation, inflationary pressure, and large current account deficits. The overly expansionary policies in the 1970s prevented unemployment in the short run, but the policies were not sustainable. In 1977-1978 measures were taken to reduce excess demand and the current account deficit. The attempts to increase competitiveness by devaluation and price and wage controls could only temporarily hold back inflation, however. At the beginning of the 1980s, many problems that were not addressed adequately in the 1970s re-emerged, involving difficult challenges for Norwegian economic policy. The most important challenges were:

[9] For an analysis of the structural effects of wealth and resource movement effects, see Corden and Neary (1982).

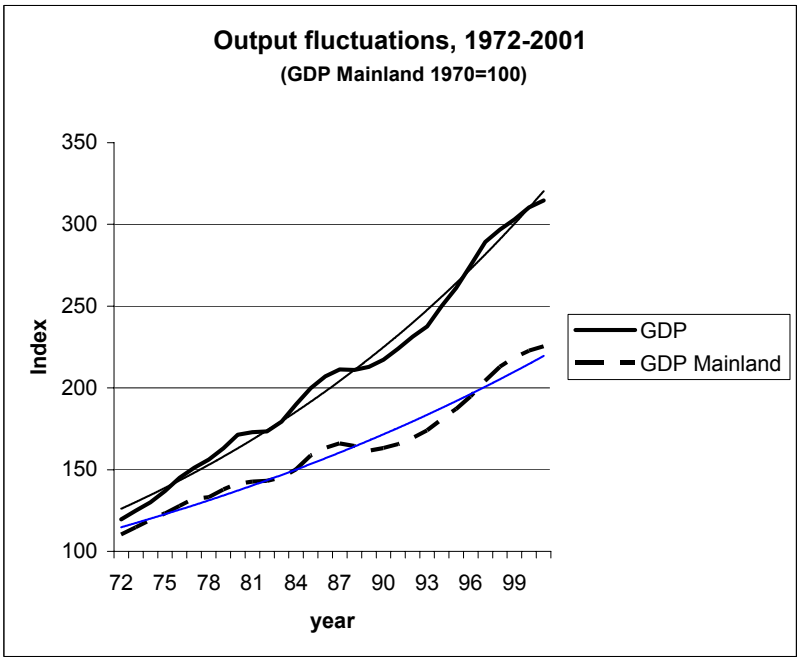
- A considerable foreign debt
- A new oil price shock (OPEC II) and large exposure to oil price risk
- Double-digit inflation and increasing unemployment
- The fixed exchange rate policy was not credible because of the inflationary bias in economic policy and very little central bank independence
- A politically regulated nominal interest rate and a negative after-tax real interest rate
- A selective credit policy framework involving imperfect quantitative regulations of credit flows and increasing chaos in the credit market
- Underdeveloped capital markets and strong political intervention in investment allocation
- A tax system giving powerful incentives to borrow rather than to save as well as providing very strong incentives to invest in real capital and to choose excessively high debt-equity ratios.

The legacy from the 1970s also included ideas and beliefs about the economy and economic policy that were not supportive of stability and growth. An ambitious quantitative planning and regulatory approach to economic policy dominated economic policy thinking, and there was a correspondingly strong skepticism in the political system towards increasing the role of the market mechanism. Industrial policy was used to support industries threatened by market forces, not to promote competition, economic efficiency and productivity growth. Interest rates in particular should not be left to the markets, but were kept at levels that involved significant negative real interest rates for households and firms; credit was supposed to be regulated and allocated to politically important sectors; and there was a widespread belief that sufficient fiscal spending would always guarantee full employment.

Chart 1 illustrates the increased aggregate fluctuations as well as the low economic growth during the 1980s. To obtain a sharper focus on the domestic business cycles, it is useful to look at Mainland GDP, excluding the petroleum sector as well as shipping. The latter sectors were fairly small in 1972, but due to the rapid growth of the petroleum sector, they now amount to almost one quarter of total GDP. Employment by these capital-intensive export sectors is quite small and their production levels are not related to Mainland business cycles.

In 1982-1983, the Norwegian economy was hit by the downturn in the international economy. Then a spectacular lending boom took place in 1984-1986,

Chart 1: Output fluctuations in Norway, 1972-2001



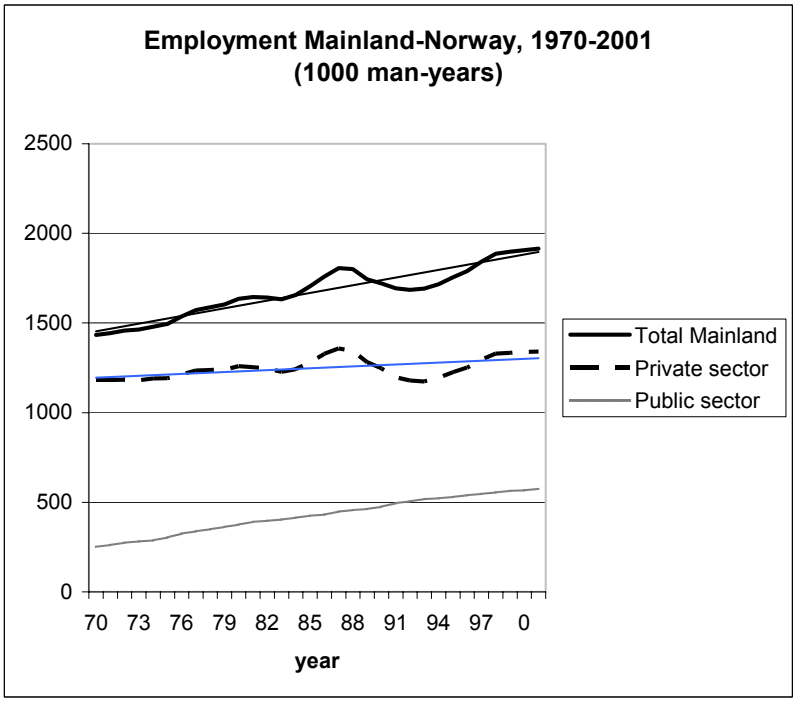
Source: National accounts. The trend curves are exponential.

followed by a sharp cyclical downturn in 1988-1989. Norway's Mainland economy continued to be weak. Statistics Norway has identified the fourth quarter of 1992 as the business cycle trough, more than six years after the former peak. The rate of unemployment increased until 1993. The recession was the worst since the 1930s, but not as deep as in Finland and Sweden in the first half of the 1990s. From 1993, economic growth and employment picked up and a new boom was gradually built up. The strength of the Norwegian economy in 1993-1998 came as a positive surprise as many had feared an increase in the structural rate of unemployment to a much higher level than before the recession.

From chart 2 we see that employment fluctuations on the private Mainland sector were large, characterized by strong, but short-lived growth in 1985-1987, and a long period of decline from 1988 to 1993. Interestingly, private Mainland employment never returned to the same level as in 1987 due to crowding out by public sector employment. In 2001, government employment accounted for almost one third of total employment, which is the highest share among OECD countries.[10] This is probably related to the large and increasing government petroleum revenues and the government's huge wealth, both in terms of net financial assets and expected present value of future petroleum revenues.

[10] There is, however, significantly more part-time employment in the public than in the private sector.

Chart 2: Employment, Mainland-Norway, 1970-2001



Source: National accounts. The two trend curves are linear.

3 The critical years 1984-1992

The period 1984-1992 turned out to be a nightmare for Norwegian policy makers. Chart 3 gives an overview of the most important elements of economic policy as well as some indication of the timing of important events. At this stage the difficult questions concerning the effects of fiscal and monetary policy and their role in the boom-bust cycle will not be addressed. We return to these questions in sections 7 and 8 below. We will also provide more details about the rise and decline of real estate prices in section 9.

In 1984 and 1985 the financial deregulation process was speeded up considerably as all quantitative regulation of lending was removed, triggering a lending boom funded by short-term borrowing from abroad and liquidity loans from Norges Bank. Private consumption, investment and asset prices increased dramatically.

The government lost its majority in the Storting in the 1985 election, and in the spring of 1986, *after* a dramatic fall in the oil price, the centralized wage settlement resulted in huge wage increases and shorter working hours. In 1986 the rate of (registered) unemployment was 1.8 percent and declining. The

Chart 3: The critical years

Year	**84**	**85**	**86**	**87**	**88**	**89**	**90**	**91**	**92**
Finan. Sector / wage policy	Fin. dereg	Fin. dereg	Deval		Wage reg.	Wage reg.	Ecu	Bank. crisis	Curr. crisis
Mon. Pol.[a]	⇒	⇑	⇑	⇑	⇒	⇓	⇓	⇓	⇓
Fisc. Pol.[b]	⇒	⇑	⇓	⇓	⇓	⇓	⇓	⇒	⇑
Asset prices[c]	⇑	⇑	⇑	⇓	⇓	⇓	⇓	⇓	⇓
Business cycles[d]	⇑	⇑	⇑	⇒	⇓	⇓	⇓	⇓	⇓
Unemployment[e]	3.2	2.5	1.8	1.5	2.3	3.8	4.3	4.7	5.4
Inflation (CPI)	6.3	5.7	7.2	8.7	6.7	4.5	4.1	3.4	2.3
Curr. acc.[f]	+5.4	+4.8	-6.2	-4.8	-4.1	-0.1	+2.5	+3.7	+3.5
Year	**84**	**85**	**86**	**87**	**88**	**89**	**90**	**91**	**92**

a) The directions of the arrows indicate wheter monetary policy is too restrictive (downward), appropriate(horizontal) or too expansionary (upward). A Taylor interest rate defines the appropriate money market rate of interest, see Chart 13 below.

b) The arrows indicate impulses from fiscal policy (general government revenues and expenditure), see Johansen and Eika (2000) for the period 1989-1992. Period 1984-1988: Annual national budgets.

c) Change in relative price of non-residental real estate, see Chart 14 below.

d) Arrows indicate cyclical downturns and upturns in Mainland GDP, see Johansen and Eika (2000). Horizontal arrows indicate approxemately trend growth.

e) Registered unemployment, not including workers in labor market programmes.

f) As percentage of nominal GDP.

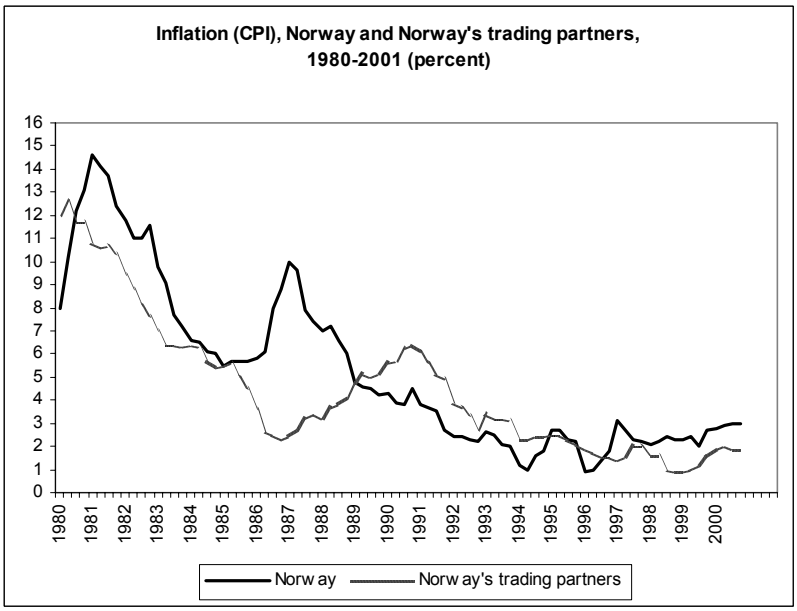
current account went from +4.8 percent of GDP in 1985 to −6.2 percent in 1986, and the rate of inflation was increasing. There were large capital outflows and heavy speculation against the currency in the fall of 1985 and spring 1986, and to prevent the money market rate from increasing, Norges Bank supplied liquidity loans to the banking system on a large scale. The new Labor government came to power in May 1986 and immediately devalued the krone by 9 percent, followed by an increase in the interest rate and fiscal restraint. It is interesting that the huge wage increases happened *after* the dramatic oil price decline, which reduced Norway's terms of trade by about 25 percent. Even at the time it was therefore fairly obvious that the wage increases were excessive. Those responsible for the wage settlement probably wanted the government to devalue in order to prevent the wage settlement from destroying the international competitiveness of Norwegian industry. Thus, the devaluation in May 1986 was to a large extent monetary policy accommodation driven by private sector expectations.

The business cycle peak was reached in the third quarter of 1986, but even in 1987 the labor market was extremely tight (1.5 percent unemployment) and the rate of inflation was 8.7 percent. The government decided to bring down inflation gradually to the average of its trading partners, realizing that it should no longer devalue the krone to give temporary relief to industry as had occasionally been done in the past. In December 1986 the government delegated to Norges Bank the responsibility for setting its instrument rate such as to defend the fixed exchange rate, defined in terms of a currency basket. The bank did this successfully and after less than three years, there were no longer signs of devaluation expectations in money market interest rates. In 1988 and 1989 wage regulation laws were passed to speed up the disinflation process. In 1988, the economy went into a recession and unemployment increased. From chart 4 it is evident that the rate of inflation did in fact come down fairly quickly. During 1989-1995, inflation was even consistently lower than the average inflation rate of Norway's trading partners.

The macroeconomic story from 1986 to the end of the decade was the familiar story of disinflation through restrictive macroeconomic policies, and a recession. Although the strength of the cyclical downturn in 1988-1989 came as a surprise, the idea of bringing down inflation quickly by establishing credibility of the fixed exchange rate received wide support from Norwegian economists. It is quite possible, however, that many households, firms and banks did not perceive that future inflation and wage increases were going to be much lower than in the past fifteen years, and that the strong tax incentives to borrow were about to be reduced significantly. By the end of the decade, most banks probably had no idea of what was going to happen to their industry.

In 1990 a peg to the *ecu* replaced the currency basket. Soon, Sweden and Finland made the same decision. Since the German interest rate was particularly high due to the effects of German unification, this decision implied that monetary policy in the Nordic countries had to be even tighter than before. Be-

Chart 4: Inflation (CPI), Norway and Norway's trading partners, 1980-2001.



Source: National Budget 2001.

fore 1989, the German money market interest rate had been significantly lower than the US money market rate, but in the beginning of the 1990s, the German rate climbed far above the US rate. Monetary policy was geared to the fixed exchange rate and could not be tailored to the Norwegian business cycle. It became increasingly tight and pro-cyclical in the late 1980s and early 1990s due to German monetary policy.

The problems in the banking industry started in 1987 and increased during 1988-1989, but it appeared that the problems could be handled by mergers and support from the banking industry's own guarantee funds.[11] In 1991, however, to everybody's surprise, a systemic banking crisis broke out, involving all the large commercial banks. The government quickly supplied new equity capital to stabilize the financial system. Finally, in December 1992, after the previous attacks on the currencies of Finland and Sweden, the Norwegian currency was also attacked. After some defense Norges Bank let the currency float. A new economic recovery started in 1993.

[11] There were two guarantee funds, one for the commercial banks and one for the savings banks. They were funded through annual contributions from member banks. Membership is compulsory.

4 Financial deregulation and lending boom

After World War II, a "low interest rate policy" was pursued in several European countries, but hardly any country stuck to a policy of permanent interest rate and credit regulations for such a long time and with such determination as Norway.[12] During the 1960s and 1970s, the government developed a "credit budget" framework for macroeconomic planning, involving special government lending institutions ("state banks") responsible for different sectors like the housing sector, manufacturing, agriculture and fisheries. The idea was both to control aggregate demand (jointly with fiscal policy), and sectoral investment spending by means of a housebuilding permit system, regulation of the bond market and credit flows from private and public financial institutions, and regulation of foreign exchange and cross-border capital movements.[13] Borrowing incentives for households were strong due to tax rules that allowed unlimited tax deductions for nominal borrowing costs, but credit rationing was widespread. When inflation and marginal tax rates increased in the 1970s, the nominal interest rate was lagging behind.[14] The average real after-tax rate of interest therefore declined dramatically, sometimes as low as −8 percent (see chart 5). The interest rate regulation policy also generated powerful incentives to channel credit outside the regulated credit market by numerous shadow market operations. Over time, new innovative ways of circumventing the regulations triggered new regulatory measures.

From November 1978, the large commercial banks gained better access to international money market borrowing due to a new regulation requiring the sum of spot and forward foreign exchange operations to be zero.[15] In the beginning of the 1980s, the growth of the eurokrone market, financial innovations and increasing flexibility of the shadow credit market made it much more difficult for the government to constrain the underlying market forces by credit regulations. In 1981-1983, the credit ceilings in the credit budget were exceeded by nearly 30 percent on average. By now it was obvious that the old credit policy framework was not sustainable.

This problem appears to be the main reason why the government decided to move away from credit regulations in the fall of 1983. Norges Bank believed that

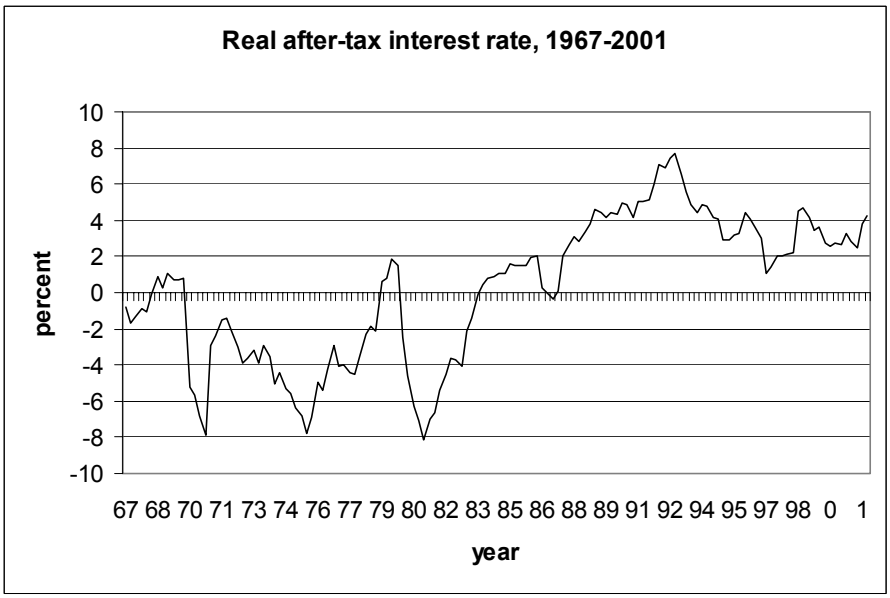
[12] For a discussion of the roots of the Norwegian low interest rate policy and credit controls, see Steigum (1980). These policies were important elements of a quantitative macroeconomic planning approach to economic policy that received strong academic support from leading economists at the University of Oslo in the 1960s and 1970s.

[13] For an early macroeconomic analysis of credit regulations in a combined credit multiplier and income-expenditure framework, see Johansen (1958). Steigum (1983) offers a non-market clearing analysis of interest rate regulation and capital rationing in a real macroeconomic model in which there is either full employment or classical unemployment.

[14] An increase in the level of nominal interest rates in 1977-1978 failed to increase the real interest rate permanently due to increasing inflationary pressure.

[15] This change was motivated by a growing demand from the oil companies to buy Norwegian kroner forward from Norwegian banks to pay taxes to the Norwegian government on specific dates. The banks therefore needed to borrow US dollars to cover their foreign exchange risk.

Chart 5: The real after-tax interest rate in Norway, 1967-2001 (quarterly data).



Note: Mortgage loans. Marginal tax rates for average income.
Source: Norges Bank.

the regulations were not very effective anyway, and deregulation was therefore not expected to have significant macroeconomic effects. The new policy followed a general international trend towards deregulation in financial markets as well as in other sectors. By this time, the government had already taken important steps to deregulate the bond market, as well as to open up the Norwegian stock market to foreign investors. Moreover, previous regulations on housing prices had already been lifted a few years back.

The abandonment of credit regulations took place in 1984 and 1985. After an unsuccessful attempt to re-regulate in 1986, the process of financial deregulation of domestic credit and bond markets was completed in 1988. By 1990, the remaining regulations of international capital movements had also been removed. The main idea behind the new policy was to replace quantitative credit regulations by indirect measures, such as liquidity reserve requirements. It turned out, however, that such requirements – although reducing bank profitability – were not sufficient to prevent a lending boom. Moreover, due to disagreements within the ruling center-right coalition, the government did not terminate its policy of issuing interest rate guidelines for the lending rates of banks until the fall of 1985. These targets were often too low in relation to the money market rates, squeezing banks' profit margins. The after-tax real rate of interest was quite low during the lending boom in 1984-1986, see chart 5. When Norges

Bank increased the interest rate to defend the currency in December 1986, it was too late to prevent inflation from shooting up in 1986-1987 as a result of the positive output gap, the wage settlement shock, and the devaluation. The increase in the real interest rate was therefore not forthcoming until 1988, but then the lending boom was over, the recession was underway, and real estate prices were heading downward.

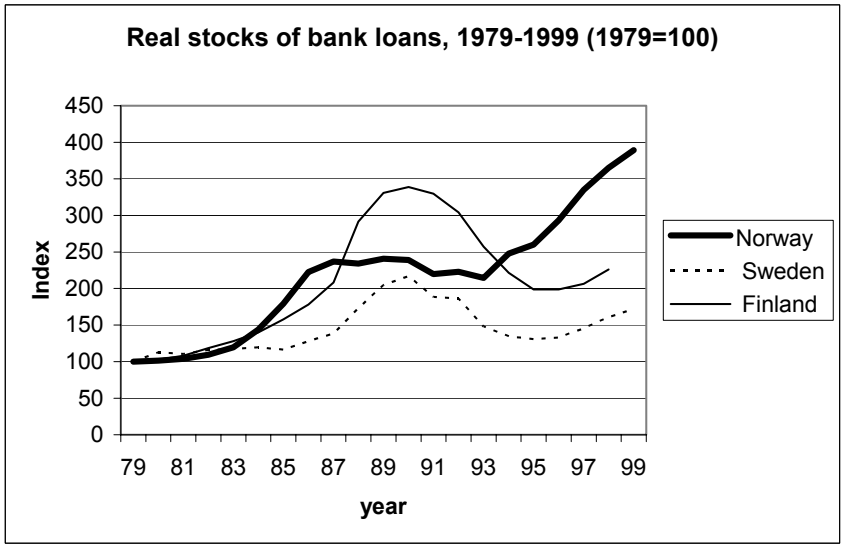
An important element of the deregulation that swiftly increased competition in the customer market for credit was the abolishment of the former regulation of new branch establishments. This stimulated banks to open up branches in new geographic areas. From 1983 to 1986, the commercial banks in Norway increased their number of branches by 15 percent, and the savings banks by 5.5 percent. Moreover, in the period 1983-1987, the number of employees increased by 28 percent in the savings banks and by 19 percent in the commercial banks. When the business cycle turned in 1987, the overcapacity in the Norwegian banking industry was evident. From 1987, the number of employees in the private banking industry began to decrease. Initially, in Sweden and Finland there was no corresponding regulation of new branch establishments before the credit markets were deregulated. Therefore, the increase in competition among banks was probably greater in Norway than in Sweden and Finland. Significant overcapacity was also being built up in the Finnish banking sector before the recession in the beginning of the 1990s. In Sweden, there were no obvious signs of overcapacity in the banking sector.

The new deregulation policy triggered an unprecedented growth in bank lending.[16] Nominal bank lending increased by about 30 percent in each of the years 1984, 1985 and 1986, but the Norwegian data for 1984 partly reflect that loans previously held outside the banks' balance sheets were taken back when credit regulations were abolished. Chart 6 compares the growth of real bank loans in Norway, Sweden and Finland. We see that Norway's real bank credit expansion was more short-lived than Finland's, which reached much larger proportions. The Swedish bank credit expansion looks marginally smaller than the Norwegian, but the Swedish loan data do not reflect lending from finance companies in the boom. Indirectly, this lending exposed the banks to substantial real estate price risk through bank guarantees. Taking the latter loans into consideration, the Swedish credit expansion was probably larger than the Norwegian as well. Another difference is that the Norwegian bank credit expansion was not followed by the same degree of credit contraction as in Finland and Sweden. From 1987 to 1993 the real stock of loans from Norwegian banks was approximately constant. The credit contraction effect of the banking crisis in 1991-1992 in Norway is very small compared with what happened to the real stock of loans from Swedish and Finnish banks. It is also interesting to note the

[16] Estimating a small, dynamic Bernanke-Blinder model on data up to the mid-1990s, Bårdsen and Klovland (2000) find a credit channel of monetary policy in Norway due to government regulation of credit flows and interest rates.

rapid growth of real bank loans in Norway after 1993. This is partly a reflection of the strong recovery of the Norwegian economy, see chart 1.

Chart 6: Real stocks of bank loans in Norway, Sweden and Finland, 1981-1996 (1979=100)



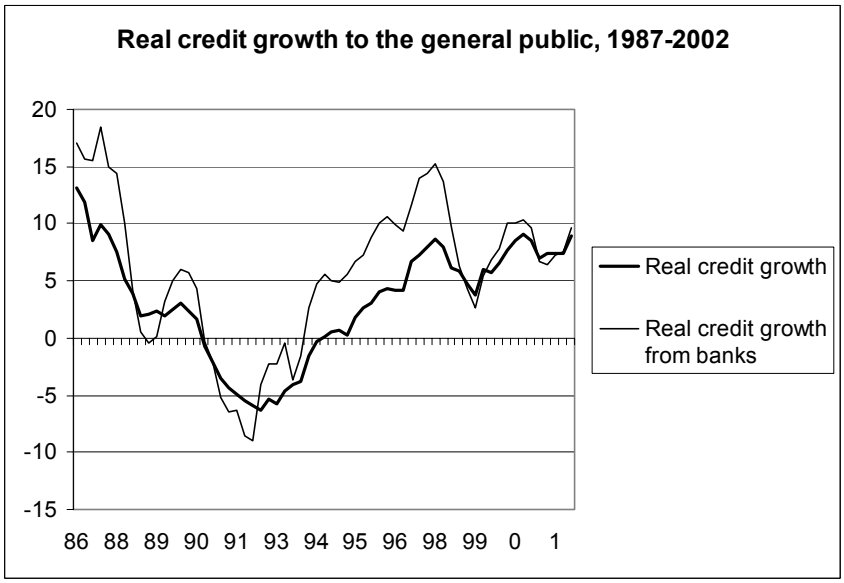
Source: OECD.

Chart 7 compares the real growth of credit from the banks with the total domestic credit supply in Norway. The supply of bank credit is somewhat more cyclical than the other sources of domestic credit, falling more steeply after the lending boom and increasing more quickly as a new boom was building up in the 1990s. In 1999 bank lending dropped substantially, but this time there was no danger of a banking crisis.

5 Bad banking

Credit market deregulation quickly changed the competitive environment and released aggressive competition for market shares in the loan market and strong aggregate credit growth. Most banks became much more willing to increase lending, often by venturing into new geographical areas. The expansionary lending behavior of banks may also be related to increased competition from non-bank financial institutions like finance companies that were less regulated than the banks before the deregulation of the credit market. The former had already for some time taken advantage of their freedom by increasing their market shares in the shadow credit market, partly by introducing "bad banking" practices involving excessive risk-taking and poor managerial control over lending decisions.

Chart 7: Real domestic credit growth, Norway, 1987-2002 (percent per year)



Source: Norges Bank. Loans deflated by the CPI. Growth over past 12 months.

The finance companies were the first financial institutions to report alarming losses in 1986 and 1987, even before the cyclical downturn in the Norwegian economy.[17] The large commercial banks also increased their activities in other countries considerably. Den norske Creditbank was the biggest bank before credit market deregulation, and it had adopted an aggressive growth strategy in the early 1980s (Lie, 1998). After credit market deregulation, Den norske Creditbank feared that Christiania Bank would grow faster and eventually succeed in overtaking it, and a race started between the two to become the biggest bank in Norway. A significant change in behavior occurred in both banks.[18] During its rapid expansion up until 1987, Den norske Creditbank had decentralized lending decisions, often to inexperienced and newly recruited staff that were given strong incentives to "sell" new loans. At the same time, its previous

[17] The losses were more than one percent of year-end loans in 1986 and two percent in 1987. The losses of finance companies reached a maximum in 1989, after which many of them were restructured or went out of business. Building on evidence from the UK secondary banking crisis in 1973-1974, Revell (1986) argues that supernormal profitability due to bank cartel arrangements stimulates aggressive competition from other financial institutions. The latter increase their market shares by introducing bad banking practices involving excessive risk-taking and speculation (like short-term money market funding of long-term assets). This competition may explain why some banks also began to take more risks to protect their market shares.

[18] For a closer look at what happened inside Christiania Bank, see Knutsen, Lange and Nordvik (1998).

systems of internal control and credit evaluation had broken down. Inadequate accounting systems gave the management wrong signals about profitability. For example, due to interest rate regulations, it was common to charge a fee at the time a new loan was granted, the effect of which was to boost short-run profits in rapidly expanding branches. Often the managers of such branches were promoted before the loans turned bad. Such problems were probably widespread in the Norwegian banking industry. Den norske Creditbank was the first of the large Norwegian banks to realize the downside of an aggressive growth strategy. Its losses were considerable from 1987 and onwards, and in 1990 it was merged with Bergen Bank. The new bank, Den norske Bank, was rescued by the government in 1991 and subsequently nationalized.

Since Den norske Creditbank was the biggest and most advanced bank in Norway, it probably acted as a role model for other banks. Also the aggressive behavior of Christiania Bank may have influenced other bank managements. Many other Norwegian banks (commercial banks as well as some savings banks) probably copied the aggressive behavior of the two leading banks, believing that this was the appropriate way to behave and survive in the new competitive environment.[19] Interestingly, the opposite was true: The survivors were the smaller and more conservative savings banks that did not try to copy the "bad banking" behavior of the fast-growing banks.

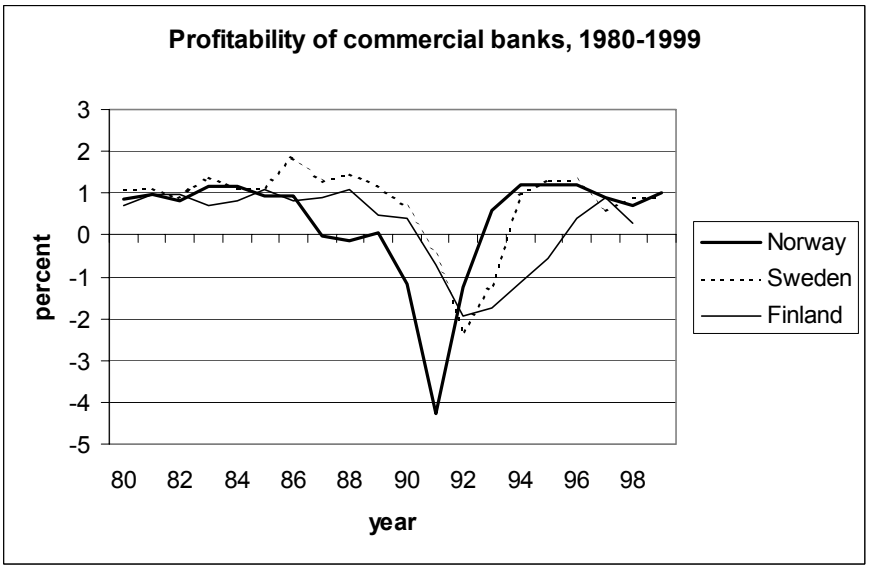
The commercial banks played a crucial role in the Norwegian banking crisis in 1991-1992. Table 1 shows that in 1980, the market share of commercial banks in the Norwegian bank loan market was 56.5 percent, about the same as in Finland, but somewhat lower than in Sweden (66.3 percent). After the deregulation of the credit markets in the 1980s, the market shares of commercial banks increased in all three countries, but less in Norway than in Sweden and Finland. In 1990, the market shares of commercial banks were 59.3, 72.9 and 66.6 percent in Norway, Sweden and Finland, respectively. These national differences in market shares were widened as a result of the banking crisis. In the period 1990-1995, the market shares of commercial banks went further up in Sweden and Finland, but down in Norway.

The main reason for the lack of success of Norwegian commercial banks appears to be low profitability in general. Chart 8 shows bank profits before tax in Norway, Sweden and Finland, both for commercial banks (8.A) and savings banks (8B). The profitability of Norwegian commercial banks became much lower after financial deregulation than the profitability of Swedish and Finish commercial banks. Profits before tax already turned negative in 1987, and gradually deteriorated until the collapse in 1991-1992 as a result of mounting

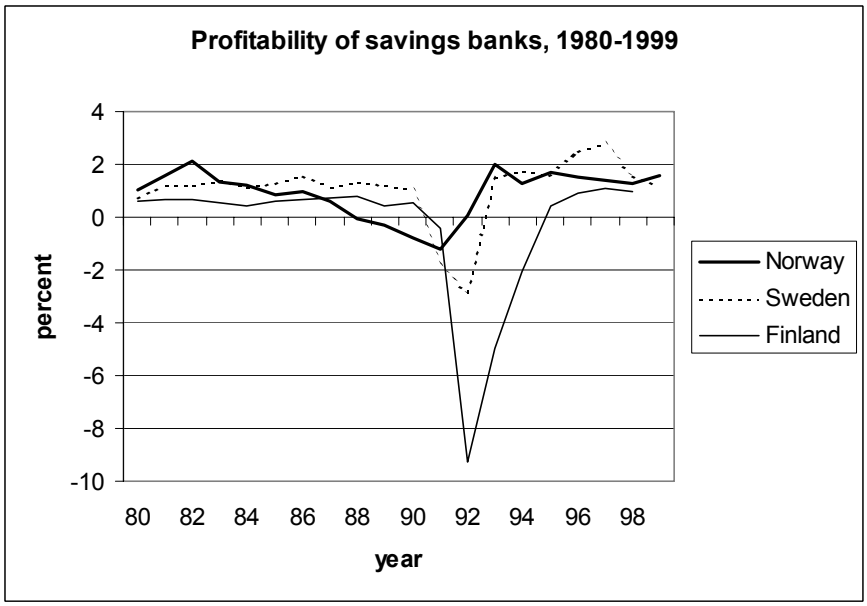
[19] An extreme example of bad banking is the bank that let a firm selling yachts grant loans on its behalf. The firm could even grant loans to new customers in this innovative way during weekends when it was impossible to control their creditworthiness. Not surprisingly, both the firm and bank soon went out of business, the latter by merging with a large commercial bank that was rescued by the government in 1991.

Chart 8: Profits before tax in Norwegian, Swedish and Finnish banks, 1980-1999 (as percentage of total average assets)

8.A Commercial banks



8.B Savings banks



Source: Norges Bank. Loans deflated by the CPI. Growth over past 12 months.

Table 1: Bank loan market shares of commercial banks in Norway, Sweden and Finland (loans as a percentage of total year-end assets).

Year	Norway[a]	Sweden[b]	Finland[c]
1980	56.5	66.3	55.4
1985	57.8	71.7	58.8
1990	59.3	72.9	66.6
1995	58.8	93.2	69.8

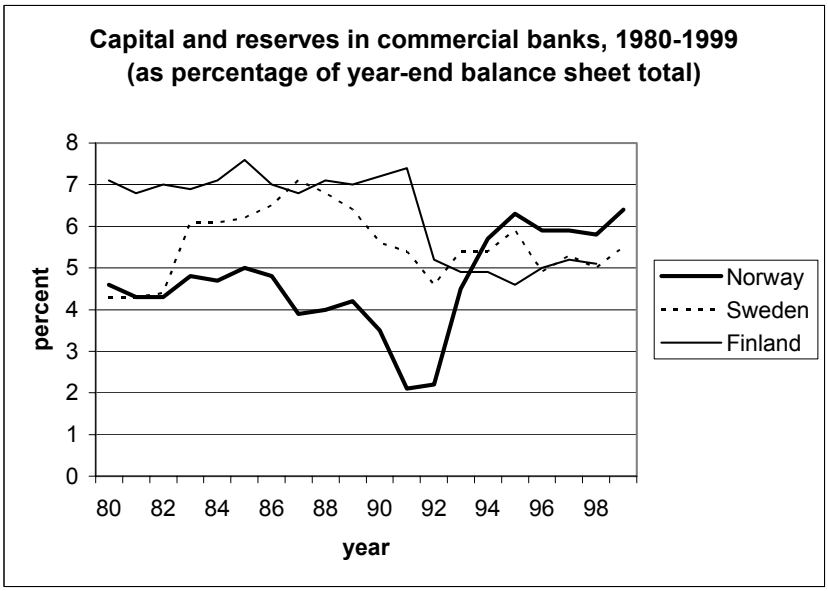
a) There are two types of Norwegian banks, commercial banks and savings banks.
b) Before the banking crisis, three types of Swedish banks existed, commercial banks, savings banks, and cooperative banks. The cooperative banks disappeared as a result of the banking crisis. In 1990, the market share of cooperative banks was 5.1 percent.
c) There are three types of Finnish banks, commercial banks, savings banks, and cooperative banks. The market share of savings banks dropped from 17.7 percent in 1990 to 3.9 percent in 1995 as a result of the banking crisis. In 1995, the market share of cooperative banks was 26.3 percent.

losses that triggered the government rescue operation. The commercial banks in Sweden and Finland experienced a drop in profits before tax to about −2 percent in the crisis year 1992, compared with −4 percent in Norway (in 1991). The Norwegian banking crisis was to a much greater extent a *commercial banking crisis* than in Sweden, and particularly in Finland, where the losses of the savings banks were staggering. Looking at chart 8.B, we see that the profitability of Norwegian savings banks also deteriorated several years before the banking crisis, but it only dropped to −1 percent in the worst crisis year 1991, compared with a drop in profits before tax to −2.5 percent and −9 percent in the Swedish and Finnish savings banks, respectively. There were large differences among Norwegian savings banks. Some medium-sized and large savings banks adopted an aggressive growth strategy very similar to that of most commercial banks, and eventually needed support from the guarantee fund and the new Government Bank Insurance Fund to survive.

Chart 9 shows that Norwegian commercial banks were poorly capitalized when the loan market was deregulated in 1984-1985. In 1983, capital and reserves as a percentage of the total balance sheet was less than five percent, compared with 6 percent in Swedish and 7 percent in Finnish commercial banks. In the following years the discrepancy increased. During the banking crisis, the capital and reserves share dropped to 2 percent in Norway (in 1991). In Sweden the share dropped to 4.6 percent (in 1992) and in Finland to 4.9 percent (1993). One reason for the low capital share in Norwegian commercial banks was that they could replace equity by subordinated loan capital. This was done on a large scale. Moreover, the capital requirement had been reduced from around

10 percent in the 1960s to 6.5 percent in 1985.

Chart 9: Capital and reserves in Norwegian, Swedish and Finish commercial banks, 1980-1999 (as percentage of year-end balance sheet total).



Source: OECD.

Even without the benefit of hindsight, it was surprising that the top management of the large commercial banks did not worry about the risks involved in the aggressive growth strategies that they adopted. The low capital base and low profitability certainly called for concern about risks. Interview evidence strongly suggests, however, that there was a widespread belief that fast growth was profitable and the risk manageable (Johnsen et al.,1992). Some top bank managers also may have believed that credit market deregulation was temporary. It then made sense to increase market shares before regulations were reintroduced.

A possible reason for the collective missing perception of the high risk involved in a fast expansion of lending may be that bank losses had previously been extremely small during the post-war period. Under the old credit policy framework, interest rate and credit regulations forced banks to ration credit to the least risky customers. This effectively protected banks from excessive risk-taking. Since entry was regulated and profit margins were comfortable, it was then very profitable and almost without risk for one bank to grow at the expense of others. It is possible that the expansionist banks brought with them their perception of "growth without risk" under the old credit regulation regime into the new competitive environment that was established in 1984-1985. Apparently, they did not perceive that the risks involved in a rapid expansion of

lending in a deregulated credit market was much higher because many other banks tried to grow or protect their market shares too. This line of reasoning does not easily explain why the performance of the Norwegian commercial banks was significantly poorer than those of the commercial banks in Sweden and Finland, however.

Another hypothesis is that the incentive systems shaping the behavior of bank managers stimulated *rational herd behavior*.[20] Interview evidence supports the hypothesis that many banks copied the aggressive lending behavior of Den norske Creditbank and Christiania Bank (Johnsen et al., 1992). Moreover, insiders opposing the expansionary lending policies of the expansionist banks were often punished in the form of degradation and negative social sanctions. It is therefore possible that the conformist pressure in the banking community was so strong that herd behavior was rational even among those who understood that the growth strategies were dangerous and counterproductive. Again, although herd behavior in banks sounds like a reasonable hypothesis, it cannot explain why the performance of Norwegian commercial banks deviated from the performance of Swedish and Finnish commercial banks.

6 Understanding boom-bust cycles

The strength of the boom in 1985-1986, as well as the sharp decline in economic activity in 1988-1989 and the following period of weak economic performance in 1989-1992, were all great surprises for Norwegian economists and policymakers. Apparently, after financial deregulation, the Norwegian economy did not behave as it used to, and despite attempts to use fiscal policy to stabilize aggregate demand, aggregate demand fluctuated widely.

We noted above that the after-tax real interest rate increased sharply towards the end of the 1980s, being very low in the boom and very high in the recession. There are good theoretical reasons to believe that the sensitivity of consumption and investment demand to the real interest rate also increased as a result of the deregulation of the credit market. First, changes in the real interest rate triggered substitution effects as the relative price of future consumption changed. Second, when indebtedness increased as a result of the lending boom, the income effects of changes in the real (after-tax) interest rate became larger, making indebted households and firms more vulnerable to increases in the real interest rate. And finally, changes in the real interest rate affected asset prices and household wealth. Increased asset prices give rise to wealth effects in private consumption and make it more profitable to build new physical capital. Also in Finland and Sweden the after-tax real interest rate was low during the lending boom and very high during the economic crisis. It is therefore very likely that the interest rate played a crucial role in the boom-bust cycles in all three Nordic

[20] See for example Scharfstein and Stein (1990) and Banerjee (1992).

countries.

Another mechanism that became more important after financial deregulation was the automatic tendency of the trade balance to correct itself over time. During the lending boom, the savings rate of households dropped to about −5 percent, and the government was deeply worried about the large current account deficits. However, households and firms could not spend more than their incomes forever, but had to satisfy their intertemporal budget constraints and reduce future spending. Therefore, the fact that households and firms intended to service their debts in the future would have an automatic stabilizing effect on the trade balance even with a constant real exchange rate and fiscal policy. What was not fully understood at the time was that households and firms could only *temporarily* increase spending as a result of increased credit availability. Therefore, the large current account deficit in 1986 was not sustainable. Moreover, it was likely that – as a consequence of financial deregulation – the long-run increase in the real rate of interest would reduce the share of gross investment in GDP, strengthening the current account in the medium term.

In retrospect, is it difficult to understand what caused the boom-bust cycles in Norway, Sweden and Finland in terms of mainstream macroeconomic theory? Let us see how far we can get with a simple story of the business cycle propagation mechanism of an exchange rate fixing country that deregulates its credit market and the capital account. When the fixed exchange rate is credible, neither the real interest rate nor the real exchange rate will move to counteract the effects of increasing or declining aggregate demand. Monetary policy must be used to keep the exchange rate fixed to the anchor countries (mainly Germany in this case). Therefore, the nominal interest rate will closely follow the German interest rate, making it impossible for the Central Bank to set its interest rates for counter-cyclical purposes, or prevent fluctuations in the rate of inflation. Only fiscal policy may reduce fluctuations in aggregate demand, if the timing is right, but in practice a tightening of fiscal policy may come too late in the boom and could even make the bust worse.

Let us look at the effects of a positive demand shock in private investment and consumption. As we shall argue more in detail below, the sudden change from credit rationing to easy credit in Norway in 1984-1985 had a tremendous effect on private demand for consumption and investment. The monetary policy accommodation of the surge in aggregate demand is likely to increase housing and stock prices as well, stimulating consumption and investment demand further. Asset price increases could also turn into asset price bubbles in the markets for real estate and stocks. Such bubbles appear to be important in all boom-bust cycles that involve financial crises. We shall return to the question of why such bubbles buildt up and burst in section 9. Another mechanism that usually adds to the demand pressure is the negative effect of increased inflation on the real interest rate during the boom. In the bust phase, this effect could be destabilizing, as a fall in wage and price inflation leads to an increase in the

real interest rate.

Our simple story of a booming small open economy with a fixed exchange rate can explain why excess demand for goods and labor could build up in a lending boom and ignite wage and price inflation. It can also explain why stagnant demand and high unemployment could continue for years if the real exchange rate is overvalued and low inflation (or deflation) leads to a high real interest rate. Falling asset prices, collateral squeeze, debt deflation, and possibly also a credit crunch could also explain why a country could fall into a depression. It is then likely that a speculative attack would put an end to the fixed exchange rate policy. To make the story of the boom-bust cycle complete, however, we also need to consider the macroeconomic shocks that initiated the boom, burst the asset price bubbles and triggered the drop in aggregate demand, as well as fiscal policy. Without unfortunate shocks, lending booms do not have to turn into a recession and financial crisis. As noted in the introduction, most lending booms do not end in crisis, but with a "soft landing".

7 Shocks and macroeconomic policies

Let us now consider the shocks that started the boom. In previous Norwegian business cycles, international (particularly European) business cycle impulses have been important. This was not the case in the boom and bust of the 1980s, however. A quantitative analysis by Eika and Lindquist (1997) concludes that international impulses had a marginal *stabilizing* effect on the Norwegian economy through non-oil exports in the 1980s. Bjørnland (2000b) finds that after 1980, non-oil exports lag the Mainland cycle, implying that non-oil exports cannot have been an important driving force of Norwegian business cycles. The Norwegian boom therefore appears to have been home-made.

Could the high oil price in 1979-1985 account for the boom? The world oil price increased sharply in real terms in 1979 and 1980 (OPEC II), and then declined gradually before the dramatic drop in 1986. There are two main effects of a high oil price on the Norwegian economy. The first is the negative effect from the world economy, hitting non-oil exports in particular. The second is the aggregate demand effect of a more expansionary fiscal policy and increased investment spending in the petroleum industry. It is very difficult to quantify these effects, particularly what the government's fiscal policy would have been if OPEC II had not happened. The growth of government spending increased in 1980 and 1981 and labor income taxes were reduced in the period 1981-1985. Still the government ran substantial surpluses, see chart 12 below. A quantitative analysis by Eika (1996) suggests that in the period 1982-1993, petroleum investment did in fact exacerbate macroeconomic fluctuations. For example, in 1988 petroleum investment dropped by more than 20 percent as a result of the lower oil price, hitting the economy adversely in the midst of a recession.

Another quantitative analysis by Eika and Magnussen (1997) argues that the total effect of the high oil price on Mainland-GDP and employment was positive. This analysis suggests that OPEC II had a partially stabilizing effect in the business cycle downturn in 1982-1983, but made a positive contribution to the next boom. According to these calculations, the increase in aggregate demand also increased real product wages and reduced the international competitiveness of Norwegian Mainland industry. Bjørnland (2000a) finds similar, although somewhat smaller effects, using a VAR model that distinguishes between aggregate demand, aggregate supply and oil price shocks.

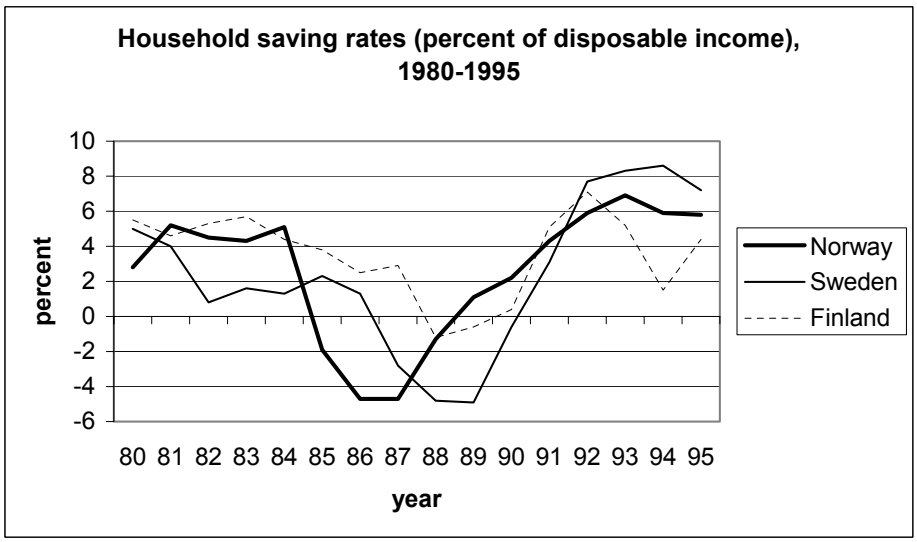
Even though the high oil price in 1979-1985 probably induced a more expansionary fiscal policy after OPEC II, it is unlikely that fiscal policy and petroleum investment played the major roles in the boom of 1984-1986. The changes in fiscal policy and petroleum investment were far from sufficient to explain the dramatic increase in private consumption and real investment in the boom. The sudden fall in the rate of household saving in 1985 and 1986 is particularly difficult to explain in terms of a fiscal stimulus in the beginning of the 1980s.

It is a reasonable hypothesis that a credit supply shock caused by deregulation and the change in lending behavior of banks and other financial institutions is the main cause of the dramatic increase in private consumption and investment in 1985 and 1986. The story is straightforward. First, the real rate of interest is very low, but loans are rationed, and there is excess demand for credit. When the banks are allowed to expand lending, many households and firms want to consume and invest more, and they therefore increase their borrowing and spending. Thus, aggregate demand increases, asset prices go up, the economy booms, excess demand for labor builds up, and wages and prices take off. This story is consistent with the fact that the savings rates of households suddenly dropped in all the Nordic countries, see chart 10. The fall in the savings rate was greatest in Norway, where it dropped by almost 10 percentage points from 1984 to 1986, despite normal growth in disposable income. Private consumption increased by a staggering 15 percent in real terms during 1985 and the first half of 1986.

The consumption booms in Norway, Sweden and Finland are not typical for boom-bust cycles in other parts of the world. In a cross-country study of 39 middle-income countries that have experienced twin crises (both a currency crisis and a banking crisis), Tornell and Westermann (2002) find that in most cases consumption did not deviate much from trend during the boom.

Is it possible to explain the dramatic increase in private consumption in any other way than a shift from substantial credit rationing to extremely easy access to credit? An alternative hypothesis is that a wealth effect, not a shift from credit rationing to easy credit, explains the drop in the savings rate of households. The wealth of Norwegian households did indeed increase in 1984-

Chart 10: Household saving rates in Norway, Sweden and Finland (percent of disposable income), 1980-1995.



Source: National accounts.

1986, particularly housing and stock wealth.[21] However, as illustrated in chart 16 below, the real price of housing increased even more in 1981-1982 (due to deregulation of the housing market) than in 1984-1986, and there was almost no decline in the savings rate following the housing price increase in 1981-1982. Moreover, the quantitative effect of the stock market boom on household wealth was probably quite small. Therefore, the fall in the savings rate in 1984-1986 was too large to be explained solely in terms of a conventional wealth effect.[22] In addition to a wealth effect, the new access to credit allowed households to reduce the forced saving inherent in the old credit-rationing regime.

The sudden change in lending behavior triggered by the deregulation of the credit market could thus be understood as an unprecedented credit supply shock that had a strong effect on aggregate demand.[23] Chart 11 compares the three components of domestic expenditure on goods and services (aggregate investment and private and public consumption, excluding imputed values for

[21] Traditionally, the Norwegian stock market has been small in relation to GDP and share holdings by households have been quite low. Due to a high share of homeowners in Norway, housing wealth is much more important for households than stock market wealth.

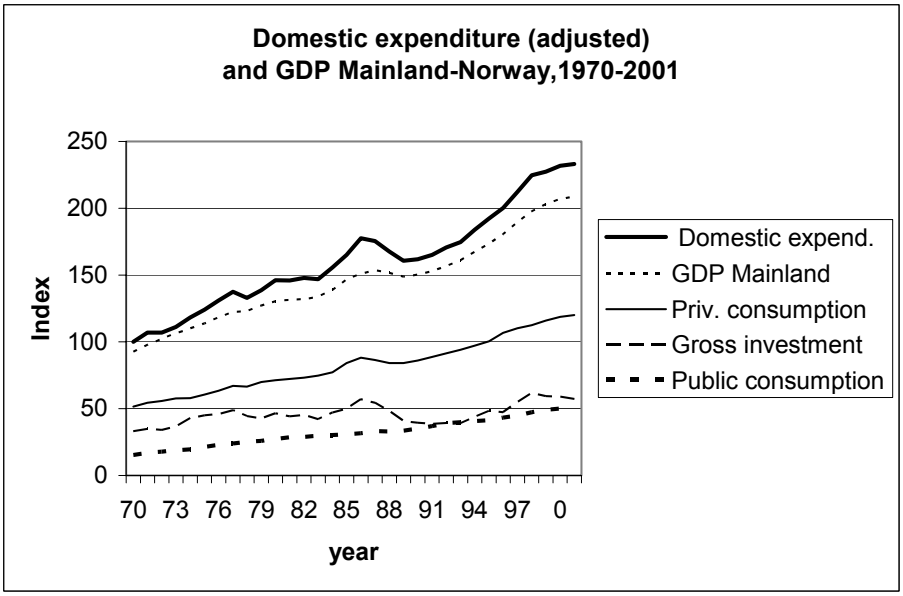
[22] Eitrheim et al. (2002) estimate a consumption function on Norwegian data in which a household wealth variable plays an important role along with income. They estimate a long-run wealth elasticity of 0.27, which is much stronger than a conventional wealth effect in life-cycle models. The strength of this empirical effect could indicate that it picks up a shift from credit rationing to easy access to credit.

[23] Using a macro-econometric model of the Norwegian economy, Hove and Moum (1997) conclude that the credit supply shock had a very strong effect on private consumption and aggregate demand in 1985-1987. For a different view, see Rødseth (1994).

capital consumption) with Mainland GDP. The series have been deflated by the same price index in order to compare nominal expenditure and output. Domestic expenditure sharply rises in the business cycle upturn 1984-1986, much faster than Mainland GDP. This fits well with our story that the credit supply shock was mainly propagated through aggregate demand, which both increased Mainland output and the current account deficit.

Although we cannot exclude the possibility that the increased availability of credit also had an aggregate supply effect, the fact that the rate of unemployment declined to 1.5 percent in 1987, along with a wage explosion and the large current account deficits, is strong evidence in favor of the hypothesis that the aggregate demand channel was dominant. The really great surprise in 1985-1986 (and even today) was the strength of the effect of the shock. We shall return to this question below.

Chart 11: Domestic expenditure (adjusted) and GDP Mainland-Norway, 1970-2001 (Domestic expenditure 1970=100).



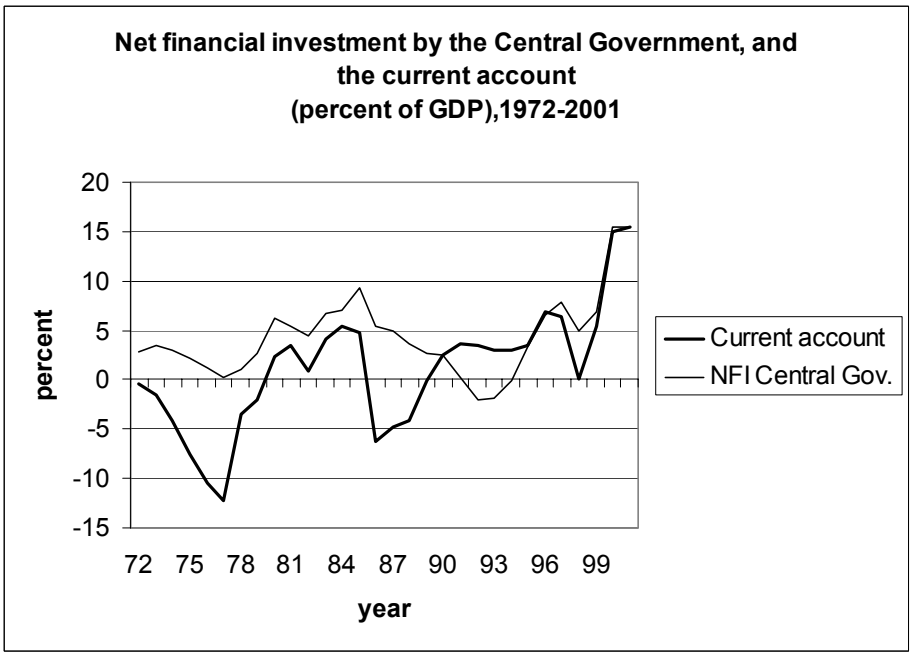
Source: National accounts. Imputed consumption of real capital services has been excluded from private consumption, public consumption and domestic expenditure. All series have been deflated by the price index for domestic spending on goods and services.

Also the recession and increase in unemployment after 1987 look overwhelmingly as driven by aggregate demand, see chart 11. Aggregate expenditure dropped sharply from 1987 to 1989, and then grew only slowly until 1993. Again, Mainland GDP did not fall to the same extent as aggregate demand, as part of the effect showed up as a strengthening of the current account. Why

did aggregate demand decline so much after 1987? Let us first consider fiscal policy.

Chart 12 shows the development of the central government's net surplus as a percentage of GDP along with the surplus of the current account of the balance of payments (also as a percentage of GDP). We see that in 1985 both surpluses were huge. The surplus of the government was 9 percent of GDP and the current account surplus 5 percent. In 1986, the current account turned into a 6 percent deficit. A closer examination of the data reveals that lower exports of petroleum accounted for 53 percent of the deterioration of the current account from 1985 to 1986, 32 percent was due to increased imports, and 15 percent to a decline in other exports than petroleum. Even if the oil price shock reduced the government's income substantially, we see that the surpluses were still 5 percent in 1986 and 1987, declining slowly as a result of the automatic fiscal stabilizers.

Chart 12: Central government surplus and the current account, Norway, 1972-2001 (percent of GDP).



Source: National accounts.

When the new Labor government took over in May 1986, it justified the need for fiscal policy restraint with the following strong words:

> Norway is now in the most serious situation of crisis. The country faces profound problems involving a huge weakening of the balance of payments and a consumption level that we as a nation cannot afford. The problems have been increasing during the last year, and were exacerbated by the dramatic drop in the oil prices.
> (National Budget 1987)

Still, in 1986 the share of private consumption in total GDP was only 52.3 percent, and Norway's total saving as a percentage of GDP was 11.1 percent. Compared with most other industrialized countries, Norway was saving quite a bit, even after the oil price had dropped in 1986.[24] Therefore, in retrospect, the government's fear of permanently excessive private consumption and structural current account deficits appears to be exaggerated. As discussed above, strong demand growth financed by lending is not sustainable as households and firms have to satisfy their intertemporal budget constraints and cut future spending. Moreover, the high rates of investment in 1985 and 1986 were clearly part of the reason for the weakening of the current account. The high investment rates in the petroleum sector and in sectors producing non-traded goods were unlikely to be permanent. With a significant government surplus even after the oil price decline, it was therefore not obvious why the government should increase net taxes in order to curb the real income growth of households that were already heavily indebted. It should be added, however, that the preliminary data used by the government underestimated the fall in the savings rate in 1985. It was also a new and difficult situation for the government to handle. The boom was mainly a result of a credit supply shock, but such a shock had not been observed before, at least not after World War II. Since the data revealed that private consumption had increased sharply, and that the economy clearly was in a state of excessive aggregate demand, it was perhaps not very surprising that the government wanted fiscal restraint directed towards constraining household income and private consumption.[25]

According to the Ministry of Finance's own fiscal policy indicator, fiscal restraint in the three years 1986-1988 summed up to 4.5 percent of Mainland GDP. The effects were, however, stronger if the effects of local government spending are also accounted for. The latter effects usually come with a longer time lag than the effects of changes in central government spending and taxation. The government also reduced in several steps the rate at which borrowing costs could be deducted from the income tax. The most significant steps occurred in

[24] The negative oil price shock itself called for long-run fiscal restraint due to the fall in government wealth. In a dependent economy theoretical framework, Steigum and Thøgersen (2003) show that optimal fiscal policy involves temporary deficits and a low neutral real rate of interest if sectoral adjustment is costly and time-consuming. In the Nordic countries, the real rate of interest became very high as a consequence of the fixed exchange rates, however, triggering an intertemporal coordination failure.

[25] The stabilization policy package also included measures to constrain private investment, but they were probably not very important quantitatively.

1988 and as an element in the 1992 tax reform.[26] Together with an increasing German interest rate and falling inflation, the change in the tax rules increased the after-tax real rate of interest from about zero in 1987 to more than 7 percent in 1992, see chart 5. It is likely that the increase in the real rate of interest had a strong negative effect on aggregate demand and housing prices in the period 1988-1993.

Table 2 reports some key data on household income and consumption during the critical years 1984-1992. In the boom years 1985-1986, real household income before net taxes grew faster than real disposable income due to the automatic stabilizers. Very strong consumption growth triggered a dramatic decline in the savings rate. In 1987, fiscal policy restraint reduced real disposable income by 0.9 percent, while real income before taxes and transfers increased by 1.7 percent. In this year, household consumption declined due to a sharp fall in household purchases of goods. It is very likely that a weaker demand for goods such as cars and furniture would have set in even in the absence of higher net taxes in 1987. In 1985 and 1986, the purchases of consumer durables had increased enormously to a level that was clearly not sustainable. In the recession years 1988 and 1989 before-tax real income fell, but the automatic stabilizers generated a low positive growth of disposable real income.

Household consumption declined for three years, particularly consumption of goods, which declined by 11 percent from 1986 to 1989. In 1990 as slow recovery in consumption started, and in 1992, the rate of saving of households had recovered to 5.9 percent. Fiscal policy became gradually more expansionary in the beginning of the 1990s, boosting household disposable income. According to a quantitative analysis by Bowitz and Hove (1996), however, fiscal policy was turned around too late to have significantly counter-cyclical effects in the years 1989-1991.[27] In 1992 and 1993, there can be no doubt that fiscal policy was expansionary.

Chart 13 illustrates the cycles in household income and expenditure (including investment in housing). The distance between the two upper graphs represents net interest payments, which became very significant in the recession. Higher after-tax real interest rates, a slowdown of income growth, increasing unemployment and declining asset prices are all factors that contributed to the dramatic decline in household expenditure after 1986.

As we have already noted, aggregate investment played a more important role in the boom-bust cycle than private consumption, see chart 11. Chart 14 gives more detail. The series for total investment in real capital (fixed as well

[26] In the early 1980s, a tax commission had suggested a tax reform that would have reduced the tax incentives to borrow, but the issue was politically difficult and the problem was postponed.

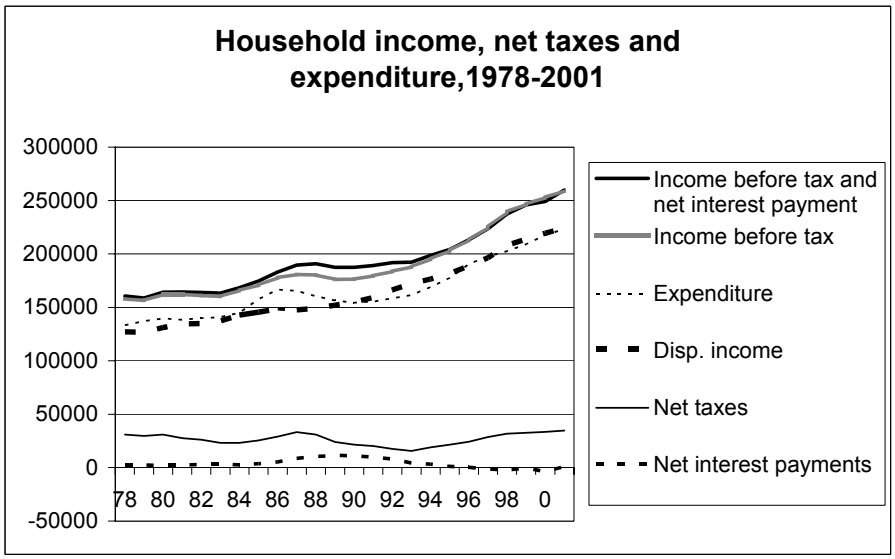
[27] The measurement of fiscal policy impulses is sensitive to whether local government spending is included or not. If the latter is included, as in Bowitz and Hove (1996), it took a longer time before fiscal policy turned expansionary than if one uses the cyclically adjusted fiscal policy indicator of the Ministry of Finance to measure changes in fiscal policy.

Table 2: Household income and consumption (annual growth in percent), Norway, 1984-1992.

Year	Real income before net taxes	Real disposable income	Household consumption	Consumption of goods	Rate of saving (percent)
1984	3.5	4	3.3	2.6	5.1
1985	3.1	2.3	9.9	12.7	-1.9
1986	4.0	2.3	5.0	4.1	-4.7
1987	1.7	-0.4	-0.9	-3.7	-4.7
1988	-0.3	1.7	-2.2	-5.2	-1.3
1989	-2.3	1.9	-0.7	-2.2	1.1
1990	0.1	2.1	0.6	1.4	2.2
1991	1.8	3.4	1.3	1.4	4.3
1992	2.4	3.9	2.2	1.3	5.9

Source: National accounts.

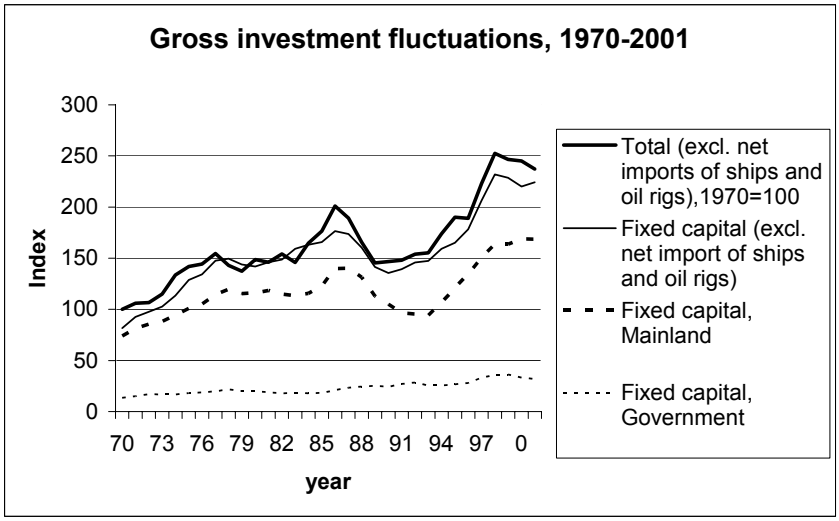
Chart 13: Household income, net taxes and expenditure, Norway, 1978-2001 (thousand 1978-kroner).



Source: National accounts

All series have been deflated by the price index for private consumption.

Chart 14: Gross investment fluctuations, Norway, 1970-2001



Source: National accounts. All series have been deflated by the price index for Mainland gross investment in fixed capital.

as inventory investment) exclude net imports of ships and oil rigs because these imports do not have any impact on domestic demand and the business cycle. The distance between the two upper graphs represents inventory investment, including oil rigs under construction. The distance between the graphs for fixed capital and Mainland fixed capital measures the investment in ships and oilrigs built in Norway. This component of aggregate investment in fixed capital has become quite important in the 1980s and 1990s due to the increase in petroleum investment and the policy of giving priority to Norwegian shipyards and rig-constructing firms. Also Mainland investment in fixed capital (mostly investment in housing and other non-traded sectors) was a very important factor in the boom-bust cycle. It is very likely that the Mainland investment boom in 1986-1987 was mainly due to the credit supply shock as well, both directly and indirectly as a response to the increased consumption demand triggered by the credit supply shock.[28]

It is interesting to note that the next investment boom, in 1994-1998, was considerably larger than the investment boom in 1983-1987. Clearly, the credit supply shock itself cannot explain the surprisingly long period of very low investment from 1989 to 1994, followed by an even stronger investment boom than the previous cycle. For example, from 1986 to 1992, housing investment fell by about 50 percent. The real interest rate is a factor (in addition to the usual accelerator effects) that could help to explain the large investment fluctuations

[28] The strong capacity growth of the non-traded sector after the consumption boom suggests a coordination failure, as firms did not fully realize that consumption financed by borrowing was not sustainable.

after the cyclical downturn in 1988-1989. As we have noted earlier, the real interest rate became quite high in the period 1989-1993 before it declined to a normal level, see chart 5. This brings us to monetary policy.

8 Monetary policy

As in Sweden and Finland, previous inflation and devaluations had undermined the credibility of Norway's fixed exchange rate policy at the time of financial deregulation. The labor market organizations had reasons to expect that, from time to time, the government would devalue the krone to regain lost competitiveness. Lenders and borrowers also had reasons to expect continued inflation, and after the drop in the oil price in the beginning of 1986, speculation against the krone was intense. When the new Labor government devalued the krone by 9 percent in May 1986, it soon realized that if the disinflation policy should succeed, it was necessary to terminate the previous policy of improving the cost competitiveness of Norwegian industry through accommodative devaluations. The question of whether the currency should be fixed or flexible had not been a political issue in Norway, however, even though the growing dependence on oil revenues could have been used as a sound argument for exchange rate flexibility to absorb terms-of-trade shocks and dampen the effects of other asymmetric shocks.[29] An important reason for the popularity of fixed exchange rates was the Scandinavian-style wage formation system in Norway, according to which the manufacturing industry exposed to international competition should act as a wage leader. In order to agree on the right nominal wage consistent with satisfactory cost competitiveness, a fixed exchange rate was a great advantage for centralized wage bargaining. A fixed exchange rate has therefore always been strongly recommended by the labor market organizations, but in years of excessive wage increases, accommodative devaluations have been welcomed too.

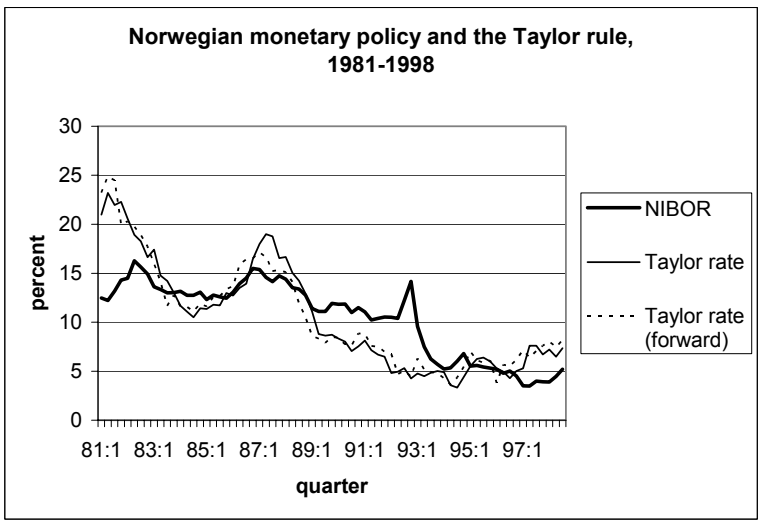
If the exchange rate should be fixed, it was necessary to leave the interest rate setting to Norges Bank to prevent loss of credibility. In the period 1987-1989, this new policy worked remarkably well in bringing inflation down, see chart 4 above. In 1989, differences between the Norwegian and the European interest rates were quite small, and all devaluation expectations seemed to have disappeared. In 1990, the center-right government removed the remaining regulations of international capital flows and replaced the currency basket with a currency peg to the ecu. There was one serious problem that only gradually became evident, however: German monetary policy had become very tight after 1989 due to the inflationary consequences of German unification. Hence,

[29] Norway revalued the krone in 1973 to reduce inflationary pressure. This was unintentionally seen as a signal to increase wages by the labor unions, however, and the real exchange rate appreciated dramatically after the wage settlement in 1973. This unfortunate experience may explain why exchange rate flexibility has not been an issue in the economic policy debate in Norway until the late 1990s.

Norwegian monetary policy had to be tight too, just as in Sweden and Finland. Therefore, the real interest rate increased substantially after the rate of inflation had come down to a level below that of Norway's trading partners, see chart 4. In the recession following the lending boom, monetary policy became increasingly tight.

Chart 15 illustrates the pro-cyclical monetary policy by comparing two versions of the Taylor rule with the money market interest rate (NIBOR). The two versions differ in that the Taylor interest rate (forward) is based on an estimate of expected inflation whereas the Taylor rate is calculated on the basis of observed inflation. The Taylor interest rates give an indication as to which interest rate would be appropriate for bringing inflation down to a 2.5 percent inflation target. If the Taylor rates are higher than the money market rate, the method suggests that monetary policy in that particular quarter was too expansionary, and if the Taylor rates are lower than the money market rates, monetary policy was too tight, hurting the real economy more than necessary to bring inflation down.

Chart 15: Money market interest rate (NIBOR) and Taylor interest rates, 1981-1998.



Source: Sveen (2000). The Taylor rate (forward) is based on data for expected inflation replacing actual inflation.

One problem with this method is that we don't know if the Taylor rule would in fact have brought inflation down in the 1980s. It is possible, for example, that the strong tax incentives to borrow and spend required a *higher* money market rate to bring down inflation than the Taylor interest rate. Since the tax rules were gradually changed to reduce these incentives, this bias in the

Taylor rule was probably greater during the lending boom in 1984-1986 than at the time of the banking crisis (1991-1992). Another problem is that the Taylor rule is estimated from U.S. data in a period where the public expected future inflation to be low. In Norway it probably took a long time until the public began to expect low inflation to prevail, perhaps not until the beginning of the 1990s. If the public believes that future inflation is going to be much higher than 2.5 percent, an optimal monetary policy strategy for bringing inflation down probably requires a *higher* interest rate than the Taylor rate. This is an additional reason for arguing that – during the lending boom – the Taylor rate underestimates the interest rate needed to bring inflation and expected inflation down to 2.5 percent.

Looking at chart 15, it suggests that monetary policy was very tight in the years before and during the banking crisis (the period 1989-1992). In this period, tax incentives to borrow were gradually reduced, the rate of inflation was falling, and it is likely that the expected rate of inflation had already come down quite a bit. We are therefore confident that the large differences between the NIBOR and the Taylor rate (forward) in chart 15 do indicate that monetary policy was very tight in the period 1989-1992. The figure is, however, less clear-cut about monetary policy during the lending boom. Let us therefore take a closer look at the data.

Table 3 presents the average difference between the money market rate and the Taylor rate (forward) in the years 1984-1993. In 1984 the average difference was slightly positive (1.4 percentage points) and in 1985 zero, suggesting that monetary policy was not too expansionary in these years, at least not until the last quarter of 1985 when the Taylor rate (forward) exceeded NIBOR by 0.9 percentage points (not shown in the table). With reference to our discussion about the strong tax incentives to borrow and spend that prevailed in these years, it is entirely possible that monetary policy was too expansionary, particularly in 1985 when the growth in aggregate demand was enormous. Since monetary policy in 1985 contributed to an increase in inflation from 5.7 percent in 1985 to 7.2 and 8.7 percent in 1986 and 1987, respectively, it is likely that the Taylor rate illustrated in chart 15 underestimates the necessary interest rate to bring inflation further down in the boom years. Table 3 suggests that in 1986 and 1987, monetary policy was indeed expansionary. For the reasons discussed above, the differences between Taylor rates (forward) and the NIBOR probably underestimate the inflationary bias in monetary policy in these years also. Table 3 suggests that in 1988 monetary policy was too expansionary in the first two quarters, but turned too tight in the second half of 1988 when the sharp cyclical downturn began. In the period 1989-1992, the Taylor rates are substantially below the NIBOR, particularly in 1992. In the second half of 1992, for example, the average difference between the NIBOR and the Taylor rate (forward) was 8.4 percent, suggesting an extremely pro-cyclical monetary policy. Fortunately, the gap between the interest rate and the Taylor rate almost closed when the

Table 3: Difference between the money market interest rate (NIBOR) and the Taylor rate (forward), percentage points (annual averages of quarterly observations)

Year	NIBOR	Taylor rate (forward)	Difference
1984	12.9	11.5	+1.4
1985	12.5	12.6	-0.1
1986	14.3	15.6	-1.3
1987	14.7	16.1	-1.4
1988(I-II)	14.0	14.6	-0.6
1988(III-IV)	13.1	11.2	+1.9
1989	11.4	8.3	+3.1
1990	11.6	8.2	+3.4
1991	10.6	7.7	+2.9
1992	11.8	5.3	+6.5
1993	5.8	4.5	+1.3

Source: Sveen (2000).

German interest rate fell during 1993. From table 3 we see that the NIBOR came very close to the Taylor rate (forward) in 1993, after which a strong business cycle upturn began. Still, the previously tight monetary policy moved the inflation rate significantly below 2.5 percent in 1994.

As discussed above, the interest rate sensitivity of aggregate demand had increased as a result of the effects of financial deregulation in the 1980s. It is therefore likely that high after-tax real interest rate in 1989-1992 is an important explanatory factor behind the weak aggregate demand, slow economic growth and increasing unemployment in Norway during this period. The high real interest rate also helps to explain why housing prices declined for many years after the cyclical downturn in 1988-1989, and why the banking crisis became so extensive.

After the Swedish devaluation in November 1992, Norway's fixed exchange rate came under increased pressure. Norges Bank defended the currency by raising interest rates sharply, but eventually gave in to the pressure and let the currency float on December 10. This was a decision made in cooperation with the government. The consensus was that it would have been possible to defend

the krone longer, but that it was not worth the cost[30]. The depreciation turned out to be quite small, however, about 4 percent. Four years later, the value of the Norwegian krone was even temporarily stronger than before the attack in 1992. It is difficult to find convincing fundamental factors that could explain the speculative attack in the conventional way. Inflation was quite low, government finances were good, the banking crisis had already been handled quite efficiently, and the current account had shown a surplus for several years. Moreover, the speculative attack was much less significant for the real economy than in Finland and Sweden where the currencies were clearly overvalued before the speculative attacks there.

It is quite possible that the basis for the attack was self-fulfilling expectations (Obstfeld, 1996). Several countries had been attacked "successfully" before the November attack on the Swedish krone. Given Norway's recent history of inflation and accommodative devaluations, speculators had reasons to believe that the government would devalue rather than accepting a high interest rate for an extended period of time. In retrospect, it was fortunate that Norges Bank did not defend the currency for an even longer period of time. Instead of following Sweden and introducing inflation targeting, however, the government preferred a new policy of managed float according to which Norges Bank should raise or lower its interest rates whenever the exchange rate was considered to be too weak or too strong. This monetary policy did not work well in the boom years 1996-1998, however, because monetary policy turned pro-cyclical and contributed to excess aggregate demand. Exchange rate targeting was virtually abandoned in 1999.

9 The real estate price bubble

Empirical studies of financial crises around the world strongly suggest that financial liberalization, rapid credit expansion and bursting asset price bubbles are crucial factors that propagate boom-bust cycles and financial crises, see for example Kamsky and Reinhart (1996,1999), and Demirgüç-Kunt and Detragiache (1998). Allen and Gale (2000) offer a theory of asset price bubbles based on a credit market failure, and Bernanke and Gertler (1989) and Holmstrom and Tirole (1997), among others, have analyzed how such market failures in the financial sector may hurt the real economy. The crucial element in the model of Allen and Gale is an agency problem preventing lenders from observing how the funds are invested. The debt contract then gives rise to a risk-shifting problem, as borrowers can shift downside risk on to the lenders when buying risky assets.[31] When investors behave according to these incentives, the equilibrium

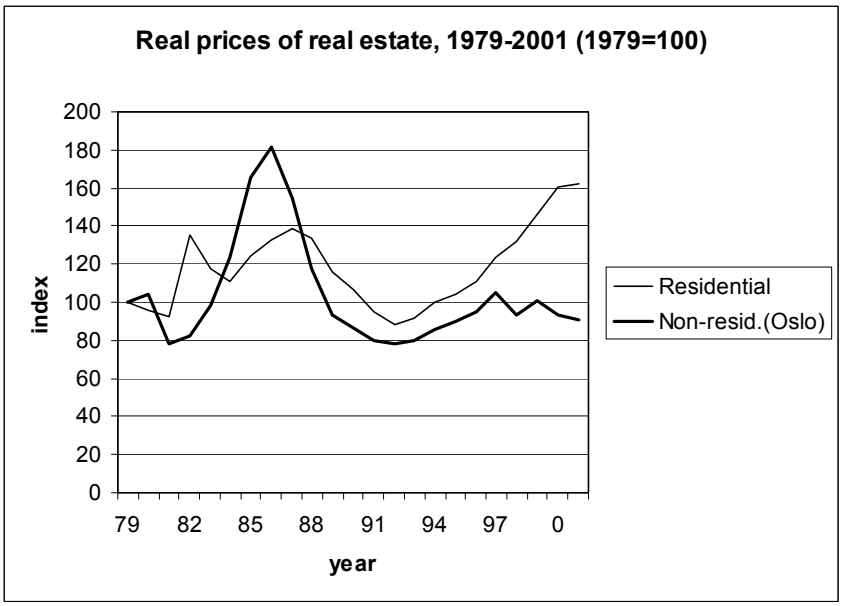
[30] It was also important for the Norwegian government not to devalue immediately after the Swedish devaluation.

[31] Guarantee funds or implicit guarantees from the government to bail out banks would add to the problems highlighted in this theory, but are not necessary elements in it.

asset price will be high relative to the "fundamental" value of the asset. In other words, an asset price bubble is created. This theory predicts that the size of the bubble will both depend on the availability of credit now and expectations of future expansion of credit. Financial deregulation usually increases the availability of credit and could therefore start an asset price bubble. The bursting of the bubble could be due to a real shock that reduces asset returns or a change in monetary policy that makes credit less available. Allen and Gale (1999) suggest that the collapse of the Norwegian asset price bubble was due to the 1986 oil price shock, which triggered fiscal and monetary tightening.

In Norway the prices of real estate were far more important for aggregate demand than stock market prices, which dropped sharply, but temporarily in 1987. Relative prices of housing and non-residential real estate are shown in chart 16. We see that the relative price of non-residential real estate in Oslo increased substantially during the lending boom, peaked in 1986 and then fell sharply to about the same level in 1992 as in 1982. The data therefore suggest a non-residential real estate price bubble fed by the credit supply shock, and which burst when economic policy was changed after the oil price shock in 1986. The fact that this asset price did not increase during the next boom in the 1990s is also an indication that there really was a real estate price bubble in conjunction with the lending boom.

Chart 16: Real prices of real estate, Norway, 1979-2001 (1979=100).



Source: Norges Bank. The series have been deflated by the CPI.

The relative housing price behaves strikingly different. First it increases as

a result of the deregulation of the housing market in the beginning of the 1980s. During the lending boom, the price rises further (after a temporary decline), but much less than the relative price of non-residential real estate. After 1987, it starts a dramatic decline, which is not comparable with what happened during the boom. Then, in the next boom in the 1990s, the housing price climbs to a much higher level than the former peak in 1987. It is therefore not obvious that the increase in the housing price during the lending boom could be characterized as a bubble. Going back to the theory of Allen and Gale (2000), it predicts that the risk-shifting problem is more likely to be serious when firms with limited liability (rather than households) borrow to invest in real estate and other risky assets. In Norway and most industrialized countries, households are stuck with the debt even if the collateral values of housing decline. This suggests that large price bubbles are more likely in stock markets and markets for commercial real estate.

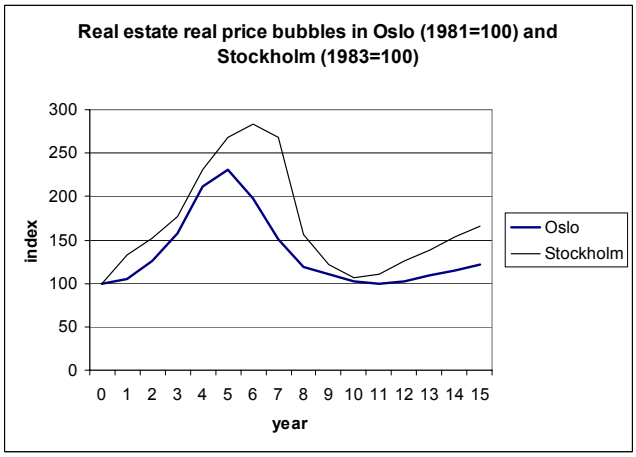
With regard to the dramatic decline in the real housing price in 1987-1993, the high after-tax real interest rate has probably played a crucial role, see chart 5 and table 3. This also explains why the relative price increased so much in the years after the real rate of interest came down in 1993. It is also likely that the large decline in relative housing prices had a significant negative wealth effect on private consumption as well as a negative effect on investment in new homes.

Chart 17 compares the non-residential real estate price bubbles in Oslo and Stockholm. We have assumed (somewhat arbitrarily) that the start of the asset price bubble is 1981 in Oslo and 1983 in Stockholm. Ten to eleven years later, we see that the relative prices in terms of the CPI are back to where they started in both cities. The bubble in Stockholm is larger than the bubble in Oslo. The former builds up over a longer time than the Oslo bubble, which bursts after five years (1986). The Stockholm bubble bursts after seven years (1990) and the decline is steeper and more dramatic than in Oslo. A notable difference between Norway and Sweden is that the banking crisis in Norway happened five years after the cyclical downturn and bursting of the bubble. In Sweden and Finland the time lags between the business cycle bursts and the banking crises were much shorter.

10 The government's handling of the banking crisis

In some of the most expansionist banks and financial institutions, low profits and weakening of capital bases were already felt in 1987, before the sharp cyclical downturn. In 1988-1989, several smaller banks got into trouble and had to be merged with larger banks, or receive capital injections from the two guarantee funds for savings banks and commercial banks. By the end of 1990, the

Chart 17: Real estate asset price bubbles in Oslo (1983=100) and Stockholm (1985=100). Nominal prices (in local currency) of non-residential real estate, deflated by the CPI's



Source: OPAK (Norway) and Englund (1999) (Sweden).

guarantee fund for the savings banks was almost empty. It was also becoming increasingly clear that some commercial banks would need government support.

In March 1991, The Government Bank Insurance Fund, was established, capitalized with 5 billion kroner, to secure the interests of depositors and bolster the general confidence in the banking industry. During the summer of 1991, the guarantee fund of the commercial banks was empty, and on October 14, 1991, Christiania Bank, Norway's second largest bank, notified that its entire equity capital was lost. The government reacted immediately and publicly declared that it would support the bank with sufficient share capital. The government injected 6 new billion kroner into the Government Bank Insurance Fund and established a new fund, The Government Bank Investment Fund, which should supply capital to the banking industry on commercial terms and help banks to raise private equity capital. In December 1991, The Government Insurance Fund injected new capital into another large commercial bank, Fokus Bank. As a result of high losses and a lack of confidence by private investors, the old share capital in Christiania Bank and Fokus Bank was written down to zero by government decision, making the government (through its Bank Insurance Fund) the sole owner of the two banks.[32] By the end of the year, Norway's biggest bank, Den norske Bank (DnB, a recent merger of Den norske Creditbank and Bergen Bank) also reported a need for capital injections from the government's

[32] An amendment to the banking law permitted the government to write down the value of the old shares to zero in order to ensure that the old shareholders were covering losses before taxpayers' money was invested.

funds. This rescue operation implied that the old private share capital was written down by 90 percent. New reported losses in 1992 further reduced the value of the old share capital to zero, leaving the government as the dominant owner of the biggest bank in Norway and as the sole owner of both Christiania and Fokus. Ironically, financial deregulation – which was intended to be an important step towards a larger role for markets and less government intervention and regulation – ended in a nationalization of the three biggest commercial banks. There were also some further capital injections into the banking industry in 1992 and 1993.

In Appendix B of this publication it is shown that the Norwegian government made a net profit from rescuing and supporting the banking sector. The fiscal cost was therefore more than recovered later. When all fiscal costs are included the gross outlay was NOK 51.1 billions and gross earnings were NOK 56.8 billions, yielding a net income of NOK 5.7 billions, or 0.4 percent of GDP in 2001.[33] All numbers are present values measured at the end of 2001. During the period 1995 to 2001 both Christiania Bank and Fokus Bank were reprivatized. However, by the end of February 2004, the government still owned 33.6 percent of the shares in the largest bank, now the merged bank DnB NOR.

A natural question is why no private investors were willing to invest in the Norwegian commercial banks during the banking crisis. The main reason was the risk was considered too high for potential private wealth owners. In 1992, the outlook for the banking industry and for the Norwegian economy was not good compared to what actually happened in the rest of the 1990s. Even in 1995, a calculation based on market prices of bank shares indicated that the government would lose financially from rescuing the banks, (see Table 2 in Appendix B of this publication). However, from 1995 to 2001, the value of the government's bank shares increased substantially. It was therefore not really surprising that in Norway, only the government could rescue the large commercial banks in 1991-1992.

The Norwegian government's handling of the banking crisis was quite efficient. Given the government's explicit willingness to inject new capital, the banks could continue their operations and keep their lines open to the international money markets. Compared with what happened in Finland and Sweden, the real economy was not declining in 1991-1993, but economic growth was picking up, see table 4. Due to strong growth of oil production, GDP was growing significantly faster than Mainland GDP in 1990-1995, but even Mainland GDP was growing by 1.4 and 2.3 percent in the two banking crisis years 1991 and 1992.

It is not possible to identify a credit crunch just by looking at aggregate data, but given the positive and increasing growth rate of Mainland GDP it seems unlikely that the quantitative importance of a credit crunch, if any, was

[33] See Table 1 in Appendix B of this publication.

Table 4: Real lending, real interest rate and the real economy, Norway, 1990-1995 (percent)

Year	Real domestic credit growth	Real growth of bank lending	Real after-tax interest rate	Growth in relative housing price	Real GDP growth	Real Mainland GDP- growth
1990	1.6	3.9	4.6	-8.2	2.0	1.0
1991	-3.7	-5.0	5.3	-10.6	3.1	1.4
1992	-5.8	-5.9	7.3	-7.4	3.3	2.3
1993	-4.6	-2.0	5.4	3.7	2.7	2.8
1994	-0.3	4.5	4.5	9.4	5.3	3.8
1995	1.4	6.1	3.1	4.5	4.4	3.5

Source: National accounts and Norges Bank.

great. A recent paper by Vale (2002) studies inventory behavior in a sample of 669 relatively small firms and looks for behavioral differences between customers of "problem banks", i.e. banks, which had received new capital from the government, and others. He does not find that the inventory behavior differed, although variables such as unused lines of credit and short-term debt to suppliers seem to matter for inventory behavior. In an empirical event study of stock prices of large firms, Ongena, Smith and Michalsen (2003) do not find significant effects for customers of distressed banks.[34] We note that the real after-tax rate of interest was particularly high in 1991-1993 and that the real housing price was declining in 1990-1992. It is therefore reasonable to interpret the negative real bank lending growth in 1991-1993 in table 4 mainly as a reflection of non-performing loans, falling collateral values, and a declining demand for credit.

How successful was the government's handling of the banking crisis? According to Allen and Gale (1999), the Nordic government's quick and extensive interventions were very appropriate. They compare Norway and Japan:

> The (Norwegian) government's prompt action in restoring the banking system meant that it was quickly able to revert to performing its normal economic function.[...] The return to robust economic growth in turn reinforced the recovery in the banking system.

Contrasting this with the handling of the banking problems in Japan, they write:

> Perhaps because in a number of dimensions other than asset prices, such as bank profitability, the severity of the crisis was not that great [...], the reaction of the Japanese government was initially in stark contrast to what happened in Norway. With the exception of modest financial assistance in 1995 to deal with the problem of housing companies affiliated to banks (the jusen), the government did not provide funds. This meant that banks slowly had to make provisions for bad loans from operating income and unrealized profits on stock holdings. [...] In Japan the presumption was that economic growth would return and this would solve the banking problem. With the benefit of hindsight, it appears that the direction of causality is the opposite of that assumed in Japan. A solution to the banking problem is necessary to restore economic growth.

[34] Several studies have employed stock price data to search for contagion effects during the Norwegian banking crisis, see Kaen and Michalsen (1994), Clare and Priestley (2002) and Andrade, Clare and Priestley (2003). The answer seems to be yes, but the contagion appears to be temporary.

Allen and Gale (1999) do not discuss, however, whether the handling of the Norwegian banking crisis was superior or inferior to those in Sweden and Finland. They emphasize that although the details differ, "the effect was the same in the sense that the macroeconomic impacts of the banking collapse were short-lived and the economies resumed growing again quite quickly [...]".

There can be no doubt that the Swedish model of bank rescue, providing guarantees and establishing a separate organization to handle bad loans of the rescued banks, has been considered to be a more natural role model for other countries than the Norwegian model. The potential problem with the Norwegian model is that the new government-owned banks could grow at the expense of the banks that did not receive new capital from the government. The government was well aware of this problem, however. In the first years after the banking crisis, the Government Bank Insurance Fund used its power as an owner to force the nationalized banks to focus on cost cutting and consolidation rather than growth and market shares. A closer study of the behavior of the government-controlled banks as well as a comparative analysis of the banking industries in Norway, Sweden and Finland are important topics for future research.

11 Remaining issues

In the introduction, we raised a number of questions of which only some have been addressed in previous sections. It is now time to address the remaining ones.

The first question we asked was if financial deregulation itself was poorly designed and prepared. We have already noted that the paper by Drees and Pazarbaşioğlu (1998) argues that the governments in all three countries failed "to minimize the adjustment costs in the aftermath of the financial deregulation". In retrospect, there can be no doubt that the Norwegian government was not prepared for the overwhelming lending boom after financial deregulation. Hardly anybody foresaw the strong forces released by deregulation, and the government therefore did not perceive the need for preparatory measures in time. There seems to be broad consensus that the tax reforms that reduced the favorable tax treatment of interest payments should have been implemented before the deregulation of the credit market, instead of after the lending boom. It is almost impossible to know what difference this would have made to the course of events, but it would certainly have increased the after-tax real interest rate at an earlier stage.

One issue that has been debated intensively in Norway is the policy of government interest rate guidelines that distorted the structure of interest rates up until 1986, particularly the banks' lending rates in relation to the money market rate. This was not, however, the case in Sweden and Finland, and it is therefore not clear how much this mattered for the cause of events in Norway. Moreover,

the government also controlled Norges Bank's interest rate setting before December 1986, the effect of which was an expansionary monetary policy in 1985 and 1986. In retrospect, the responsibility for interest rate setting should have been given to Norges Bank before the credit market deregulation, but a large majority in the parliament was in favor of the "low interest rate policy" and wanted the government to set interest rates, even the money market rate. Even though the exchange rate policy limited the scope for monetary policy in 1984, it would have been possible to increase the interest rate in the fall of 1985 and in 1986 to support the krone, which was under speculative pressure. It is also possible that such a monetary policy could have prevented the devaluation in May 1986 and accelerated the disinflation. To what extent a higher interest rate in the last months of 1985 and 1986 could have changed the behavior of banks and households is an open question. In such a scenario the banks would have been forced to borrow more from abroad instead of borrowing from Norges Bank. Since the exchange rate was fixed, however, it is unlikely that Norges Bank could have prevented a boom-bust cycle anyway. The experience of Sweden and Finland suggests that the fixed exchange rate would have triggered a strongly pro-cyclical monetary policy in 1989-1992 even if the fixed exchange rate had been defended successfully in 1986.

The second question we posed in the introduction was the following: Does widespread bank management failure (including moral hazard problems) alone explain the large losses that triggered the banking crisis? In other words, would a banking crisis have happened even under a flexible exchange rate regime that would have permitted a counter-cyclical monetary policy in 1989-1992? There can be no doubt that the banks lost a lot of money due to management failure, for example losses in branches in other countries.[35] In contrast to Sweden and Finland, Norwegian banks were previously prevented from establishing branches in different regions of the country. Those banks that expanded their lending in new regions suffered the greatest losses due to uniformed and inexperienced local branch managers with ambitious growth targets. However, the depressing effects of the high real interest rate on aggregate demand, real estate prices and the profitability of firms must also have been important. The large banking problems in Sweden and Finland after the recession and collapse in asset prices suggest that a significant share of the losses of Norwegian banks in 1991 and 1992 were triggered by the fall in collateral values and the business cycle downturn. Although many banks were in a vulnerable position due to the failure of the expansionist strategies pursued in the 1980s, it was not inevitable that the result would be a systemic banking crisis in the end.

Another issue in relation to the financial deregulation process is the capital

[35] Another area in which Norwegian banks lost a lot of money was the fish farming industry. The problems in this export industry were not directly related to the business cycle in Mainland Norway. Many banks did not pay sufficient attention to the risk and failed to charge appropriate risk premiums.

adequacy requirements of banks and the role of bank supervision. When the credit market was deregulated, capital requirements were lax, as the government had yielded to strong pressure from the banking industry. From todays' perspective, the requirements were far from adequate, but neither the banks nor the prudential regulation authority perceived the vulnerability of the banks before it was too late. The governments in Norway, Sweden and Finland are criticized by Drees and Pazarbaşioğlu (1998) for their failure to see the need to strengthen and adapt prudential safety-and-soundness regulations to the new competitive environment. In Norway, the bank supervisory office was merged with the insurance supervisory body in 1986. The new organization (Kredittilsynet) suffered from a lack of expertise that could match the expertise of the large commercial banks. Furthermore, increased attention was being devoted to the developing capital markets and less devoted to monitoring the banking system. Routine on-site inspections were reduced as more priority was given to document-based supervision. Given its competence and focus, it was therefore hardly possible for Kredittilsynet to influence the behavior of banks during the lending boom.[36]

It is an open question how much a strong bank supervisory authority would have mattered for the lending boom. It is possible, however, that if capital adequacy requirements had been the same as today from the start, the extent of the Norwegian banking crisis could have been much smaller, or perhaps avoided. Still, the welfare cost of the boom-bust cycle could not have been avoided simply by having better capitalized banks at the time of financial deregulation.

12 Conclusion

In the introduction, we agued that the most important question to ask is why the Norwegian economy was so unstable in the 1980s and beginning of the 1990s. A reasonable hypothesis, given the developments in Sweden and Finland as well as in East Asia in the late 1990s, is that the main cause was the combination of a fixed exchange rate and financial deregulation.[37] This policy forced the Nordic central banks to keep very high real interest rates at a time when the Nordic economies needed demand stimulus to fight recession. In addition, the postponement of many problems in the 1970s involved enormous challenges for Norwegian economic policy at the beginning of the 1980s. Economic policy

[36] In 1987, Kredittilsynet tightened the accounting rules of banks in order to prevent banks from postponing loss provisions. It has later been argued that if old accounting practices had been continued, the old shareholders of Den norske Bank would not have lost their entire capital, and the nationalization could have been avoided. This argument is controversial, however. Even if it is correct ceteris paribus, laxer accounting rules could have disguised the underlying problems for many bank managements and postponed the restructuring and cost-cutting efforts of the Norwegian banking industry.

[37] Wohlin (1998) argues that the root of the Swedish banking crisis was the fixed exchange rate policy after financial deregulation.

mistakes in the 1970s, OPEC II, and the international downturn had increased the rate of inflation to 13 percent at the beginning of the 1980s, and the rate of unemployment was increasing as well. It was hardly possible to bring inflation down to a low level without a strong cyclical downturn.

Norway was hit by several severe asymmetric shocks in the 1980s. First, the liberalization of the credit market released a credit supply shock and a lending boom. Then the oil price shock in 1986 triggered fiscal policy restraint and a policy of gradual disinflation. And finally, the German interest rate shock made monetary policy very pro-cyclical in 1989-1992.

Another important question is why the deregulation of the credit market triggered such a large credit supply shock in Norway. We think there are several factors that contribute to explaining this. First, the credit regulation policy had lost its legitimacy among the large banks, which had been very focused on fast growth in the beginning of the 1980s. It is also important that the deregulation of the credit market occurred rather quickly, increasing the degree of competition in a short period of time. At the same time, credit rationing of households had been quite extensive, and the previous deregulation of housing prices had already increased housing wealth considerably. The willingness of households and firms to increase borrowing was therefore quite considerable.

The most striking difference between Norway on the one hand and Sweden and Finland on the other is the timing and depths of the economic crisis and banking crisis. The Norwegian economy did not plunge into a depression as the two other countries. It was hit by a cyclical downturn in 1988-1989, but the recession and decline in real estate prices did not trigger a banking crisis at once. However, for several years after the initial downturn, asset prices continued to decline, unemployment increased, and there was no sign of a recovery. The timing of events suggests that the strongly pro-cyclical monetary policy after the initial cyclical downturn was instrumental for the weak macroeconomic performance, the sustained fall in asset prices and the banking crisis. In the case of Sweden and Finland, the banking crisis happened in the midst of a severe economic crisis, and less than a year after the Norwegian banking crisis. The bust came much more quickly in Sweden and Finland, and asset prices declined more rapidly. Since all three countries were hit by the same interest rate shock from Germany, it is likely that this shock was crucial in explaining why the banking crises in all three countries happened at about the same time.

Why did Norway get away with a milder economic downturn and a smaller banking crisis than Sweden and Finland? Probably the reasons for the relatively stronger macroeconomic performance of the Norwegian economy are also the reasons for the less severe banking crisis. One factor is the oil price shock in 1986 that prevented a longer-lasting boom and slowed down asset prices, borrowing, consumption and investment years before the interest rate shock. Sweden and Finland did not receive a corresponding "early warning" as the oil price shock represented to Norway. On the contrary, the oil price shock

improved their terms of trade and paved the way for an international business cycle upturn that stimulated the booms in both Sweden and Finland. Another factor was the large increase in oil production that strengthened the Norwegian current account and government revenues after 1989. This permitted a more expansionary fiscal policy during the banking crisis. In Sweden and Finland, fiscal policy was expansionary during the boom, and after the bust, the room for fiscal stimulus was small. Still, fiscal policy was considerably more restrictive (pro-cyclical) during the crisis in Sweden than in Finland.

Looking back on the economic policy and events in the 1980s and early 1990s, it is easy to see that the Norwegian governments did not get the timing right. Given the political constraints and the information available when the policy decisions were made, however, it is hard to imaging how any government could have got the timing right. Postponing financial deregulation was not an attractive option either. We think that the main problem was that monetary policy was tied to defending the fixed exchange rate and therefore pro-cyclical in the boom as well as in the recession. The German monetary policy after reunification was really bad luck for all the Nordic countries. It is difficult to imagine that an active fiscal policy with the right timing could have prevented a boom-bust cycle in Norway as long as the exchange rate was fixed. The macroeconomic shocks were simply too large for counter-cyclical fiscal policy to succeed when monetary policy was strongly pro-cyclical. Under a flexible exchange rate regime, however, monetary policy could have been used along with fiscal policy to counteract the boom-bust cycle. Still, the challenges for macroeconomic policy would have been overwhelming.

References

Allen F. and Gale D. (1999). Bubbles, crises, and policy. *Oxford Review of Economic Policy*, 15(3)

Allen F. and Gale D. (2000). Bubbles and crises. *The Economic Journal*, 110.

Andrade I.C., Clare A.D., and Priestley R. (2003). The extent of real economy contagion effects during the Norwegian banking crisis. Unpublished manuscript.

Banerjee A.V. (1992). A simple model of herd behavior. *Quarterly Journal of Economics* 107, 797-817.

Berg S.A. (1993). The banking crises in the Scandinavian countries. In *Bank Structure and Competition* 1993. Chicago: Federal Reserve Bank of Chicago.

Berg S.A. (1998). Bank failures in Scandinavia. In *Preventing banking crises*, EDI Development Studies, The World Bank, Washington DC.

Bergman U.M. (2004). Finnish and Swedish business cycles in a global context. Forthcoming in Jonung, L and P Vartia (eds.), *Crises, macroeconomic performance and economic policies in Finland and Sweden in the 1990s: A comparative approach.*

Bernanke B. and Gertler M. (1989). Agency costs, collateral, and business fluctuations. *American Economic Review* 79, 14-31.

Bjørnland H.C. (2000a). The dynamic effects of aggregate demand, supply and oil price shocks - A comparative study. *The Manchester School* 68, 578-607.

Bjørnland H.C. (2000b). Detrending methods and stylized facts of business cycles in Norway - An international comparison. *Empirical Economics* 25, 369-392.

Bjørnland H.C. (2004). The role of the exchange rate as shock absorber in a small open economy. *Open Economies Review* 15.

Bowitz, E. and Hove S.I. (1996). Business cycles and fiscal policy: Norway 1973-93. Discussion Papers 178, Statistics Norway.

Bårdsen G. and Klovland J.T. (2000). Shaken or stirred? Financial deregulation and the monetary transmission mechanism in Norway. *Scandinavian Journal of Economics* 102(4), 563-583.

Clare A. and Priestley R. (2002). Calculating the probability of failure of the Norwegian banking sector. *Journal of Multinational Financial Management* 12, 21-40.

Corden W.M. and Neary J.P. (1982). Booming sector and de-industrialization in a small open economy. *The Economic Journal*, 825-848.

Demirgüç-Kunt A. and Detragiache E. (1998). Financial liberalization and financial fragility. Working Paper 98/83, Washington DC, International Monetary Fund.

Drees B. and Pazarbaşioğlu C. (1998). The Nordic banking crises: pitfalls in financial liberalization? IMF Occasional Paper No. 161, Washington DC, International Monetary Fund.

Eika T. (1996). Utbygging av petroleumssektoren og konjunkturforløpet 1973-93. *Økonomiske analyser* 3/96. Statistics Norway, pp. 10-16.

Eika T. and Hove S.I. (1994). KVARTS: Modellen bak prognosene. *Økonomiske analyser* 94/9, Statistics Norway.

Eika T. and Lindquist K-G. (1997). Konjunkturimpulser fra utlandet. *Rapporter* 97/2, Statistics Norway.

Eika T. and Magnussen K.A. (1997). Virkninger av den høye oljeprisen i 1979-85. Økonomiske analyser 8/97, Statistics Norway.

Eitrheim Ø., Jansen E.S. and Nymoen R. (2002). Progress from failure - The Norwegian consumption function. *The Econometrics Journal* 5(1), 40-64.

Englund P. (1999). The Swedish banking crisis: roots and consequences. *Oxford Review of Economic Policy*, 13(3) 80-97.

Englund P. and Vihriälä V. (2004). The financial crises in Sweden and Finland: similarities and differences. Forthcoming in Jonung, L and P Vartia (eds.), *Crises, macroeconomic performance and economic policies in Finland and Sweden in the 1990s: A comparative approach.*

Fisher I. (1933). The debt deflation theory of the great depressions. *Econometrica* 1, 1933, 337-357.

Gourinchas P.O., Landerretche O., and Valdes R. (2001). Lending Booms: Latin America and the World. NBER Working Paper No. 8249.

Haberler G. (1958). Prosperity and depression. London: George Allen & Unwin.

Holmström B. and Tirole J. (1997). Financial intermediation, loanable funds, and the real sector. *Quarterly Journal of Economics*, 112.

Hove S.I. and Moum K. (1997). Fra kjøpefest til ledighetskø. Kredittliberalisering, konsumutvikling og konjunktursvingninger 1983-1993. *Økonomiske analyser* 8/97, Statistics Norway.

Johansen L. (1958). The role of the banking system in a macroeconomic model. *International Economic Papers*, no. 8. First published (in Norwegian) as "Bankenes rolle i en makroøkonomisk model", *Statsøkonomisk Tidsskrift* 70, 1956, 1-26.

Johnsen T., Reve T., Steigum E., Sættem F., Meyer C., and Høyland E. (1992). Bankkrisen i Norge. SNF-rapport 29/92, Centre for Research in Economics and Business Administration (SNF), Bergen, 1992.

Johansen P.R. and Eika T. (2000). Driving forces behind business cycles in the 1990s. *Economic Survey*, 10, 3/2000 (Statistics Norway).

Jonung L., Kiander J., and Vartia P. (2004). The great crisis in Finland and Sweden. The macroeconomics of boom, bust, and recovery 1985-2000. Forthcoming in Jonung, L and P Vartia (eds.), *Crises, macroeconomic performance and economic policies in Finland and Sweden in the 1990s: A comparative approach.*

Kaen F.R. and Michalsen D. (1994). The effects of the Norwegian banking crisis on Norwegian bank and non-bank stocks. *Journal of Multinational Finance* 7, 83-111.

Kamsky G. and Reinhart C. (1996). Banking and balance-of-payments crises: models and evidence. Working Paper, Washington DC, Board of Governors of the Federal Reserve.

Kamsky G. and Reinhart C. (1999). The twin crises: the causes of banking and balance-of-payments problems. *American Economic Review*, 89, 473-500.

Kindleberger C.P. (1978). *Manias, panics and crashes.* New York: Basic Books.

Knutsen S., Lange E., and Nordvik H.W. (1998). *Mellom næringsliv og politikk. Kredittkassen i vekst og kriser* 1918-1998. Universitetsforlaget, Oslo.

Kokko A. and Suzuki K. (2004). The Nordic and Asian crises - common causes, different outcomes. Forthcoming in Jonung, L and P Vartia (eds.), *Crises, macroeconomic performance and economic policies in Finland and Sweden in the 1990s: A comparative approach.*

Lie E. (1998). En storbank i vekst og krise. Den norske Creditbank 1982-1990. Universitetsforlaget, Oslo.

Marshall A. and Marshall M. (1879). *Economics of industry.* London: Macmillan.

Mills J.S. (1867). Credit cycles and the origin of commercial panics. *Transactions of the Manchester Society*, Manchester.

Minsky H.P. (1977). A theory of systematic financial instability. In Altman, E I and Sametz, A W (eds), *Financial crisis: institutions and markets in a fragile environment.* Now York: Wiley, pp. 138-152.

Mullineux A.W. (1990). *Business cycles and financial crises*, Harvester Wheatsheaf, New York.

Obstfeld M. (1996). Models of currency crisis with self-fulfilling features. *European Economic Review* 40, 1037-1047.

Ongena S., Smith D.C., and Michalsen D. (2003). Firms and their distressed banks: lessons from the Norwegian banking crisis (1988-1991), *Journal of Financial Economics* 67, 81-112.

Revell J. (1986). The complementary nature of competition and regulation in the financial sector. In Gardener, E P M (ed.), UK banking supervision: *Evolution practice and issues*, George Allen & Urwin, London.

Rødseth A. (1994). Vegen til høg arbeidsløse. In Sandmo, A, (ed.) *Perspektiv på arbeidsledigheten*, SNF Årbok 1994. Fagbokforlaget, Bergen.

Scharfstein D. and Stein J. (1990). Herd behavior and investment. *American Economic Review*, 80, 465-479.

Steffensen E. and Steigum E. (1991). Penge- og kredittpolitikk, konjunkturer og bankkrise. In Isachsen, A J (ed.), *Penger, kreditt og valuta*, Universitetsforlaget, Oslo.

Steigum E. (1980). Norsk penge- og kredittpolitikk i perspektiv. *Sosialøkonomen.*

Steigum E. (1983). Capital shortage and classical unemployment. *International Economic Review* 24, 461-473.

Steigum E. (1992). Financial deregulation, credit boom and banking crisis: The case of Norway. Discussion Paper 15/92, Norwegian School of Economics and Business Administration, Bergen. Translated to Finnish and published in *PTT Katsaus* 4, 10-31 (1992).

Steigum E. and Thøgersen Ø. (2003). Borrow and adjust: fiscal policy and sectoral adjustment in an open economy. *International Economic Review* 44, 699-724.

Sveen T. (2000). Tayloring the Norwegian interest rates. Essay 3 in *Five essays on credibility, monetary policy rules and inflation targeting*, Doctoral dissertation, Norwegian School of Economics and Business Administration, Bergen.

Svensson L.E.O., Houg K., Solheim H.O., and Steigum E. (2002). *An independent evaluation of monetary policy and institutions in Norway.* Centre for Monetary Economics, Norwegian School of Management BI, Oslo.

Tornell A. and Westermann F. (2002). Boom-bust cycles in middle income countries: facts and explanation. CESifo Working Paper No. 755, July.

Vale B. (2002). Firms' inventory investments, financial condition and banking crisis. In Hasan, I and Hunter, W C (eds.), *Research in banking and finance*, Vol. 2. Elsevier Science.

Wohlin L. (1998). Bankkrisens upprinnelse. *Ekonomisk Debatt* 26, nr 1, 21-30.

Chapter 3

The Nordic banking crises in the early 1990s – resolution methods and fiscal costs

Knut Sandal

In the early 1990s, Finland, Norway and Sweden all went through a systemic banking crisis. In this paper we analyse and compare resolution methods, fiscal costs and post-crisis bank performance in the three countries, and discuss whether these factors are interrelated. The three economies and their banking sectors recovered relatively quickly from the crises. To some extent, this could be down to luck. However, there may be some general lessons to be learnt from the way the authorities handled the crises. Common features were prompt and broad-based government intervention with severe conditions attached. However, there were also differences, e.g. in the treatment of private shareholders, the issuance of blanket creditor guarantees, the role of private guarantee funds and the use of asset management companies or "bad banks". The main divide runs between Norway on the one side and Sweden and Finland on the other. The paper also presents new estimates of the fiscal costs of the banking crisis in Norway that are the first to include all public expenditure and income. Net fiscal costs have been significantly smaller in Norway than in Finland and, to a lesser extent, Sweden. This was partly due to the method of crisis resolution, as well as the magnitude of the crises. After the crises, state ownership of banks was greater in Norway than in the other two countries. The Norwegian state's income from the gradual sale of shares has been substantial. However, from a financial perspective, it could have sold its shares much quicker and still done well. There can be several objections to state ownership of commercial banks. However, the Norwegian banks with significant state ownership have not performed very differently from other banks after the crisis.

1 Introduction

In the early 1990s, three of the five Nordic countries - Finland, Norway and Sweden – all suffered a systemic banking crisis.[1] The development and causes of the three crises were quite similar. In a nutshell, deregulation was followed by boom and bust in all three countries.[2] However, the methods the authorities employed to resolve the crises were quite different, as were the fiscal costs of the resolutions.

Arguably, the crises consisted of five parts: increased fragility, negative shock, crisis, resolution and effects of the resolution. Our focus is on the two latter parts: We analyse and compare resolution methods, fiscal costs and bank performance in the three countries, and discuss whether these factors are interrelated.

One important issue we discuss (focusing on Norway) is the extent and duration of government take-overs and their effect on the net fiscal costs and bank performance. State ownership – as a last resort form of crisis resolution – represents significant financial outlays for the taxpayer. However, ownership also means that the state may be able to recoup (part of) its outlays through reprivatisation. Pure lenders, on the other hand, are excluded from this potential "upside". Most economists agree that state ownership of commercial banks is a bad idea, and may have a negative influence on bank results. However, intermediate state ownership with a gradual selling off at prices not significantly lower than "underlying value" may ensure that the budgetary cost of the crisis resolution is kept at a minimum. Thus there may be a trade-off between bank performance and the net fiscal costs of crisis: a quick privatisation may improve bank performance rapidly but at the cost of increasing the budgetary cost (and vice versa). Ultimately this is a question of the optimal timing of privatisations.

The Nordic banking crises were the first systemic banking crises in developed countries since the 1930s (not counting WW2-related problems).[3] As such, it should come as no surprise that the crises have been the subject of numerous studies. Given the extensive literature, what new insights can this paper

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[1] Note that also a fourth Nordic country, Denmark, suffered significant banking problems due to many of the same causes as in the three other countries. However, these problems did not reach systemic proportions, even though loan losses were as high as in Norway. This is partly due to the fact that Danish banks had relatively large buffers of capital and reserves and because loan losses were more spread out in time (see Vastrup, 2002, and Koskenkylä, 2000, for more details).

[2] However, note that a particular shock, the breakdown of exports to the former Soviet Union, exacerbated the banking and economic crisis in Finland.

[3] There have been several non-systemic crises, for instance the Savings & Loans-crisis in the United States in 1984-91 and the small banking crisis in the United Kingdom in the early 1990s (classification according to Caprio and Klingebiel, 1999).

bring? First, while many studies either focus on individual countries or present a "Nordic" crisis resolution model, we compare resolution methods and point out that there are important differences. Second, we present new estimates of the gross and net fiscal costs of crisis resolution in Norway. Earlier estimates are incomplete and not on a present value basis. We also compare the fiscal cost of resolving the banking crises in the three countries. Third, we deal more extensively with the effects of government ownership.

The paper is organised as follows: Section 2 lays out the key facts about the development and causes of the crises. Section 3 presents and compares the various crisis resolution methods. Section 4 compares estimates of gross and net fiscal costs of the crisis resolutions in the three countries. Section 5 discusses the effects of government ownership, and section 6 concludes.

2 Why and how did the crises develop?

The type and scale of a crisis may explain why different resolution methods were chosen and why different levels of fiscal costs were incurred. Some understanding of the causes and the development of the Nordic banking crises is thus necessary. However, due to space constraints, the following overview is brief and somewhat simplified.[4]

Initially, three broad observations can be made. First, the causes of the crises in the three countries were quite similar, although there were also some differences, for example regarding the types of exogenous shocks. Second, there was not one single reason for the crises, but rather a mixture of different causes. Third, the crises followed the typical build up and eruption of banking crises (mostly experienced by countries outside the OECD, see e.g. IMF (1998)).

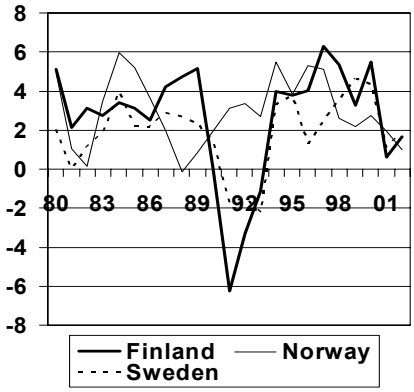
Figures 1-9 contain selected macroeconomic indicators for the three countries and data for banks' loan losses. In short, the scenario of the crises was the following: Solid economic growth and very rapid credit and asset price growth – in the mid-1980s for Norway, mid-to-late 1980s for Finland and Sweden – were followed by a cyclical downturn and heavy loan losses that exhausted the capital of many banks that had over-extended themselves. As a result, the authorities stepped in to maintain the functioning of the banking system.

2.1 Strong credit and asset price boom

What caused the strong credit boom in the 1980s? Due to quantitative regulations (e.g. on bank lending and on the foreign funding of banks), credit had been rationed. Credit demand was thus very high when regulations were lifted

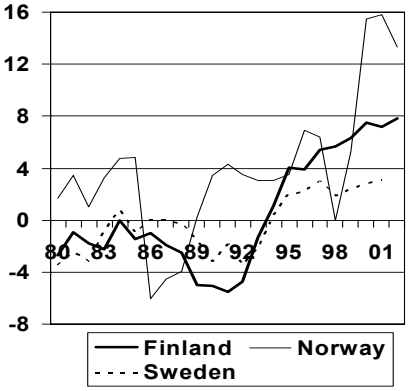
[4] For a more detailed discussion, see Drees and Pazarbaşioğlu (1998), Daltung (2004), Englund (1999) and Steigum, Chapter 2 in this publication.

Fig. 1 Annual change in real GDP (in %)



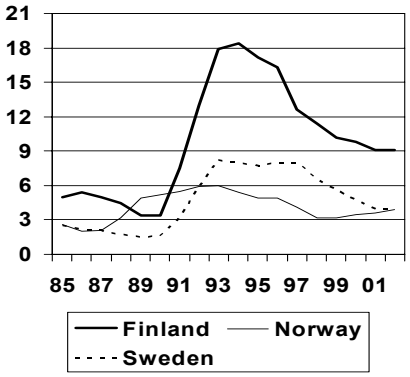
Source: IMF Int. Fin. Statistics

Fig. 2 Current account balance in % of GDP



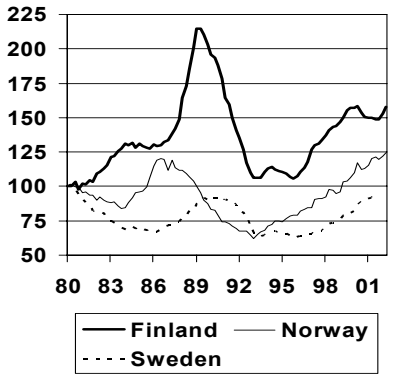
Source: IMF Int. Fin. Statistics

Fig. 3 Unemployment rate (in %)



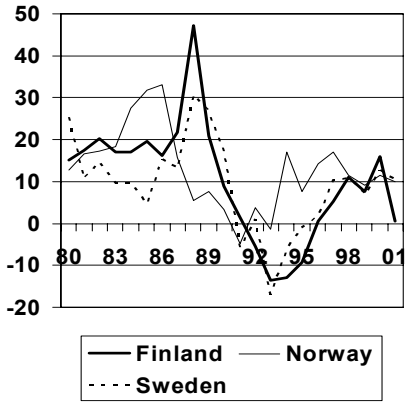
Source: IMF Int. Fin. Statistics

Fig. 4 Real (infl.adj.) residental property price indexes. 1980 = 100



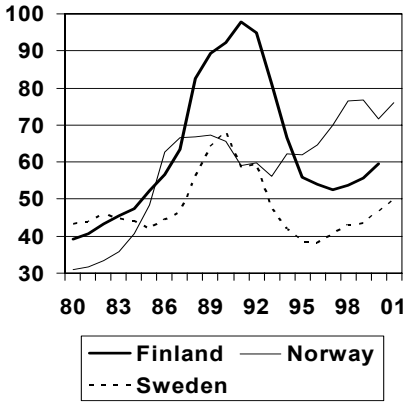
Source: BIS (using national data)

Fig. 5 Annual growth in loans (in %). All banks



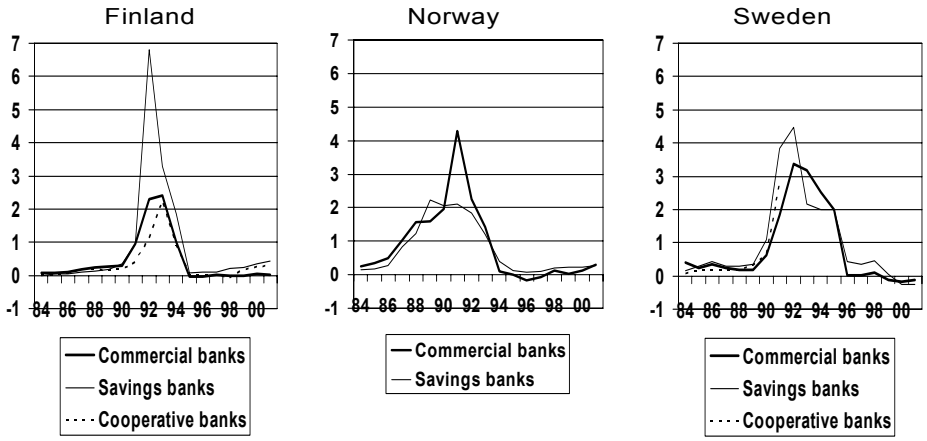
Source: OECD (2002a, 2003)

Fig. 6 Loans in % of GDP. All banks



Source: OECD (2002a, 2003) and IMF

Fig. 7-9 Loan loss provisions in % of balance sheet total



Source: Drees and Pazarbasioglu (1998) and OECD (2002a, 2003)

in all three countries in the early to mid-1980s. In addition, tax systems encouraged borrowing through very generous rules for deducting interest expenses from taxable income. After allowing for inflation, the cost of borrowing was very low or even negative. There was thus a perception that borrowing was kind of a "free lunch". A booming economy and optimism about future prospects led to increasing property prices. Higher collateral values facilitated borrowing, which in turn contributed to increasing prices. As a result of this spiral, property prices increased sharply.[5] Stock markets also boomed, but they were (and still are) far less important to private sector wealth than property markets in the Nordic countries.

2.2 Weak risk management

Credit supply was very accommodating to the strong demand. Financial deregulation enabled banks to strongly expand lending. Why banks chose to make loans that ultimately proved very unprofitable is perhaps more difficult to understand. However, banks found themselves in a new competitive environment, and were uncertain how to react. In the regulation period, credit was rationed and credit risk was limited. Increasing lending volume (when possible) was thus a "fool-proof" way of increasing profits. Many banks, but far from all, did implicitly assume that this was still the case in the new deregulated environment, and chose to prioritise "selling" loans and competing for market shares far higher than ensuring adequate internal controls and risk management. Promotion of staff was based on volume expansion, not risk-adjusted return over time.

[5] There are indications that commercial property prices increased even more than residential property prices, but good data are scarce.

Banks also entered into new areas of lending, both by geography and sector, of which they had less than adequate knowledge. These expansionary strategies may partly have been the result of herding, i.e. banks copied the strategy of a leading (aggressive) bank.

2.3 Inadequate supervision and macroeconomic policies

The supervisory authorities did not do enough to correct the situation. They lacked resources and qualified staff and did not prioritise on-site inspections. The authorities also allowed the lending boom to develop by accepting that low-quality instruments were included in the capital base or by allowing circumventions of requirements by semi-artificial accounting (Halme, 2002). The poor quality of capital was of course a major problem when loan losses actually materialised.[6]

Macroeconomic policies were not adequately tightened to offset the strong impulses stemming from the lifting of credit regulations. Fiscal policy was too lax, and monetary policy was tied to the mandate of keeping exchange rates stable. Although nominal interest rates were high compared with German rates, they were not high enough to discourage borrowing. The fixed exchange rate regime created an additional problem that has also been seen in later crises, e.g. the Asian crisis: Both the non-financial sector and the banks assumed that the fixed exchange regime would continue, and borrowed heavily abroad (typically intermediated by the banks) in foreign currencies at rates lower than domestic interest rates. As a result, exchange rate and liquidity risk was high. This effect was particularly strong in Finland and Sweden. For example, lending in foreign currency constituted almost half of total bank lending in Sweden in 1990 (Englund, 1999).

2.4 "Accidents waiting to happen"

During the 1980s, the non-financial sectors in all three countries had significantly increased their leverage. They were thus vulnerable to shocks. The same can be said about many banks, which were dependent on the soundness of their borrowers (many of which had not been adequately evaluated) and on continued access to foreign funding. In addition, the banking sectors, particularly in Finland and Norway, had relatively weak capital bases. With the benefit of hindsight, the Nordic banking sectors were thus "accidents waiting to happen". And sure enough, when the Nordic economies were hit by strong negative shocks and a cyclical downturn, loan losses and non-performing loans soared, wiping out the capital of many banks.

[6] Indeed, e.g. Stortinget (1998) stresses that the key lesson from the Norwegian banking crisis is the importance of banks being well-capitalised.

2.5 Negative shocks

The type and timing of shocks hitting the three countries were slightly different. Oil-exporting Norway suffered from the fall in oil prices already in 1986. The effective cost of borrowing later increased due to changes in tax law, lower inflation and higher interest rates influenced by higher German rates. Finland and Sweden experienced the same interest rate hike, and Finland was also badly hit by the collapse of exports to the former Soviet Union around 1990. In addition, both Finland and Sweden suffered from a currency crisis in the autumn of 1992, with volatile interest and exchange rates. Although their banking crises had already surfaced by then, there was clearly some feedback from currency crises to the banking crises (and vice versa) (Englund, 1999). The currency depreciation after the collapse of the fixed exchange rate regimes led to many bankruptcies in companies that had borrowed heavily in foreign currencies, resulting in loan losses for their creditor banks. The dependency on foreign funding also led to bank liquidity problems.

In Norway, the currency depreciation was smaller and came largely after the banking crisis. Note also that it took several years from the start of the economic downturn (around 1987, see figure 1) to the peak of the banking crisis (1991) in Norway, whereas it happened relatively quickly in Sweden and Finland. Steigum, Chapter 2 in this publication, argues that the oil price shock in 1986 may have prevented a longer-lasting boom in Norway (which eventually would have resulted in a larger bust), and that later increases in oil income permitted a more expansionary fiscal policy from 1991, which contributed to the economic recovery. Steigum also argues that since all three countries were hit by the same interest rate shock from Germany, it is very likely that this shock is crucial in explaining why the banking crises happened at about the same time in all three countries.

Table 1 summarises some facts regarding the size and duration of the crises. The economic downturn was considerably deeper in Finland than in Norway, and, to a lesser extent, Sweden. In total, real GDP fell over 10% in Finland, whereas it hardly fell at all in Norway. This is interesting, given that the lending boom was of similar size in all three countries (see figure 5). However, leverage was much higher in Finland (see figure 6). As discussed above, the exogenous macroeconomic shocks were also particularly large in Finland. Finland experienced a soaring unemployment rate. Finland also had the highest loan losses in the peak crisis year, and the largest cumulative fall in bank lending. Finland's savings bank sector in particular suffered heavy losses. However, there were loan losses on a large scale in the two other countries too (see figures 7-9).

The recovery of the banking sector took somewhat longer in Finland than in the two other two countries. Whereas the banking sectors in Norway and Sweden returned to profitability just two years after the peak of their respective crisis, it took four years in Finland. Obviously, the size of a crisis influences its

length. However, the point is perhaps not that Finnish banks recovered slowly, but rather that Norwegian and Swedish banks recovered remarkably quickly from the crisis peak. On the other hand, the total period with negative profits was quite long, particularly in Norway, where there was a fairly long build-up to the crisis.

It has taken considerable time for nominal bank lending to recover in Finland and Sweden.[7] Swedish banks have at the same time shifted their asset structure away from loans. This could indicate that the banks are not performing their credit intermediation role to the same extent as before the crisis. However, Englund (1999) argues that in Sweden, this is more likely to be due to weak loan demand than weak loan supply. Steigum, chapter 2 in this publication, reaches the same conclusion for Norway, where the decline in lending was fairly modest anyway.

Table 1: Duration and seriousness of the crises

	Finland	**Norway**	**Sweden**
Crisis period	1991-93	1988-1993	1991-93
Peak year of crisis (acc. to bank profitability)	1992	1991	1992
Cumulative fall in real GDP (%)	10.4 (1990-93)	0.1 (1987-88)	5.3 (1990-93)
Loan losses in peak year (% of GDP)	4.4	2.8	3.8
Non performing loans in % of GDP*	9	9	11
Cumulative fall in bank lending (%)	35.5 (1991-95)	4.9 (1990-91)	26.4 (1990-95)
Number of years before bank lending was back to pre-crisis level	9	4	10
Number of years from crisis peak to profitable bank. sector	4	2	2
Currency crisis as well	Yes	No	Yes

Sources: crisis period: IMF (1998), row 2-7: Drees and Pazarbaşioğlu (1998), Lumpkin (2002, Ch. IV), OECD (2003) and own calculations, cumulative fall in GDP: IMF (2001) and own calculations, currency crisis as well: Hoggarth and Saporta (2001).

*Data for non-performing loans may not be comparable due to different accounting methods etc.

[7] If we had studied real figures, the recovery period would probably have been even longer.

3 How were the crises resolved?

The banking crises in Finland, Norway and Sweden were clearly systemic, as all the largest banks experienced serious solvency problems. The five largest banks in Finland, the four largest banks in Norway[8], and three large banks in Sweden all received government capital support. In addition, some other large banks received capital support from their private owners, and there were a number of smaller banks in trouble. Although the government was heavily involved in the crisis resolution in all three countries, quite different resolution methods were used. In the following, we will first describe the measures taken in each country and then make some comparisons.[9]

3.1 Finland[10]

In Finland, the first bank in difficulties was *Skopbank*, a commercial bank that acted as a central bank for the savings banks. The bank had been under intense surveillance by the authorities since autumn 1989, and in October 1990 a restructuring programme was drawn up which included a capital injection of FIM 1.8 bn from the owners, a group of savings banks. However, this programme was not sufficient. In September 1991, Skopbank faced an acute shortage of liquidity. Bank of Finland took control of Skopbank with immediate effect, in order to retain confidence in the Finnish banking system. However, existing shareholders were not wiped out completely. Quite atypically for a central bank, Bank of Finland injected substantial equity capital into Skopbank. The bank's bad assets were transferred to two separate, newly established asset management companies ("bad banks") owned and capitalised by the central bank. Bank of Finland sold its shares in Skopbank to the Government Guarantee Fund (GGF) (see below) in June 1992. In total, the central bank used around FIM 15 bn (3.0% of GDP in 1991)[11] in the operation, of which 4 bn FIM was not recovered. The central bank lost a further FIM 0.9 bn in foregone interest income. GGF also bought the shares of the existing private owners for a nominal sum. The owners thus took a hit, but did receive something. Skopbank continued to operate, but in late 1998 the government decided to start winding up the bank.

The take-over of Skopbank by the central bank was clearly an ad-hoc measure. The central bank's injection of equity was due to the lack of alternative

[8] Of the four largest Norwegian banks, it was mainly Den norske Bank, Christiania Bank and Fokus Bank (all commercial banks) that experienced serious problems. However, the largest savings bank and third largest private bank, Union Bank of Norway, also received some support in the form of government purchases of primary capital certificates.

[9] Although our discussion is fairly detailed, it is far from complete. See references for a fuller picture.

[10] In this section we draw extensively on Nyberg and Vihriälä (1994). Other sources include Koskenkylä (1994 and 2000), Halme (2002), Drees and Pazarbaşioğlu (1998) and Stortinget (1998).

[11] The FIM/USD exchange rate was 4.15 at the end of 1991, and 5.23 one year later. FIM 15 bn thus equals USD 3.6 bn at the former rate.

authorities in Finland with the necessary competence and financial resources to handle the situation at the time. Later, the Finnish government approached banking problems more systematically. All political parties were committed to the crisis handling (although the precise measures were debated). Three measures can be highlighted:

First, in March 1992 the government provided the banks with a total capital injection of FIM 8 bn, in order to increase bank capitalisation and avoid a credit crunch. It was offered to all banks, and virtually all banks applied and received a share. The capital injection was made in the form of preferred capital certificates, which could be converted into voting stock if certain conditions connected to repayment and bank solvency were violated. However, conversions did not take place. It can perhaps be argued that capital support in this form represented a subsidy to the existing shareholders.

Second, the GGF was established in late April 1992 as an operational crisis management institution. The fund was financed over the state budget (i.e. subject to parliamentary approval), and its actions were subject to governmental approval. Support was given on transparent terms, and in the form of share capital, capital notes and guarantees. In theory, the GGF could give support either directly or indirectly through the security funds administered by the banking groups. However, support was usually given directly. Furthermore, financial support was given as part of a programme which also included conditions such as balance sheet restructuring, cost cutting, management changes and improvements in internal controls.

Third, the Finnish government announced in August 1992 that the stability of the Finnish banking system would be secured under all circumstances. In January 1993, this promise was confirmed and made more explicit by parliament. It guaranteed that Finnish banks would be able to meet their commitments on time under all circumstances. This thus amounted to a blanket creditor guarantee. However, equity holders were not protected. The guarantee was maintained for more than six years, until December 1998.

Support from the GGF was given in four instances, focusing primarily on the savings banks sector (and related banks) where the largest problems were. First, the GGF acquired Skopbank from the central bank in June 1992. Second, in the same month it decided to support 41 savings banks that were to merge into the *Savings Bank of Finland* (SBF). Support was given in the form of shares, preferred capital certificates and loans. In total, FIM 14.5 bn was used. Stringent conditions were set for the support. Owners of the merging savings banks, which were primarily savings bank foundations, lost virtually all their capital. As part of the programme, the SBF was turned into a joint stock company, of which the GGF held most of the voting stock. The bank also had to reduce risk-taking and the size of its balance sheet, and cut costs by reducing staff and branches. However, many parties in Finland, not least SBF's competitors, felt it was unfair that the SBF should be allowed to compete in

the banking market while receiving so much government financial support. In addition, there was a need to reduce excess capacity in the banking sector. It was thus decided to split the SBF into four parts and sell it to competitors of the bank. As a result, the savings bank sector was greatly reduced. The non-performing assets were transferred to an asset management company, Arsenal Ltd, owned and capitalised by the GGF and the state.

Third, the GGF conditionally agreed to manage the problem loans in *STS-Bank*, a troubled small commercial bank that had recently been organised as a savings bank. The majority of the shares in STS-Bank had earlier been bought by KOP, a large commercial bank, at market prices (which were low). This purchase was part of a restructuring plan that in the end was not accepted by parliament. In the event, good assets were transferred to KOP and bad assets remained in STS-Bank. STS-Bank was thus owned by KOP, but was effectively a "bad bank" managed by the GGF.

Fourth, the GGF provided guarantees in connection with the recapitalisations of KOP, the Union Bank of Finland and the security fund of the co-operative banks. The guarantees were not utilised.

3.2 Norway[12]

In Norway, the first major sign of crisis surfaced in the autumn of 1988, when Sunnmørsbanken, a medium-sized commercial bank, was hit by loan losses and lost more than 25% of its equity capital. The Commercial Banks' Guarantee Fund (CBGF) guaranteed all claims on the bank, and it was later merged with Christiania Bank. Shortly afterwards it became clear that two regional savings banks had lost all their equity. The Savings Banks' Guarantee Fund (SBGF)[13] gave capital support by buying primary capital certificates, and the banks were later merged into Sparebanken Nord-Norge. The central bank, Norges Bank, provided liquidity loans, on which it suffered losses of NOK 0.5 bn as part of a resolution package coordinated by the authorities. In 1989, Norion Bank, a small commercial bank, also lost its equity capital and was placed under public administration. All non-bank depositors were fully compensated. However, other bank creditors (including Norges Bank) only received a dividend of 70%.

During 1989–90, a further 11 banks, all local or regional savings banks, received support from the SBGF. The banks were merged with larger, still solvent banks. The SBGF issued guarantees or infused capital to facilitate the mergers. The SBGF considered this to be a cheaper solution than to liquidate the banks. Thus, until the winter of 1990–91, the crisis was handled by the

[12] In this section we draw heavily on Karlsen (1998) and Wilse (1995).

[13] Both the CBGF and SBGF were (and still are) privately funded through annual contributions from member banks. Membership in the relevant fund is compulsory for Norwegian banks. Under normal circumstances, the board of each of the funds consists of five members from the participating banks and two members from the authorities. The banks thus hold the majority of the board.

banking sector and the private guarantee funds (capitalised by the banks). No government contributions other than temporary liquidity support and the above mentioned loss of NOK 0.5 bn were given at this time. However, by then the guarantee funds had lost a lot of their capital, and increasing bank losses during 1990, also among the largest commercial banks, indicated that the funds' resources were soon to be exhausted.

The government thus proposed in January 1991 the establishment of a crisis management institution, the Government Bank Insurance Fund (GBIF), with a capital of NOK 5 bn (0.6% of GDP in 1991).[14] The GBIF was an independent legal entity, but was obliged to put cases of particular importance to the Ministry of Finance before a decision was made. Initially, the mandate of the GBIF was to provide loans to the two private guarantee funds to enable them to perform their roles. Conditions could be imposed on both the guarantee fund and the bank that benefited from the support, with the intention of helping the bank to improve its earnings and capital position. During 1991, a further 8 small to medium sized banks received support from the two private funds.[15] However, in the autumn of 1991, it became evident that the debt burden of the two funds would become unsustainable. Capital support from the GBIF was thus increasingly injected directly into problem banks.

After the establishment of the GBIF, a division of responsibility was established whereby Norges Bank contributed loans when these institutions experienced liquidity problems, but where underlying solvency was satisfactory, while the GBIF provided solvency support. The liquidity loan quota reached its peak of NOK 32 bn in autumn/winter of 1991–92. The highest amounts drawn were then about NOK 25 billion, see the appendix in Moen (2003) prepared by Henning Strand.

In the autumn of 1991, *Christiania Bank* and *Fokus Bank*, the second and third largest commercial banks, recorded large loan losses and needed capital support. *Den norske Bank*, the largest commercial bank, also suffered significant losses. Assets in these three banks represented 54% of total assets in the banking sector in 1991. The crisis had thus reached systemic proportions. Against this background, the parliament supported a government package which included an increase in the capital of the GBIF of NOK 6 bn and the establishment of the Government Bank Investment Fund (GBF) with a capital of NOK 4.5 bn. The purpose of the GBF was to contribute subordinated capital to banks based on commercial evaluations. Banks that were not (yet) in crisis were often unable to raise capital in the private market due to a general lack of confidence in banks. The GBF was thus to participate together with private investors in these banks'

[14] The NOK/USD exchange rate was 5.98 at the end of 1991. Thus NOK 5 bn equals USD 0.84 bn.

[15] In total, the CBGF made payments to crisis banks of NOK 7.2 bn, of which NOK 2.5 bn was financed with support loans from the GBIF. The SBGF made payments of NOK 3.9 bn, of which NOK 0.5 bn was financed with support loans from the GBIF. In comparison, the GBIF made direct payments of NOK 13.2 bn (source: Wilse, 1995).

issues of capital instruments. Amendments were also made to the banking law, enabling the government under certain conditions to write down a bank's shares to zero. This ensured that share capital really was written down to the extent that capital was lost.

It was soon realised that Christiania Bank and Fokus Bank had lost their entire share capital.[16] The share capital in Den norske Bank was written down by 90% according to losses. The banks needed more capital, but private investors were unwilling to invest. All three banks thus received a substantial capital infusion from the GBIF at the end of 1991. Conditions were established regarding balance sheet restructuring/downsizing, cost cuts and other measures to improve results. Share capital was written down to cover estimated losses. In both Christiania Bank and Fokus Bank the share capital was written down to zero by government decision (after shareholders had refused to do so). The existing shareholders thus did not receive anything for their shares, and the GBIF became the sole owner of the two banks. The boards and the top management were replaced. The banks received further capital support from the GBIF in 1992.

In Den norske Bank, which still had private owners at this time, the injection from the GBIF was made in the form of preference capital. This capital ranks between (ordinary) share capital and subordinated debt, and could be converted into shares *on the GBIF's notice* (which was later done). Support in this form would ensure that the bank's shareholders would bear all losses as long as the share capital still had any value according to the bank's accounts. In the spring of 1992, the GBIF underwrote an issue of preference shares that largely became effective. Late that year, in connection with further capital infusions from the GBIF, it was decided that the bank's old shares would be written down to zero according to losses.

The Norwegian authorities did not issue a blanket guarantee. However, spurred on by the crisis in Christiania Bank and problems in other banks, the Ministry of Finance announced on 14 October 1991 that the government would implement the necessary measures to secure confidence in the Norwegian banking system. On the same day, Norges Bank announced that it would secure the necessary supply of liquidity to Christiania Bank and the rest of the banking system. Later the same month, the government announced that it would implement the necessary measures to secure depositors and other creditors of Christiania Bank against losses and to ensure confidence in the Norwegian banking system in general. Norwegian banks' conditions improved markedly in 1993. With the exception of problems in Oslobanken, a small commercial bank which was later liquidated, the banking crisis was over.

After the banking crisis, the government has gradually sold its bank shares.

[16] This conclusion was questioned by certain quarters, not least former shareholders. However, a commission established by parliament has later supported it, see Stortinget (1998) or Appendix A.

During the autumn of 1995, all the shares in Fokus Bank were sold in a public issue. The bank was later bought by Danske Bank from Denmark. The shares in Christiania Bank were sold more gradually. For several years it was government policy to keep at least one-third of the shares in the bank. However, an offer from the pan-Nordic group Nordea for the remaining shares (35%) was eventually accepted and Christiania became part of this group (as a subsidiary of the parent bank in Finland) in 2000. Similarly, shares in Den norske Bank were gradually sold. The government now holds 34% of the shares in DnB NOR, the result of a merger between Den norske Bank and Union Bank of Norway in late 2003/early 2004. The government policy is to keep the ownership share at 34%. This floor, which represents a negative majority, is partly motivated by a wish to keep head office functions and financial competence in Norway. The government has throughout stayed away from the daily running of the banks it had/has an ownership position in. However, it is fair to say that the political environment in Norway has been more sceptical to domestic mergers and acquisitions (with a resultant increase in market concentration) than governments in neighbouring countries. As a result, Norwegian banks may not have been able to implement structural changes that they deemed favourable for their long-term development.

3.3 Sweden[17]

The first Swedish bank in difficulties was *Första Sparbanken*, the country's largest savings bank, which reported heavy loan losses and inadequate capital levels in the autumn of 1991. The Swedish government provided a lending guarantee of SEK 3.8 bn to the savings bank foundation that owned the bank. In the spring of 1992, the guarantee was changed into a loan, and an additional loan of 4.2 bn was given to the foundation. The interest rate on the loans was below market rates. In total, these interest subsidies represented around SEK 1 bn. As part of the solution, it was decided to merge the bank into the new Sparbanken Sverige, together with several other savings banks.

Later in the autumn of 1991, *Nordbanken*, the country's third largest commercial bank, reported heavy loan losses and the need for more capital. At the time, the Swedish state owned 71% of the bank's equity. The state thus faced these problems both as a majority owner and as a body responsible for ensuring financial stability. The state chose to guarantee an equity issuance of SEK 5.2 bn, of which it bought an amount equivalent to SEK 4.2 bn. As a result, the state's ownership share increased to 77%. In the spring of 1992, problems reoccurred. The parliament authorised the use of SEK 20 bn (1.3 % of GDP in 1992)[18] to restructure the bank (the sum was later increased), of which 2 bn

[17] In this section, we draw heavily on Ingves and Lind (1996, 1998). Other sources include Andersson and Viotti (1999), Bäckström (1998), Daltung (2004), Finansdepartementet (1994, 1995) and Jennergren and Näslund (1998).

[18] The SEK/USD exchange rate was 5.56 at the end of 1991. One year later it was 7.06 and two years later it was 8.34. SEK 20 bn thus equals USD 2.83 bn at the 1992-rate.

was used to buy out the private shareholders. The share price in this operation was equal to the share price in the earlier equity issue. Existing shareholders were thus not penalised. This is partly due to the fact that the government felt responsible for the bank's problems as the major shareholder. The government also feared a lawsuit from private shareholders on the grounds of misrepresentation of the financial situation in Nordbanken in connection with the equity issue in 1991. As part of the restructuring programme, most of the bad assets were transferred to a separate asset management company, Securum. Securum was capitalised by the state with equity capital of SEK 24 bn and loan guarantees of 10 bn.

In April 1992, problems were experienced in *Gota Bank*, the fourth largest commercial bank (but significantly smaller than Nordbanken). Its owners, an insurance company, had earlier injected new capital, but now announced that it was only willing to inject a limited amount of capital in a planned equity issue. This led to a significant loss of investor and creditor confidence. The authorities considered that the future prospects of Gota Bank as an independent entity were not viable. The chosen solution was to transfer bad assets to an asset management company, Retriva, which was capitalised (by SEK 3.8 bn) by the state. The healthy part of the bank received SEK 20 bn capital support from the state, and was offered to other banks. In the end, the state-owned Nordbanken was the only "bidder", and it took over Gota Bank at the end of 1993. Former private shareholders in Gota Bank did not receive anything for their shares.

Until the summer of 1992, problems were significant but not yet systemic, and were treated in an ad-hoc manner. However, from then on, credit losses increased significantly due to the economic recession and collapsing property prices. The interest rate and currency turmoil in the autumn of 1992 was the final straw. Funding costs increased and foreign creditors withdrew their foreign currency funding. By then, all the seven largest banks, representing 90% of total banking assets, were hit by heavy credit losses.

Thus from the autumn of 1992, the Swedish authorities treated the crisis as a systemic crisis and implemented several additional measures. The measures had broad political support. This contributed to their credibility, as the market knew that the measures would not change/be withdrawn if there was a change of government. An immediate concern of the government, a potential liquidity crisis, was avoided mainly through two measures. First, the government announced on 24 September that it would propose to parliament that the state guaranteed that all banks would be able to meet their obligations in a timely manner. This amounted to a blanket creditor guarantee (equity holders were not covered), and was later supported by parliament. The guarantee was maintained until July 1996. Second, the central bank, Riksbanken, used a large share of its foreign currency reserves as liquidity support through currency deposits in the banks. At the peak, foreign currency equivalent to SEK 57 bn was utilised. In addition, banks could borrow SEK freely without secu-

rity in Riksbanken's normal liquidity system (due to the government blanket creditor guarantee, Riksbanken faced no credit risk). These measures resolved the immediate liquidity problems.[19]

A crisis resolution agency, Bankstödsnämnden (BSN), was founded and started operations in May 1993. The task of the BSN was to implement the public sector's capital support to crisis banks. The guiding principle was that support was open to all banks and on the same criteria, based on applications from the individual banks. The BSN would then evaluate the size of support needed - based on estimates of loan losses - and whether the bank would eventually recover as an independent entity. If the latter was not the case, more severe measures, including liquidation or a take-over (of parts of the bank) by another bank, had to be considered. Gota Bank is an example of the latter. Support was transparent, and given in the form of equity capital, guarantees and loans. Several conditions regarding risk reductions, improvement of internal controls and risk management, cost-cutting etc. were linked to the support. All large banks apart from Svenska Handelsbanken applied for support. However, S-E-Banken and Sparbanken Sverige later withdrew their applications and issued new equity (bought primarily by existing owners) instead. Föreningsbanken received a guarantee that the state would buy preference shares if the capital adequacy in the bank fell under certain levels. The guarantee was not utilised.

Overall, 98% of the state's capital support was directed to two banks, Nordbanken and Gota Bank. However, these and other measures taken, including the blanket creditor guarantee and the various forms of liquidity support, benefited all banks as it improved their liquidity position and increased their opportunities for attracting new loan funding and equity capital. As a consequence, many banks did not need public capital support.

The BSN represented the state as the owner in Nordbanken and Gota Bank. The parliament had ordered that the state should not interfere in the daily running of the banks as long as the banks fulfilled certain solvency criteria. However, an important task for the owner representative was to make sure that the conditions that were set in connection with the granting of state support were met. Already from the start of the state ownership, the plan has always been to privatise Nordbanken as soon as it could be done in an economically viable way. However, this plan has progressed rather slowly and gradually. In 1995, the state sold 34.5%, and further shares were sold in 1996. At the end of 1996, the state ownership share was 59.4%. Later, Nordbanken entered the pan-Nordic group Nordea. The Swedish state currently (end of 2003) has an ownership share of 19% in Nordea, and is still its largest shareholder.[20]

[19] There were also two other instances of central bank support which are somewhat "related" to a "lender of last resort" role. First, during the short period in the autumn of 1992 of extremely high interest rates (the key rate reached 500%), Riksbanken bought newly issued bonds from a large mortgage institution. Second, during the same period, Riksbanken let banks borrow money through the normal liquidity system at subsidised rates.

[20] The fact that the Swedish state has kept such a significant ownership of a large commercial

3.4 Comparing the three countries

When comparing the handling of the three crises, the perhaps most obvious observation is that the public sector played a very prominent role both in terms of emergency measures and longer-term measures (to improve bank profitability) in all three countries. The measures had broad political backing, which enhanced their credibility. Another common theme is that measures were rather ad hoc at first, before it became clear that the crises were systemic. A reason is that there was a lack of relevant regulation, institutions and systems to deal with banking crises before the crises actually happened. Later on, more systematic approaches were applied. Table 2 compares the main features of the crisis resolutions in the three countries.

Blanket creditor guarantees

Finland and Sweden issued blanket creditor guarantees (shareholders were not covered). Norway did not. Although the purpose of the above-mentioned statements from the Norwegian authorities was the same – to secure confidence in the banking system – there was no juridical guarantee to bank creditors in the same way as in Sweden and Finland.

A blanket creditor guarantee is a short-term cure with potential long-term problems in the form of moral hazard, because creditors face no credit risk and so have no incentive to monitor or discipline banks. There is good reason to believe that the size of the problems and particularly the level of foreign funding in Finland and Sweden made the blanket creditor guarantees necessary. However, the guarantees were maintained until 1996 in Sweden and 1998 in Finland. Four and six years respectively is a long time, perhaps too long given that the banking sectors had clearly recovered some time before the guarantees were lifted. However, it is possible that the two governments wanted to make absolutely sure that they did not end up in a situation where they had to reinstate the guarantees shortly after they had been lifted.

Lender of last resort

In all three countries, the central bank provided liquidity to domestic banks. However, only Norway gave emergency liquidity support, *in a strict sense*, to *individual* banks. The Swedish central bank provided SEK-liquidity freely through its normal operations. In addition, it injected a significant part of its foreign

bank over so many years is often overlooked by the international literature on the Nordic banking crises. In general, the pace of privatisation is dependent on several factors. One factor is the success of other state privatisations. In Sweden, the calamity of the privatisation of Telia, a large telecom company, may have delayed matters. The Finnish state is the major shareholder (40% ownership share) of Sampo, a large Finnish financial group, and has a 0.4% ownership share in Nordea. However, this ownership position is not a direct result of the Finnish banking crisis.

Table 2: Crisis resolution measures

	Finland	**Norway**	**Sweden**
Emergency measures			
Introduction of a blanket creditor guarantee	Yes	No	Yes
LLR-assistance (% of annual GDP at peak)	No, not in a strict sense	Yes (3.6%) – some losses	No, not in a strict sense
Institutional measures			
Creation of a separate bank restructuring agency	Yes	Yes	Yes
Creation of asset management companies	Yes	No	Yes
Restructuring measures			
Private sector merger or purchase & assumption	Yes	Yes	Yes
Support from private deposit insurance funds	Yes, but limited	Yes, in early stages	No
Liquidation (% of banking system assets)	No	Yes (1%)	No
Government open bank assistance	Yes	Yes	Yes
Public take-over	- Skopbank - Savings Bank of Finland*	- Den norske B. - Christiania B. - Fokus Bank	- Nordbanken** - Gota Bank
Shareholders eliminated or diluted	Yes, but mixed	Yes	Yes, but mixed
Losses to creditors	No	No, with one minor exception	No
Managers and board sacked	Yes	Yes	Yes
Strict targets for balance sheet restruct., impr. risk management and cost cuts	Yes	Yes	Yes
Other measures			
Steps to improve prudential supervision and regulation	Yes	Yes	Yes
Description of resolution			
Speedy	Yes	Yes	Yes
Transparent	Yes	Yes	Yes

Source: Nordic central banks and own evaluations based on a variety of sources. Format inspired by Lindgren et.al. (1999).

*SBF was newly established, based on the mergers of problem savings banks.

**The Swedish state had a majority share in Nordbanken before the crisis.

exchange reserves into the banks in the form of foreign currency deposits. However, although they represented liquidity support, neither of these operations are lender of last resort-assistance in a strict sense. The same applies to Bank of Finland's take-over of Skopbank.

Resolution agencies and "bad banks"

As regards institutional measures, all three countries established a bank restructuring agency, controlled by the government and financed over the state budget.

Finland and Sweden established separate companies ("bad banks") that managed non-performing assets in some crisis banks. The purpose was to enable the healthy parts of the problem banks to continue normal operations (Koskenkylä, 2000), and let specialists work on recovering as much from bad assets as possible. Norway did not use this approach. However, similar structures were established within some of the banks.[21]

New regulation for write-downs

Both Norway and Sweden introduced regulations that allowed the government to write down a bank's equity capital against losses. Apart from ensuring that equity capital was valued correctly, this was done to make sure that existing shareholders could not delay a rescue operation and thus put themselves in a bargaining position against a government that was concerned with systemic stability.

Sweden introduced a legal framework where the correctness and legality of the write-downs could be tested. Norway did not. As a consequence, there has been considerable debate over several years about whether the write-downs in Norway were correct or not (see Stortinget, 1998). That being said, unhappy investors did have the opportunity to promote their cases through the regular legal channels.

The role of deposit guarantee funds

In Norway, and to a small extent in Finland, private deposit guarantee funds provided support in the first part of the crises. Particularly in Norway, the guarantee funds played an active part in facilitating solutions, often through capital support and/or guarantees to healthier banks that took over or merged with problem banks. In Sweden, there was no deposit guarantee scheme and consequently no guarantee funds.[22]

[21] Vale, Chapter 1 in this publication and Karlsen (1998) discuss why Norway did not choose to establish separate asset management companies. For a general discussion of advantages and disadvantages of using such companies, see e.g. Klingebiel (2000).

[22] A deposit insurance scheme was introduced after the crisis in 1995.

Liquidations, open bank assistance and government take-overs

Only two small banks (both Norwegian) were liquidated during the three banking crises. It is difficult to liquidate large banks for a number of reasons, not least systemic. However, there may have been other, smaller banks in all three countries that could have been liquidated. Governments in all three countries provided some open bank assistance.[23] The Finnish capital injection of FIM 8 bn in 1992 and the Swedish support loans to Första Sparbanken in 1991-92 are perhaps the clearest examples. However, in the case of large banks, government take-overs were more common. This is partly due to the fact that the sheer scale meant that private solutions were more difficult to facilitate. Indeed, governments always tried (in vain) to find a private solution before a public take-over was decided. Government ownership was the largest in Norway, where the state took over the country's three largest commercial banks.

Consequences for existing shareholders, creditors and bank leadership

In Norway, existing share capital was written down to zero before the state took over the three large banks. In Finland, existing (private) shareholders did take a hit in Skopbank, but were not completely wiped out. The shareholders of other banks benefited from open bank assistance. The same applies for Sweden's Första Sparbanken. Furthermore, private shareholders did not suffer losses in Nordbanken. However, that was perhaps a special case due to the large initial state ownership. Existing shareholders in Gota Bank lost everything. As regards creditor losses, the lack of losses in Finland and Sweden is related to the blanket creditor guarantees. With one minor exception, no creditors suffered losses in Norway either. The boards and top management of crisis banks were largely replaced.

Supervisory changes

The supervisory authorities have been given significantly more resources and the competence of their staff is much higher now than before the crises. In addition, the supervisory authorities have adapted their practices after the crises, with more focus on internal controls and risk management. The legal framework and operational procedures for crisis handling have been strengthened. Due to the increase of cross-border operations, co-operation between Nordic supervisory authorities and central banks is evolving. Systemic stability considerations receive more attention, e.g. through the production and publication of financial stability reports by the central banks and some supervisory agencies. In 1997, the central banks in Norway and Sweden were the first central banks world-wide

[23] Open bank assistance means that government provides financial assistance without taking over the bank or eliminating entirely the current shareholders' position (Hoggarth, 2002).

to publish financial stability reports.[24]

3.5 Structural changes and post-crisis bank performance

As a result of crisis restructuring, the number of savings banks fell quite dramatically in Finland. The number of savings banks also decreased in Norway and Sweden, but more in line with the long-term trend. Swedish co-operative banks disappeared altogether. All three governments used their position – both as creditor and as bank owner – to force through cost cutting and other efficiency measures in order to improve results in their respective banking sectors. The three banking sectors were clearly suffering from over-capacity before the crises, and the crisis resolutions contributed to the consolidation process, see figures 10-12.

Particularly Finnish banks went through a striking transformation.[25] The fact that the Norwegian banking sector went through fewer structural changes (i.e. mergers and acquisitions) both in connection with the crisis resolution and in the years afterwards, has probably contributed to Norwegian banks being somewhat less cost efficient than Finnish and Swedish banks.[26] Less domestic consolidation in Norway is partly due to the rejection by government (in the capacity as owner or regulator, or both) of some domestic structural initiatives. This may also have contributed to the eventual take-overs of Christiania Bank and Fokus Bank by other Nordic banks.

Judged by the recovery time from the peak of the crises, banks returned to profitability quite rapidly, particularly Swedish and Norwegian banks.[27] Following Dzobiek and Pazarbaşioğlu (1997), we can separate improvements in bank performance into stock and flow improvements. Stock improvements emanate chiefly from financial restructuring operations (i.e. balance sheet restructuring), while sustainable flow improvements (income, costs and results) result from operational restructuring measures. Dzobiek and Pazarbaşioğlu find that countries have been more successful in addressing stock problems than flow problems. They point out that achieving positive flow effects is more difficult and takes more time than achieving positive stock effects. Furthermore, they find that the design of restructuring packages typically focus more on financial restructuring measures at the expense of operational restructuring measures.

[24] The Bank of England has published its Financial Stability Review since 1996. However, the first few years the publication was a collection of articles and did not contain a financial stability outlook.

[25] Indeed, this had contributed to Finnish commercial banks achieving a cost/income-ratio in the region of 53-60% and a return on equity in the region of 18-26% in each of the years 1997-2000 (source: Bank of Finland). These are very competitive numbers in an international context.

[26] However, all three banking sectors are clearly more "efficient" than the Danish banking sector (Koskenkyla, 2000), possibly because there was no major crisis in Denmark with a subsequent need to cut costs.

[27] If judged by the recovery time from the first year of negative profits, the recovery was not that quick in Norway and Finland.

However, banks in the three Nordic countries seem to have achieved both stock and flow improvements. Again, this is probably due to the fact that the Nordic restructuring programmes put a lot of weight on cost cuts and other operational restructuring measures.

Fig. 10 Number of banks

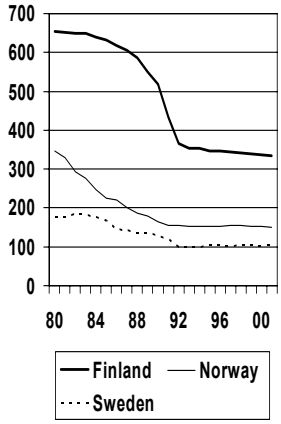


Fig. 11 Bank staff pr. 1000 inhabitants

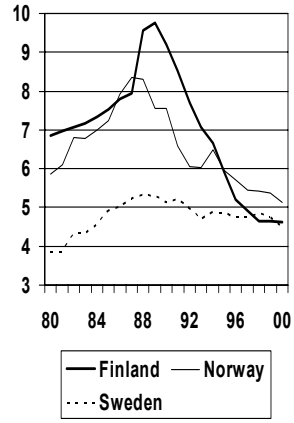
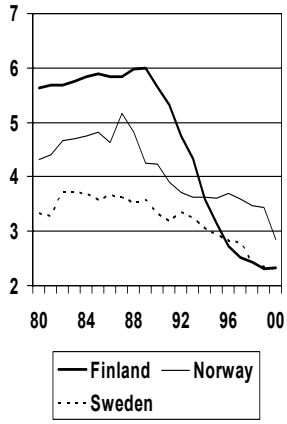


Fig. 12 Bank branches pr. 10,000 inhabitants



Source: OECD (2002a, 2003). Note: Excl. foreign banks

3.6 How successful were the resolutions?

Overall, were the Nordic resolution strategies successful? Apparently so, as creditors' confidence in the banking systems was quickly restored, banks returned to profitability fairly quickly and the impact on the economies of the banking problems seemed fairly modest. However, it is possible that this was mainly due to the quick economic recovery and not the resolution strategies. The fact that the Nordic crises, albeit significant, were much smaller than a number of other crises (e.g. the Asian crises), should also be taken into consideration when evaluating the success of the resolution strategies.

A perhaps more accurate question is how the handling of the Nordic crises measures up to best practice. Although there is consensus in the literature that different crises should not necessarily be resolved in the same way (see e.g. OECD, 2002), some guidelines for best practice exist:

- IMF (1998) points out: "Studies of banking crises have shown [...] that countries that are quickest to diagnose the underlying problems, assess losses and take measures to ensure macroeconomic stability and restructure their banking sectors are generally the most successful in recovering from the crisis."

- Hoggarth (2002) points out that "key principles in any restructuring are that only viable institutions are kept open; the costs of restructuring are transparent and those to taxpayers minimised; losses are allocated to existing shareholders, creditors and perhaps large depositors; the resolution preserves incentives for new private capital and discipline is maintained on bank borrowers".

In most respects, the crisis resolutions in the three Nordic crisis countries followed (what has later become) best practice. All three countries handled their respective crisis quickly and resolutely and in a transparent way. Government support had severe strings attached which ensured that costs were cut in order to return the banks to profitability. Private shareholders were largely "whipped", particularly in Norway. As we shall see in the next section, fiscal costs were reasonably controlled. However, with one minor exception, creditors were not disciplined.

I will end this section with some quotes from Allen and Gale (1999), who compare the handling of the banking crises in Norway and Japan. They argue that "the Norwegian government's prompt action in restoring the banking system meant that it was quickly able to revert to performing its normal economic function. [...] The return to robust economic growth in turn reinforced the recovery in the banking sector." Furthermore, they point out that although the details of the handling were different in the Nordic countries, "the effect was the same in the sense that the macroeconomic impacts of the banking collapse were short-lived and the economies resumed growing again quite quickly [...]".[28]

4 What were the fiscal costs of the resolutions?

4.1 Fiscal costs and methodology

The choice of resolution methods can influence both the economic ("output") costs and fiscal costs of a crisis. However, first we need to define these types of costs.

Output costs and fiscal costs

If the banks' ability to process payments and intermediate credit is reduced, a banking crisis may reduce income and wealth in an economy as a whole. Indeed, the danger of such situations occurring - and the resulting economic or "output" costs - are often the reason why governments choose to intervene to resolve a crisis. The quicker the banks' ability to perform their core functions is restored,

[28] Quotations taken from Steigum, Chapter 2 in this publication.

the smaller the output costs.[29][30]

However, the focus here is on another type of costs: fiscal costs. They are the financial costs that the public sector incurs when it attempts to resolve a crisis. More precisely, they "reflect the various types of expenditure involved in rehabilitating the financial system, including both bank recapitalisations and payments made to depositors [...]" (Hoggarth and Saporta, 2001).

Hoggarth and Saporta (2001) point out that estimates of fiscal costs may simply measure a transfer of income from current and future taxpayers to bank "stakeholders" rather than the overall impact on the economy of a banking crisis. Note also that the relationship between fiscal and output costs is not clear. Intuitively one may think that they are positively related. However, large fiscal costs may be incurred to limit the effects of a crisis on the economy. On the other hand, if little is done, fiscal costs are small whereas output costs may be large. However, these qualifications do not mean that the size of fiscal costs is uninteresting. Indeed, positive fiscal costs means that the taxpayer takes a hit and that fewer resources are available for other government expenditure.

The measurement of fiscal costs focuses on public expenditures in a direct sense. Effects on the tax base of the crisis are not included. Neither are various costs to taxpayers, such as costs from increases in banks' interest rate margin as a result of the crisis.[31] Private sector outlays, such as costs to depositors, other creditors (including private deposit insurance funds) and borrowers that are not compensated by the public sector, are also excluded.

It is also important to distinguish between gross and net costs. This is not always done in the literature. Gross fiscal costs are total public outlays. Net costs are gross costs minus income from re-privatisation and repayments (e.g. due to loan recoveries). Both income already received and an estimate of future income from e.g. the future sale of state-owned shares should be included. (Obviously, the latter is difficult to estimate, but an attempt should be made.) It follows that if the government manages to recoup a significant share of its outlays, net costs will be much smaller than the gross costs.

Both gross and net costs depend on the size of the crisis, how it is resolved and the speed and strength of the economic and banking sector recovery.[32] All else equal, gross costs would be expected to be larger in a severe crisis than in a more modest one. But the size of the problems can also affect *net* costs,

[29] Note that if the method of resolution increases moral hazard (e.g. by being too lenient towards important stakeholders in the banks), this may increase the likelihood of future crises, representing additional output costs.

[30] See Hoggarth and Saporta (2001) for a discussion of output costs and estimates of output costs in various countries, including Finland, Norway and Sweden. Schwierz, Chapter 4 in this publication, contains a new estimate for Norway, whereas Jonung and Hagberg (2002) focus on Finland and Sweden.

[31] Note, however, that the net interest margins in the Nordic countries have been steadily falling since the banking crises.

[32] For a discussion of these factors in the context of the Asian crisis, see Lindgren et al. (1999).

as some resolution methods may not be available if a crisis is very large. For example, it is more difficult to arrange private solutions through mergers and acquisitions if the crisis bank is very large. On the other hand, a large banking crisis may also be difficult to handle for a government if it is in a weak fiscal position. More generally, fiscal costs are influenced both by the availability of potential merger partners/private investors and the instruments chosen for public support. Support given through equity capital has low priority if the bank does not regain profitability, but there is also a potential "upside" in the form of future share price increases if the bank recovers. Loans have a higher priority and may be preferable if the lender for some reason (e.g. political) does not want to become a holder of bank equity. However, loan support does not offer any "upside".

Methodological issues

Table 3 presents estimates of gross and net fiscal costs for Finland, Sweden and Norway. However, there are important issues regarding estimation methodology that should be clarified before we discuss the numbers.

First, what type of costs should be included? The estimates in Table 3 include both direct payments and interest rate subsidies. Norges Bank's loan losses and interest rate subsidies on deposits from Norges Bank are thus included.[33] However, the cost of state guarantees given to individual banks that were not utilised are not included.[34] Clearly, the guarantees may have had a value to the banks and represented a cost for the state *ex ante*. However, the calculations here are *ex post* and these guarantees are thus not included. The blanket creditor guarantees in Sweden and Finland, however, did indeed represent an *ex post* gift to the owners of some crisis banks. Protected by the guarantee, many banks were able to recover without a public take-over, and the value of the owners' shares increased. Jennergren and Näslund (1998) point out that Swedish taxpayers incurred an *ex post* loss on the blanket creditor guarantee compared to an alternative strategy of nationalisation. However, it is difficult to estimate this loss. Note also that we do not include costs of increases in moral hazard. Blanket creditor guarantees may reduce investors' incentive to monitor banks and thus reduce market discipline. This may increase the likelihood of future crises, which over time increases fiscal costs.

Second, fiscal costs should be calculated on a net present value (NPV) basis. Expenditures and repayments connected with crisis resolution usually happen over a period of time, and any repayments will occur some time after the expen-

[33] No interest rate subsidy on LLR-loans has been included, as the effect on Norges Bank's results and transfers to the Treasury of supplying liquidity through the LLR-facility instead of the ordinary lending facilities was fairly limited, see appendix in Moen (2003).

[34] Guarantees of FIM 32 bn were not utilised in Finland (Drees and Pazarbaşioğlu, 1998). In Sweden, guarantees of SEK19 bn were not utilised (Jennergren and Näslund, 1998).

diture. In a NPV calculation, a calculation date has to be chosen.[35] The date may matter e.g. if the state still owns bank shares from the crisis resolution, which is the case for Norway and Sweden, and to a small extent for Finland. As the value of the shares varies over time, so will the calculated value from the future sale of the shares.[36] It can also be difficult to decide the time that the crisis started. The timing is important e.g. in the Swedish case, as the Swedish state was a major shareholder in one bank that was hit by the crisis, and the valuation of those shares is obviously dependent on the time chosen.

Third, what discount factor should be used in the NPV calculations? The Swedish calculation uses the 1 year T-bill rate. This is meant to reflect the state's funding cost. The choice of maturity is a simplification, as the average maturity of the state's debt was longer than 1 year during the relevant years (Jennergren and Näslund, 1998). The Norwegian calculation uses two different approaches. The first (main) alternative uses the 1 year T-bill rate plus a 4 percentage point risk premium when the state is still involved in a bank.[37] When the state is not involved anymore, the sums are discounted with the 1 year T-bill rate. In the second alternative, the 1 year T-bill rate is used throughout (with a few minor exceptions which are described by Moen in Appendix B in this publication). The question of discount factors is not relevant for Finland, as a present value calculation does not exist.

Finally, when dividing by (nominal) GDP to get comparable numbers, what year for GDP should be used? If it is a present value calculation, then you should divide by GDP in the "base" year. This is what we have done for Norway and the PV calculations for Sweden. However, this rule provides no guidance for "simple sums" (i.e. not PV) calculations. Expenditure and income are typically spread out over several years. Ideally, the sums for each year should be divided by that year's GDP, and then added up. However, this may be difficult to achieve in practice if you have not done the exact calculations of expenditure and income yourself. One alternative is to use a year in the middle of the restructuring programme. Another alternative is to use the year which signals the end of the crisis. As indicated, this may understate fiscal costs. For Finland, we have used a very late version of the latter alternative, mainly to achieve some comparability with the simple sums estimations for Sweden. This arguably underestimates costs in Finland somewhat.

Summing up, the estimation methods used for the three countries are far

[35] This question may or may not overlap with the question of the time of the end of the crisis.

[36] However, the increase in share prices over time is significantly smaller in present value terms. We will later return to this issue.

[37] According to Moen (2002), the 4 p.p. risk premium is the "consensus" average risk premium on listed companies in Norway. We thus assume that the risk premium for the crisis banks is the same as the average risk premium. During the peak of the crisis, market participants clearly thought that there was a very high risk connected with investments in the crisis banks. The premium used in the calculations is thus probably too low for the main crisis years.

from identical. We are thus, to some extent, comparing "apples and pears" here, particularly regarding present value estimates vs. simple ones. However, the numbers do provide some insights. Furthermore, comparing different estimates (e.g. gross vs. net costs and at different points in time) for the same country, where the same estimation methodology has been employed, provides additional insights.

4.2 Fiscal costs in the Nordic countries - differences and explanations

The estimates for Norway are new, see Moen (2003) or Appendix B in this publication for details. Earlier estimates (e.g. Finansdepartementet (1994)) were not complete. The Finnish and Swedish estimates are the latest and best available (see the given sources). Studying the numbers in table 3, we can make a number of observations:

- Resolution costs in the Nordic countries are significant, but low compared with many other crisis countries. Honohan and Klingebiel (2003) point to gross resolution costs of a whopping 55% in Argentina in 1980-82 and 50% in the more recent crisis in Indonesia. They also cite a number of other countries with larger costs. With a couple of exceptions (Japan and South Korea), they are all non-OECD countries.

- Net costs amount to 60% of gross costs in Finland. Thus, 40% of gross costs have been recouped. However, 40% is probably misleadingly high, considering that the difference in the timing of costs and income has not been accounted for in these "simple sums" estimates.

- Comparing the "simple sums" estimates (which are the most comparable of the various estimates), costs are significantly higher in Finland than in Sweden, and in particular, Norway.

- Significantly less of the gross costs were recouped in Finland than in Norway and Sweden.[38]

- Norway had considerably lower net fiscal costs than Sweden and Finland. The version for Norway with a risk-free discount factor is the most comparable to the Swedish estimate, but the conclusion applies for both versions of discount factors. Furthermore, the conclusion applies for both the 1995- and the 2001-estimate. Although share prices were generally higher in 2001, they were lower (also in present value terms) in 1995 than in 1997, the date for the Swedish calculation. The conclusion is thus robust to differences in share prices.

[38] For Sweden, the same argument about the timing of costs and income applies. A comparison of present values of gross and net costs is unfortunately not possible, as only net costs are available in this form for Sweden.

Table 3: Fiscal costs

	Gross costs (% of GDP)	**Net costs (% of GDP)**
Finland		
Simple sums, not present value	FIM 56.6 bn (8.9% of GDP 1997)	FIM 33.0 bn (5.2% of GDP 1997)
Simple sums, not pr. val., including interest rate subsidies given by BoF	FIM 57.5 bn (9.0% of GDP 1997)	FIM 33.9 bn (5.3% of GDP 1997)
Sweden		
Present value pr. 01.07.97, risk-free rate as d.f.	n.a.	SEK 35.0 bn (1.9% of GDP 1997)
Simple sums, not present value	SEK 65.3 bn (3.6% of GDP 1997)	SEK 4.5 bn (0.2% of GDP 1997)
Norway		
Present value pr. 31.12.95	NOK 28.6 bn (3.1 % of GDP 1995)	NOK 8.6 bn (0.9 % of GDP 1995)
Present value pr. 31.12.01	NOK 51.1 bn (3.4% of GDP 2001)	NOK -5.7 bn (-0.4 % of GDP 2001)
Present value pr. 31.12.95, risk-free rate as d.f.	NOK 25.2 bn (2.7% of GDP 1995)	NOK 5.4 bn (0.6% of GDP 1995)
Present value pr. 31.12.01, risk-free rate as d.f.	NOK 39.7 bn (2.6% of GDP 2001)	NOK -13.7 bn (-0.9% of GDP 2001)
Simple sums, not present value*	NOK 22.4 bn (2.0% of GDP in 1997)	

Sources: Finland: net costs: Bank of Finland, gross costs: Drees and Pazarbaşioğlu (1998), Sweden: Jennergren and Näslund (1998), Norway: Appendix B in this publication and Norges Bank (last row), GDP for Finland and Sweden: IMF International Financial Statistics, GDP for Norway: Statistics Norway.

* Calculated by Norges Bank in order to obtain comparable numbers with Sweden and Finland. Gross costs include direct injections into the banks and support loans to the private guarantee funds by the GBIF, direct injections by the GBF into Den norske Bank, an injection by the parliament into the SBGF and subsidised loans and deposits and losses by Norges Bank.

- Net fiscal costs in Norway were very low in absolute terms, and even negative for the 2001-estimate.

What can explain these findings? As indicated, gross fiscal costs are positively influenced by the depth of the crisis in the banking sector and the level of bank intermediation. As banks in Finland suffered the worst results, and the level of bank intermediation was greater in Finland (cf. figure 6), it is perhaps no surprise that gross resolution costs are greater in Finland than in the other two countries.

However, we also observe that Finland was able to recoup much less of its gross costs than Norway and, to a smaller extent, Sweden. Based on the size of *net* fiscal costs in the three countries, the following issues are worth discussing:

- How did the choice of resolution methods affect net fiscal costs?

- Was the timing of the sale of state-owned bank shares important for the net fiscal costs?

How did the choice of resolution methods affect net fiscal costs?

As noted, support through equity or loans may affect net fiscal costs differently. Government ownership of banks after the crisis was (and still is) more extensive in Norway than in the other two countries. As a consequence, the Norwegian state has been able to gain financially[39] on the increase in the share prices of the crisis banks after the crisis. The choice of resolution method and the scale of government intervention are clearly dependent on several factors, of which some may force the government's hand. We will mention two.

First, as all the three largest Norwegian commercial banks were in crisis, the banks were judged to be systemically important and no private solution was possible, the state had to step in. It thus became a major owner by force. In Sweden, the two largest commercial banks did not need government support, and one of the two commercial banks that did receive support was already majority owned by the state before the crisis. Thus, as large an increase in government ownership as in Norway was not needed.

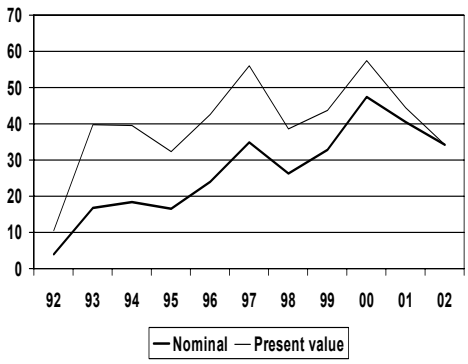
Second, in Finland, the largest problems were in the savings bank sector. A savings bank is not a limited company. One can therefore hardly criticise the Finnish government for not becoming the owner of such banks, although a number of them were merged and converted into a commercial bank. However, Finland did choose to use open bank assistance to some extent.

[39] As the Norwegian state still holds a large ownership share in Den norske Bank (now DnB NOR), a significant part of the calculated income has not actually been realised.

The importance of the timing of sales

Clearly, the income from the sale of shares is dependent on the development in share prices. In nominal terms, bank shares have increased in value over the years, albeit with a drop since the spring of 2000. However, the differences over time are perhaps not as large as one would think. With an annual discount factor of 10 %, the "present value" share price of DnB would have reached a reasonable level as early as the end of 1993, see figure 13.[40] At the end of 1995 and 2001, the timing of the fiscal costs-estimates, the present value share price was respectively 19% lower and 12% higher than at the end of 1993.

Fig. 13 Den norske Bank: nominal and present value share price*. NOK



Source: EcoWin and own calculations
*Basis for PV calculation: end of 2002

The share price thus went up to a reasonable level fairly quickly. Indeed, if we compare the costs the Norwegian state incurred on DnB with the value of its shares, it is possible that the state could have made a profit on its "investment"[41] less than two years after the initial capital injections. From March 1992 to March 1993, the state incurred outlays of NOK 6.4 bn in DnB. Including preference shares that were to be converted to normal shares, the state held around 514 million shares. With income per share of NOK 16.35 (nominal share price of NOK 16.85 minus issue costs of say NOK 0.50 per share), this portfolio was worth NOK 8.4 bn. This thus represents a net profit of NOK 2.0 bn (somewhat lower in present value terms).

We have rather bravely assumed that it would have been possible to sell the

[40] We assume for simplicity a discount rate of 10%, which e.g. includes a risk-free rate of 6% and a risk premium of 4 p.p. Although this is obviously too simple (and simpler than the actual calculation done for the numbers presented in table 3), such a rate is not completely unreasonable.

[41] "Investment" is perhaps a somewhat misleading word to use, as the government take-overs took place in order to secure systemic stability (and thus limit output costs) after private solutions were exhausted, and not from a normal investing perspective. However, ex post we may look upon the take-overs as investments.

whole of the state's portfolio in one go in a market that in 1993 was rather risk averse and not abundant with available capital. Clearly, it may have been difficult to attract investors. At the very least, it may have been necessary to offer the shares at a significant discount. However, the state could have offered the shares at as low a price as NOK 12.95 and still broken even nominally. The first actual sale (around 10% of the shares) happened in May 1994 at a share price of NOK 16.75.

In general, all the three governments were keen to limit the net fiscal costs of the resolutions, subject to the concern of financial stability. As such, they were not interested in selling shares at fire-sale prices. Rather, they waited at least until prices reached a level which did not seem too far off "underlying value". However, the Norwegian government, and the Swedish government in the case of Nordbanken/Nordea, only started to sell off shares very gradually. They thus kept the majority of their shares even though share prices to a large extent had recovered.

Summing up, net fiscal costs were lower in Norway, and to a lesser extent, Sweden, than in Finland. This is partly due to income from the sale of shares and the value of current portfolios. However, although it is not clear when the market could have absorbed the large amounts of bank shares in question, it is beyond doubt that the shares could have been sold much quicker than what has actually happened, without jeopardising the fiscal consideration.[42]

Finally, we observed that the 2001-estimate for net fiscal costs in Norway is negative. This means that the Norwegian public sector made a net profit on its crisis support. It may seem that this represents a transfer from old bank shareholders to taxpayers. On the other hand, at the time of the government take-over, losses were larger than the value of the existing share capital. The capital was thus lost. At that point in time, no one knew that the economy would recover so quickly and that some of the bad loans would become "healthy" again. The government was the only party willing to invest in the banks at the depth of the crisis. It is thus reasonable that it should benefit from the (*ex ante* uncertain) recovery.

5 Has government ownership affected bank performance?

We have established that Norway experienced low (or negative) net fiscal costs from the banking crisis, largely due to gains from the rise in value and sale of state-owned bank shares. But are there additional costs that are not captured

[42] In the United States, "bridge bank" legislation requires that the FDIC, the deposit insurance (and crisis resolution) agency, re-privatises any problem bank it acquires within two years (Hawkins and Turner, 1999). There are no such regulatory time limits in the three Nordic countries.

in the calculations above?

There are at least three potential reasons why government ownership has costs in one form or another:

- There is a potential problem regarding the mixing of the government's roles as supervisor and owner. Although different institutional measures can be implemented in order to separate the roles, the government is ultimately in control of both the supervisor and the supervised. There can thus be problems regarding the objectiveness of supervision, the handling of problems in state-owned banks and the effectiveness of market discipline.

- There is a risk that the government may interfere in lending decisions. As governments may not be driven by profit motives, state-owned banks are less likely to channel funds to those borrowers who will help produce high economic growth (Mishkin, 2001). Bad lending decisions may also lead to higher loan losses.

- The absence of a profit motive also means that state-owned banks are less likely to be efficiently run and maintain sound internal controls.

As Hoggarth (2002) points out, evidence (e.g. Caprio and Honohan, 2000) suggests that countries with higher shares of state-owned banks are, on average, the ones with a higher percentage of non-performing loans and higher operating costs. According to Barth et.al. (2001), there is evidence that suggests that countries with higher initial levels of government ownership of banks tend to have both slower subsequent rates of financial-system development and slower economic growth. Barth et al. (2000) find that greater state ownership of banks tends to be associated with more poorly developed banks, non-banks and stock markets.

Clearly, the effect of government ownership is dependent on how the government actually performs its ownership role. The role chosen by the Norwegian government is to stay away from the daily running of the banks (i.e. now only one bank, DnB NOR). The government's focus is on ensuring national ownership of DnB NOR. This fairly passive role means that the profit motive of other, private owners should be influential. Thus, the second and third argument against state ownership discussed above may not apply here. On the other hand, the fact that the largest owner is passive may give more power to the management. However, it is difficult to say what the effects of that may be, and whether the effects are different from those in a bank with dispersed ownership.

As always, "the proof of the pudding is in the eating". We will thus look at some indicators of bank performance, and compare banks where the state is a major owner with other, fully private banks in Norway. The banks with

major state ownership ("SB") are defined as DnB[43] and Christiania Bank (although the state sold its remaining shares in Christiania in 2000). Fokus Bank is difficult to categorise, as it was state-owned until 1995 and privately owned afterwards. It is thus not included anywhere. "Other banks" ("OB") thus includes all banks except DnB, Christiania Bank and Fokus Bank.

We study the following indicators:[44][45]

- annual growth in lending,
- annual growth in balance sheet total,
- the capital adequacy ratio,
- the ratio of profits (after losses, before taxes) to assets,
- the ratio of loan losses to assets,
- the ratio of operating costs to income.

Based on figures 14-19, we can make the following observations:

- The development in annual lending growth is similar for SB and OB, apart from for DnB in 1999. The jump for DnB was caused by its purchase of Postbanken.
- The picture is roughly the same for balance sheet growth, which is not surprising as lending dominates Norwegian banks' balance sheets.
- For capital adequacy, the development over time is very similar, but SB and OB are on different levels: OB have roughly 2-3 percentage points higher capital adequacy ratios than SB.
- Profits before tax have also developed very similarly, apart from somewhat worse results in DnB in 1998.
- Loan losses in SB and OB have followed a similar pattern.
- After having had significantly higher costs-to-income ratios during most of the 1990s, the SB have now closed some of the gap.

[43] The merger into DnB NOR happened as late as January 2004. The data presented here thus covers only DnB.

[44] Cf. the aforementioned indicators of "stock" and "flow" improvements.

[45] In addition to these results and balance sheet indicators, we would have liked to include market indicators such as share prices. However, we have declined to do so due to the small number of "liquid" bank shares, the Nordea take-over of Christiania and the strong movements in share prices due to speculation about structural changes.

Fig. 14 Annual growth in lending (in %)

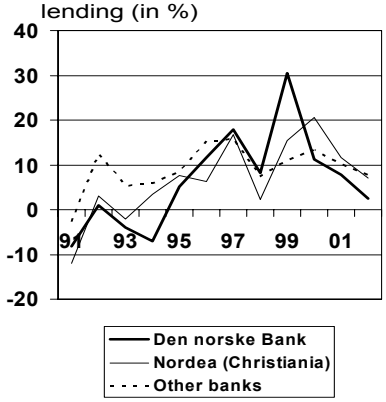
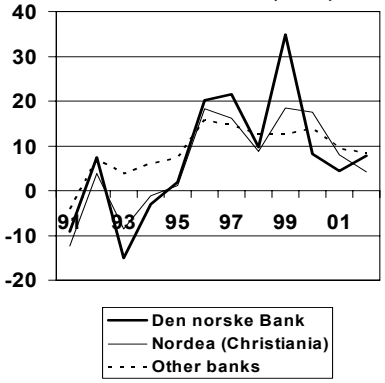


Fig. 15 Annual growth in av. balance sheet total (in %)



Source: Norges Bank. Note: Postbanken is included in Den norske Bank from 1999. Fokus Bank is not included anywhere

Fig. 16 Capital adequacy ratio (in %)

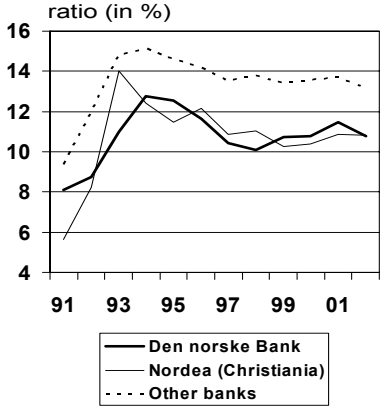
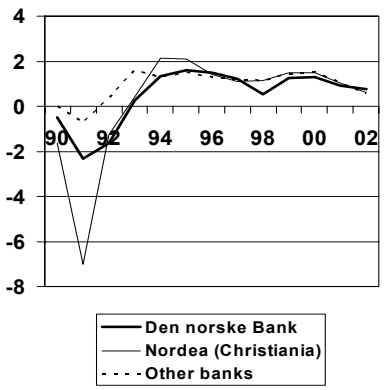


Fig. 17 Profits before taxes in % of av. balance sheet total



Source: Norges Bank. Note: Postbanken is included in Den norske Bank from 1999. Fokus Bank is not included anywhere

Fig. 18 Loan losses in % of average balance sheet total

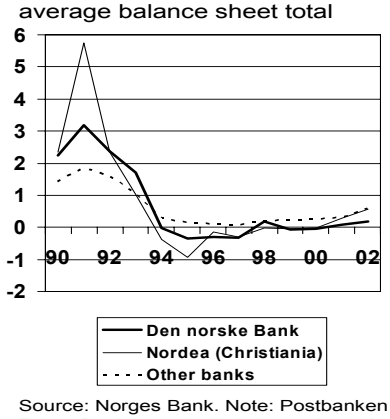
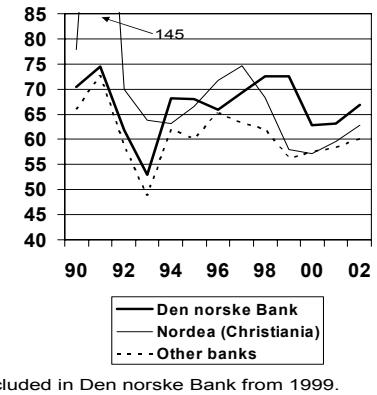


Fig. 19 Operating costs in % of income



Source: Norges Bank. Note: Postbanken is included in Den norske Bank from 1999. Fokus Bank is not included anywhere. Income includes net interest income and other operating income

It is obviously difficult to summarise the findings of several different indicators. However, it does seem that the banks with major state ownership have had a fairly similar post-crisis development to other, fully private banks. Ideally, we would have liked to compare the performance of DnB and Christiania Bank with the counterfactual; how DnB and Christiania Bank would have performed with fully private ownership. This is of course not possible. The second-best alternative studied above indicates that major state ownership has not influenced the financial performance of DnB and Christiania Bank in a major way.

6 Conclusion

Summing up: in this paper we have analysed and compared various aspects of the three Nordic banking crises: the type and scale of the crises, the type of resolution methods, the size of fiscal costs and the post-crisis performance of banks. Our main conclusions are the following:

- All three economies and banking sectors recovered well from the crises. This could to some extent be down to luck. However, the authorities followed several of the policies that are considered "best practice" for crisis resolution: the crises were handled quickly and resolutely and in a transparent way, costs were cut in order to return the banks to profitability and fiscal costs were reasonably controlled.

- Nevertheless, parts of the resolution strategies were quite different in Norway compared to Sweden and Finland. Private shareholders were more heavily punished in Norway, Norway did not issue a blanket creditor guarantee, private guarantee funds played a more important role, and Norway did not establish separate "bad banks".

- Net fiscal costs were significantly smaller in Norway than in Finland and, to a lesser extent, Sweden. This is partly due to the method of crisis resolution.

- The level of state ownership resulting from the crisis was somewhat greater in Norway than in the other two countries, and the Norwegian state's income from the sale of shares has been substantial. However, from a financial perspective, it could have sold its shares much quicker and still done well.

- The initial government take-overs may have been necessary for financial stability reasons. However, the duration of the state ownership in Norway and Sweden (on a smaller scale) is more controversial. One of several arguments against state ownership is that it may adversely affect bank performance. However, the Norwegian banks with significant state ownership have not performed very differently from other banks after the crisis.

Unfortunately it is not possible to study the counterfactual; how banks with major state ownership would have performed if they had been fully privately owned.

References

Allen F. and Gale D. (1999). Bubbles, crises, and policy. *Oxford Review of Economic Policy*, 15(3)

Andersson M. and Viotti S. (1999). Managing and Preventing Financial Crises - Lessons from the Swedish Experience. *Quarterly Review* 1/1999, Sveriges Riksbank

Bäckström U. (1998). Finansiella kriser - svenska erfarenheter. *Ekonomisk Debatt* 1/1998

Barth J.R., Caprio G. jr., and Levine R. (2000). Banking Systems around the Globe: Do regulation and Ownership Affect Performance and Stability? World Bank Working Paper 2325

Barth J.R., Caprio G. jr., and Levine R. (2001). Bank Regulation and Supervision: What Works Best? World Bank Working Paper 2725

Caprio G. and Klingebiel D. (1999). Episodes of Systemic and Borderline Financial Crises. *mimeo, World Bank*

Daltung S. (2004). The Swedish banking crisis. In J. Reidhill (ed.), *Bank Failures in Mature Economies*, Working Paper No 13. Basel Commitee on Banking Supervision, Basel.

Drees B. and Pazarbaşioğlu C. (1998). The Nordic Banking Crisis: Pitfalls in Financial Liberalisation. *IMF Occasional Paper* 161

Dziobek C. and Pazarbaşioğlu C. (1997). Lessons from Systemic Bank Restructuring: A Survey of 24 Countries. IMF Working Paper 97/161

Englund P. (1999). The Swedish Banking Crisis: Roots and Consequences. *Oxford Review of Economic Policy*, Vol. 15 (3)

Finansdepartementet, Norge (1994). Bankkrisen og utviklingen i den norske banknæringen. St.meld. nr. 39 (1993-94)

Finansdepartementet, Sverige (1994). Den svenska finanskrisen - uppsummering från Finansdepartementet juli 1994

Finansdepartementet, Sverige (1995). Avveckling av bankstödet. Ds 1995:67

Halme L. (2002). The 1990s banking crisis in Finland: Main causes and consequences, lessons for the future. Paper presented at a conference arranged by the Banking, Insurance and Securities Commission of Norway, 11. - 12. September 2002

Hawkins J. and Turner P. (1999). Bank restructuring in practice: an overview. BIS Policy Papers 6/99

Hoggarth G. (2002). Resolution of banking crises: theory and evidence. draft paper

Hoggarth G. and Saporta V. (2001). Costs of banking system instability: some empirical evidence. *Financial Stability Review* June 2001, Bank of England

Honohan P. and Klingebiel D. (2000). Controlling the Fiscal Costs of Banking Crises. World Bank Policy Research Working Paper 2441

Honohan P. and Klingebiel D. (2003). The fiscal cost implications of an accommodating approach to banking crises. *Journal of Banking & Finance*, Vol. 27, Issue 8

International Monetary Fund (1998). Financial Crises: Characteristics and Indicators of Vulnerability. *World Economic Outlook*, Chapter IV

International Monetary Fund (1999). Financial Sector Crisis and Restructuring. Lessons from Asia. *IMF Occasional Paper* 188

International Monetary Fund (2001). International Financial Statistics Yearbook 2001

Ingves S. and Lind G. (1996). Handteringen av bankkrisen - sedd i efterhand. *Penning- och valutapolitik* 1/1996, Sveriges Riksbank

Ingves S. and Lind G. (1998). Om att hantera en bankkris. *Ekonomisk Debatt* 1998/1

Jennergren P. and Näslund B. (1998). Efter bankkrisen: Vad blev notan för skattebetalarna? *Ekonomisk Debatt* 1998/1

Jonung L. and Hagberg T. (2002). How costly was the crisis of the 1990's? A comparison of Finland's and Sweden's deepest crises. unpublished paper

Karlsen H. (1998). The experiences and lessons from the banking crisis and restructuring in Norway. Lecture held at the Tacis training course for personnel of the central bank of the Russian federation, 15.-17. September 1998

Klingebiel D. (2000). The Use of Asset Management Companies in the Resolution of Banking Crises. Cross-Country Experiences. World Bank Working Paper 2284

Koskenkylä H. (1994). The Nordic Banking Crisis. *Bank of Finland Bulletin* 8/94

Koskenkylä H. (2000). The Nordic countries' banking crises and the lessons learned. Financial Markets Department Working Paper 6/00, Bank of Finland

Koskenkylä H. and Vesala J. (1994). Finnish Deposit Banks 1980-1993: Years of Rapid Growth and Crisis. Bank of Finland Discussion papers 16/94

Lindgren C-J., Balino T.J.T., Enoch C., Gulde A-M., Quintyn M., and Teo L. (1999). Financial Sector Crisis and Restructuring. Lessons from Asia. *IMF Occasional Paper* 188

Lumpkin S. (2002). Experience with the resolution of weak financial institutions in the OECD area. *Financial Market Trends*, (82), OECD, Paris

Mishkin F.S. (2001). Financial Policies and the Prevention of Financial Crises in Emerging Market Countries. NBER Working Paper No. 8087

Moen H. (2002). Avkastningen på statens investeringer i Den norske Bank, Kreditkassen, Fokus Bank og Oslobanken. Published in the final report from Statens Banksikringsfond 19.08.02

Moen H. (2003). Nåverdien av statens investeringer i og støtte til norske banker. Norges Bank Working Paper 2003/6

Nyberg P. and Vihriälä V. (1994). The Finnish Banking Crisis and Its Handling. Bank of Finland Discussion papers 7/94

OECD (2002). OECD Bank Profitability 2001. Publication / database

OECD (2003). OECD Bank Profitability 2002. Publication

Pesola J. (2001). The role of macroeconomic shocks in banking crises. Bank of Finland Discussion Papers 6/2001

Stortinget (1998). Rapport til Stortinget fra kommisjonen som ble nedsatt av Stortinget for å gjennomgå ulike årsaksforhold knyttet til bankkrisen. Dokument nr. 17 (1997-98), Oslo

Vastrup C. (2002). Bankproblemer i Danmark 1984-1994. Paper presented at a conference arranged by the Banking, Insurance and Securities Commission of Norway, 11. - 12. September 2002

Viotti S. (2000). Dealing with banking crises - proposal for a new regulatory framework. *Economic Review* 3/2000, Sveriges Riksbank

Wilse H.P. (1995). Management of the banking crisis and state ownership of commercial banks. *Economic Bulletin* 2/95, Norges Bank

Chapter 4

Economic costs associated with the Nordic banking crises

Christoph Schwierz

In the early 1990s, Norway, Sweden and Finland experienced systemic banking crises. This paper reviews previous estimates of output losses during the Nordic banking crisis, which differ widely, primarily due to differences in methodology. This study extends the previous analyses in two directions: First, output losses are re-estimated for all the Nordic countries based on GDP-trends that try to correct potential biases in the estimation of output losses. Second, output gains from the pre-crises period of financial liberalization are included in a new net estimate of output losses associated with the banking crisis. In general, based on these two changes, the new estimates for output losses are found to be lower than in previous studies.

1 Introduction

In the early 1990s, Norway, Sweden and Finland experienced systemic banking crises with bank failures and negative economic growth. It is generally concluded that output losses during the crisis and potentially caused by the banking crises were high, although loss estimates vary significantly across studies. This study re-evaluates the methods used and the results provided for the three Nordic

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countries by two reference studies, i.e. the IMF (1998) and Hoggarth et al. (2002).

The economic costs of a banking crisis can be defined as the loss of present and future discounted consumption possibilities for the economic agents in a particular country. To measure this directly is difficult, because we do not know exactly how banks influence economic growth in the real sector. An approximation used in many studies is therefore to measure the cumulative output losses between actual and potential GDP during a banking crisis and link these losses to the banking crisis. This simple approach has two main drawbacks. First, it is not straightforward to identify a banking crisis and to determine its duration. The lack of consensus about what a banking crisis is and when it starts and ends necessarily results in different cost estimates. Second, linking cumulative output losses to banking crisis is problematic, as output losses can be the result of events not caused by the banking crisis. In fact, very often banking crises are triggered by macroeconomic shocks related to the overall business cycle.

This paper makes a first attempt to re-estimate output losses by taking into account the specific evolution of the crises in the Nordic countries. For this purpose, first, two counterfactual GDP-trends are estimated. Second, the concept of "net costs" of a banking crisis is introduced. It is often argued that a typical banking crisis occurs when a boom busts and that the potential for a banking crisis builds up during the booming period as a result of optimistic banks and borrowers. During the boom, too many projects with uncertain future returns are financed by bank loans, and many of them result in loan losses for the banks at a later stage. However, even if some of the projects financed by bank loans default at a later stage, the initial strong growth in bank lending has a positive effect on GDP. We argue that this positive effect should be taken into account when we evaluate the net output losses related to a banking crisis. This may be particularly relevant for the Nordic banking crisis, since the pre-crisis period of financial market liberalization was characterized by a strong growth in GDP as well as in bank lending.

The paper is organized in the following way. Section 2 reviews earlier literature related to banking crises identification. Section 3 briefly explains the differences between fiscal and economic costs of a banking crisis. Section 4 summarizes the causes and the development of the Nordic banking crises. Section 5 contains a comprehensive analysis of the various measures of output losses, while section 6 provides the empirical estimates. Section 7 concludes.

2 The identification of a banking crisis

A major challenge of estimating the costs of banking crises is to identify them and determine their duration. Obviously differences in crisis definition can result in different cost estimates. Therefore, a short review of various definitions of

banking crises is presented in the following:

- IMF (1998) characterizes a banking crisis as a "situation in which actual or potential bank runs or failures induce banks to suspend the internal convertibility of their liabilities or which compels the government to intervene to prevent this by extending assistance on a large scale".

- Goldsmith (1982) suggests that a banking crises is characterized by "... a sharp, brief, ultra-cyclical deterioration of all or most of a group of financial indicators: Short term interest rates, asset prices, (stock, real estate, land) prices, commercial insolvencies and failures of financial institutions".

- Caprio and Klingebiel (1996, 1999 and 2003) have provided the most widely used definition of a systemic banking crisis, as a situation when much or all of bank capital is exhausted.[1]

These broad definitions have the advantage of encompassing most situations that show important signs of financial distress. However, they do not relate the definition of a financial crisis to their negative real economic impact. Thus, Schwartz (1986) characterizes financial crises without significant negative real economic effects simply as "pseudo crises". In her view, most of the historic situations of financial distress have had only limited negative impact on real economic activity and should therefore be distinguished from crises situations which incur real economic effects. Hence, following Schwartz, a banking crisis should be defined on the basis of its negative economic effects. This raises the question of the transmission mechanisms between the banking sector and the real economy. It may therefore be instructive to give a brief review of transmission mechanisms outlined in the literature:

- A sharp reduction in bank lending can lead to a fall in the money supply. As an effect of this liquidity shock, production and consumption patterns are disrupted and economic activity declines. A reduction in the wealth of bank shareholders can also worsen a general economic contraction (Friedman and Schwartz, 1963).

- Increased uncertainty can reduce the effectiveness of the financial sector in performing its information-gathering services due to adverse selection and moral hazard problems. As the real costs of intermediation increase, banks can become "excessively" risk adverse, thereby reducing credit availability, i.e. a credit crunch can arise .[2]

[1] Caprio and Klingebiel (2003) present evidence on 117 crises that have occurred in 93 countries since the late 1970s.

[2] See Bernanke (1983) and Bernanke and Gertler (1995). For a survey of American literature on the issue of a credit crunch see Sharpe (1995).

- Contagion can start a chain of failures and bankruptcies which can subsequently cause macroeconomic stagnation. Triggered by depositors' anxiety, a deterioration in banks' balance-sheets can cause them to fail, which can lead to other bank failures or even failures of other non-financial firms (Kiyotaki and Moore, 1997).

- The integration of financial markets, the key role of banks in the payment system and the concentration in the financial sector are additional factors of importance for the propagation of a banking crisis (Omotunde, 2002 and Frydl, 1999).

- Excessive fluctuations in prices and exchange rates, the costs of insurance against such fluctuations or changes in the monetary regime itself can magnify the negative real economic impact of a crisis (Hamada, 2002).

Thus, bank distress can cause negative real effects in numerous ways. It may also take time to identify the start of a banking crisis if the underlying problems are not recognized. Since most bank products include future payment promises, it may take time for the bank to realize that customers will not be able to fulfil their commitments. Banks can conceal these problems by rolling over bad loans or by raising more deposits and increasing the size of their balance sheets. Given this nature of banks and the opacity of banks net worth, malfunctioning of the banking sector can cause and contribute to macroeconomic problems even before an overt event of banking distress in a major bank. According to Caprio and Klingebiel (1996), using an overt sign of bank distress, like a bank run, as the defining event of a bank crisis, merely identifies the denouement of a tragedy, as when a terminally ill patient checks into a hospital just before dying. If instead, the disease itself - unsound and unsafe banking - is defined as the crisis, then it is possible that the crisis began long before the system collapses and causes negative economic effects.

The duration of a banking crisis should therefore in some way be related to the "illness" period of the banking sector. This period is usually measured from the open occurrence of a banking crisis to the return to "normality". The literature has so far paid relatively little attention to the pre-crisis booming period, when the causes of a banking crisis evolve. However, research has shown a strong relationship between rapid credit growth following financial liberalization and banking crisis.[3] Liberalization affect bank's lending behaviour, and there is strong evidence that the high GDP growth during this period can be associated with the rapid credit growth from the newly liberalized banking sector. It can be argued that it is reasonable to include these output gains of the pre-crisis period when analyzing the total output costs of a banking crisis. Our estimates of

[3] In a study on 53 countries during the period 1980-1995, Demirgüç-Kunt and Detragiache (1998) confirm that financial liberalization increases the probability of a banking crisis to occur.

the economic costs of the Nordic banking crisis therefore cover the whole period where real production and consumption activities were substantially affected by drastically changed patterns of credit growth after financial liberalization. This procedure has the advantage of linking the banking crisis and resulting output losses to their potential causes.

3 Economic versus fiscal costs of a banking crisis

The costs of a banking crisis usually fall into two broad classes: fiscal costs and economic costs. Fiscal costs reflect actual outlays of public funds generated by government intervention to prevent or resolve the crisis.[4] Economic costs mirror direct and indirect negative effects of a banking crisis on general economic activity by measuring the decline in output or output growth incurred during the crisis. The strength and weaknesses of these two cost concepts are discussed briefly in the following.

Although the concept of *fiscal costs* serves the purpose of assessing the benefits and costs of intervening in a banking crisis, it can do so only to a limited extent. First, there is no relationship between the severity of a banking crisis and its fiscal costs. This is mainly due to the fact that large fiscal costs may be observed in the absence of economic costs and vice versa. Costly government interventions may limit the negative effects of a crisis on the economy, or the lack of government intervention may lead to adverse economic effects of the banking crisis. According to Bernanke (1983), this was especially important during the Great Depression of 1929-33. In general, there exists neither a link between fiscal costs and output losses incurred during a banking crisis, nor between fiscal costs and the length of a banking crisis (Hoggarth et al. 2002, Frydl 1999). Second, fiscal costs are often associated with huge redistribution of wealth between banks, corporations, households and taxpayers. Accordingly, Frécaut (2002) – by using a National Accounts analysis – identifies the presumed $50 billion loss of the Indonesian banking crisis to be a "large-scale wealth redistribution exercise" from banks to corporations not representing a pure loss to the economy. These arguments show that the concept of fiscal costs is poorly suited for assessing the broader welfare costs of a banking crisis.

To do this the concept of economic costs is invoked. These are often approximated by the divergence of output – or output growth – from an estimated trend during the crisis period. This method has been used by the IMF (1998), Bordo et al. (2001), Mulder and Rocha (2001) and Hoggarth et al. (2002) for

[4] Hoggarth et al. (2002) yield an overview over the fiscal costs of 24 banking crises between 1977 and 2000. For policy recommendations to reduce the fiscal costs of crises, see Honohan and Klingebiel (2000). Sandal (Chapter 3 in this publication) reports estimates of gross and net fiscal costs for Norway, finding them to be smaller than in Sweden and Finland. This may partly be due to the quick resolution of the Norwegian crisis, but may of course also reflect the depth of the banking crisis in the two other countries and the high level of bank intermediation.

many industrial and emerging economies, and by Jonung and Hagberg (2002) for the Finnish and Swedish banking crises since the 1870s. While these studies differ in some respects, they all follow the same idea: *Banking crisis can lead to output losses, which would not have occurred in the absence of the crisis.* The accumulated output loss during the crisis period is then a proxy for potential economic costs of the crisis. However, there are some problems with this methodology as well. First, as noted by Hoggarth et al. (2002), GDP is a problematic proxy for welfare costs, since changes in GDP have a different impact on individuals' utility at different income levels. Second, many banking crises – as the Nordic ones in the early 1990's – appear in the wake of an economic downturn. It is therefore not straightforward to say which part of the overall output loss stems from the recession and which part is a direct effect of the banking crisis. Although Bordo et al. (2001) and Hoggarth et al. (2002) address this problem indirectly by estimating reduced form equations to find the significance of banking crises on the deepness of GDP losses, the order of causation remains unclear, i.e. it is unknown whether deeper recessions cause banking crises or vice versa. Moreover, in order to avoid biased estimates of crisis costs, the method they use relies on an accurate dating of the banking crisis period, a good estimation of the GDP trend, the separation of the banking crisis impact on GDP development from other economic forces driving the business cycle, and an appropriate measure of output losses. These methodological difficulties will be addressed in section 5.

4 The Nordic banking crises - some stylized facts

The methodology used to calculate the costs of banking crises involves, in general, a priori choices, such as the dating of the crisis period. These choices are likely to influence the results. It is therefore important to understand the causes and the evolution of a crisis before attempting to calculate the costs involved.

4.1 The Norwegian Banking Crisis

The Norwegian banking crisis is typically described within the framework of a boom-bust cycle: Financial liberalization accompanied by massive credit expansion and soaring asset prices was accompanied by significant increases in investment and consumption. This is reflected in high economic growth around the mid-eighties, but also in unsustainably high levels of debt accumulation among Norwegian households and firms. The following economic downturn resulted in a collapse of the over-inflated stock and real estate markets and severe difficulties for banks that had based their lending on inflated asset values. Finally, the government chose to intervene to rescue insolvent banks.[5]

[5] For a more detailed discussion of the Norwegian banking crisis, see Gerdrup (2003), Steigum (Chapter 2 in this publication), Drees and Pazarbaşioğlu (1998), Stortinget (1998)

Up to the early-1980s there was excess demand for credit (Stortinget, 1998). However, deregulation of the credit market resulted in an unprecedented growth in bank lending, where credit supply accommodated very fast to credit demand. The fast expansion of credit took place in a banking environment, characterized by an aggressive competition for market shares. Overall optimism about the future prospects of a booming economy combined with the easy access to credit fuelled economic growth. The fight for market shares led to the situation, that banks were mainly interested in fast increases in lending volume. Thus, in 1985 the annual growth rate in bank lending exceeded 30 percent (Sandal, Chapter 3 in this publication). Banks financed high risk projects, which would not be undertaken in a framework, where gains in market shares were not the primary objective. Hence, banks actively contributed to positive GDP growth during the boom period.

The downturn period was triggered by the oil price shock in 1986 and was aggravated by increasing costs of borrowing due to changes in the tax law and higher Norwegian real interest rates.[6] Bankruptcy rates soared. Combined with the high level of non-financial sector debt, as well as the simultaneous decline in collateral values, these factors quickly translated into huge loan-losses, wiping out the capital of many banks. The banking crisis was on its way. During the first phase of the crisis (1988-90) problems were not regarded as systemic and only some small regional banks experienced heavy problems or liquidation. The crisis has only reached systemic proportions in 1991 (Drees and Pazarbaşioğlu, 1998). However, in 1991 the economy had already started to show positive growth figures again, so that the banking crisis actually came at a time when growth was starting to pick up after the preceding recession.

This development shows mainly two things. First, the easy lending behaviour of banks contributed evidently to GDP growth. Using a macroeconomic model for the Norwegian economy, Hove and Moum (1997) find that a significant part of the Norwegian business cycle during the boom period can be ascribed to the liberalization of the credit market, i.e. most of the economic upturn was a direct result of the liberalization. Thus, it is reasonable to take into account this potential effect of banking behaviour on GDP development before the crisis. Second, the fact that the banking crisis became systemic only when GDP growth was already getting positive, suggests that the fall in GDP was driving the banking crisis rather than the other way round. Steigum (Chapter 2 in this publication) confirms this view, when he argues that banking distress can not have had a strong negative impact on the real economy through restricted credit supply, i.e. a credit crunch is unlikely to have occurred. He bases his argument on the fast recovery of the Norwegian economy and the government's willingness

and Vale (Chapter 1 in this publication).

[6] Steigum (Chapter 2 in this publication) argues that the oil price shock can be interpreted as an "early warning" that seems to have prevented a longer-lasting boom and therefore also a longer lasting bust period.

to inject new capital. Moreover, in an analysis of the impact of bank distress announcement on the performance of equity values of firms that maintain relationships with these banks, Ongena et al. (2003) do not find significant effects of bank distress on their customers. According to this view, the Norwegian banking crisis hardly brought about output losses.

However, it can be argued, that in view of crises in small and middle size banks from 1988 until 1990, the whole banking sector became more risk averse contributing to the downfall of GDP during this period. Therefore, it is possible that negative effects of "excess" risk-aversity after the oil price shock aggravated the fall in GDP during this period and hampered the rebound of economic growth in 1991 and 1992. The fact that the banking crisis became systemic only in 1991 can also mean, that there were hidden problems in the banks, which were countervailed by stronger risk aversity in order not to expose the banks to additional risks, thus potentially unveiling their fragility in an earlier point of time. This behaviour may indeed have contributed negatively to GDP growth.

4.2 Comparison of the Norwegian banking crisis with the Finnish and the Swedish banking crises

The Norwegian, Swedish and Finnish banking crises were quite similar in their causes and evolution and are therefore often analyzed together. Thus, the boom-bust cycle discussed in the preceding subsection is also representative for the development of the banking crises in Sweden and Finland. Both countries experienced a period of liberalization of credit markets with huge expansions in bank lending. Annual growth in bank lending reached around 30 percent in Sweden and nearly 50 percent in Finland in 1987 (Sandal, Chapter 3 in this publication). This expansion was followed by excessive fluctuations in key macroeconomic variables, and both economies ended in a systemic banking crisis.[7] However, differences, especially related to the severity of the crises, remain.

Overall, the economic crisis was more severe in Finland and Sweden as compared to Norway. In terms of fall in GDP, increase in unemployment, cumulative fall in bank lending and public fiscal support for the banks Finland and Sweden experienced a stronger crisis than Norway, which was the least affected of the three countries (Sandal, Chapter 3 in this publication). Steigum (Chapter 2 in this publication) argues that the main reason for the relative underperformance of the Finnish and the Swedish economies as compared to Norway was the lack of an "early warning" shock.[8] In addition to that, Finland experienced a major

[7] For a more detailed discussion of the Swedish and Finnish banking crisis, see Jonung (2002), Englund (1999), Drees and Pazarbaşioğlu (1998) or Vihrälä (1997).

[8] Drees and Pazarbaşioğlu (1998) point out that the depreciation of the Norwegian, Finnish and Swedish currencies in 1986, 1991-93 and 1992 respectively, posed an additional problem in the form of an increased value of debt denominated in foreign currency. This effect was significant for Finland and Sweden, where more than half of the borrowing by the corporate

external shock, i.e. the loss of the USSR as its major trading partner after its political collapse. Another difference is that the banking crises in Finland and Sweden erupted in the midst of severe economic crises, while the banking crisis in Norway became systemic when the economy was about to recover. When the banking crises peaked in Finland and Sweden (1992), GDP was falling further for two subsequent years, while GDP growth in Norway was positive in 1991.

The recovery of the banking sector in Finland and Sweden took longer than in Norway. Finnish banks did not regain profitability until 1996 (Sweden and Norway: 1993-1994). Moreover, bank lending in nominal terms decreased considerably in Finland and Sweden and did not reach pre-crisis levels before 2002/3 (Norway: 1995). The slow recovery in bank lending in Finland and Sweden can be an indication of credit crunches, which could have led to potentially high output losses. However, it is difficult to say whether the lower level of bank lending resulted from low demand or supply restrictions. Englund (1999) argues in favour of weak loan demand in the case of Sweden. He claims that the fall in bank lending mainly reflected declining quality of potential borrowers, who would not have been granted a bank loan even under normal conditions, due to falling collateral values. In a detailed micro econometric study, Vihriälä (1997) supports this view also in the case of Finland, where he finds weak borrower quality to be the main cause of declining bank lending in the distress period. He concludes that "... the issue of the early 1990s seemed to be more a 'collateral squeeze' than credit crunch". Pazarbaşioğlu (1996) comes to the same conclusion for Finland, arguing that the reduction in bank lending was mainly a reflection of the cyclical decline in credit demand. According to this view, additional bank support would not have resulted in more lending and increased economic activity.

The lack of clear signs of credit crunches in Sweden, Finland and Norway does not give the impression that these banking crises had a large negative impact on the real economy. Moreover, as we noted before, crisis resolutions were implemented quickly in all three countries and the functioning of the banking sector was restored rather quickly. Therefore, it seems that at least a large part of the economic downturn during the banking crisis could be assigned to economic shocks unconnected to the banking crises. This evidence will have to be weighted against quantitative estimates of output losses incurred during the banking crises and the potential interpretation that banking crises were the cause of declining economic activity.

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sector was denominated in foreign currency, so that the depreciation was a severe blow to their balance sheets. Previous viable firms faced bankruptcies as they were unable to roll over short term loans.

5 Methodological issues

This study introduces the distinction between *gross output losses* and *net output losses. Gross output losses* are losses incurred during the bust period of the banking crisis. *Net output losses* are gross output losses minus gains in output stemming from higher banking sector activity during the pre-crisis boom period. The "net cost" concept stresses the importance of analysis of banking sector activity and its impact on GDP development also during the build-up phase of a banking crisis. It therefore links the banking crisis directly to its potential causes in a boom-bust type theory of banking crisis. The banking crises in all three countries share important features of such a crisis understanding.

There are three main issues, which have to be considered in the estimation of output losses: The dating of a banking crisis, the estimation of output trends and the determination of the appropriate output loss measure. These issues will be discussed in the following subsections.

5.1 Issue 1: Dating of the banking crises

The precise dating of a banking crisis is difficult. In order to date banking crises, quantitative indicators have been introduced by a number of authors. Boyd et al. (2001) uses a substantial drop in a bank share index relative to a market index to date the beginning of a crisis. However, it is difficult to determine what a substantial drop in a bank share index is. Kaminsky and Reinhart (1996) determine the beginning of a crisis by events that lead to "... the closure, merging, takeover, or large-scale government assistance of an important financial institution, that marks the start of a string of similar outcomes for other financial restitutions ...". However, this criterion ignores the fact that banking problems may be hidden for a long time until being detected and revealed by negative economic shocks. Dziobek and Pazarbaşioğlu (1997) date a crisis to the point in time when "...problems affected banks which, in aggregate, held at least 20 per cent of the total deposits of the banking system." Demirguc-Kunt and Detragiache (1998) use four criteria, such as the ratio of nonperforming assets to total assets exceeding 10 per cent, nationalization of banks, extensive bank runs or fiscal costs of banking crisis resolution exceeding 2 per cent of GDP in order to identify a crisis. The variety of quantitative criteria reflects the fact that banking crises are difficult to define, since they have various causes and arise in different ways. Thus, single quantitative indicators are likely to be misleading. Caprio and Klingebiel (2003) instead base the *classification of episodes of banking crises on the subjective judgements of expert opinion*, a criterion used by Hoggarth et al. (2002). This classification has the advantage that it reflects the best judgement of financial experts based on several economic indicators.

This classification of banking crises mainly identifies the periods with overt

banking distress. Also, it identifies the timeframe when systemic banking problems have become widely visible up to the point of time where the normal functioning of the banking sector is restored, e.g. after successful restructuring operations and/or restoration of profitability in the banking sector. However, this timeframe does not necessarily coincide with the period of the malfunctioning of the banking sector. As argued above, it may be reasonable to adjust the estimates of gross output losses with some of the output gains from the pre-crisis boom period. And, when dating the end of the crisis period, the fact that banks regain profits does not really tell us that the functioning of the banking sector has been restored. Non-financial firms may still suffer from inadequate lending due to excessive risk-averse banks and GDP may be at a level below trend even after a proper functioning of the banking sector has been restored.

In order to tackle this problem, two additional criteria have been proposed to date the end of the crisis. The first one is used by the IMF (1998) and defines *the end of crisis as the point of time when output growth returns to its trend*. This means that the cost evaluation of a crisis stops when the actual GDP growth rate converges to a predefined trend growth. This, however, ignores the fact that the actual output level may be below the trend level when growth trend convergence is reached. Thus, this method tends systematically to underestimate output losses. The second criterion, used by Mulder and Rocha (2000), dates *the end of crisis at the point of time when actual level of GDP reaches its counterfactual trend level*. This method tends to give higher output losses and a longer duration of the crisis.

The different dating proposals give different crises durations and have consequences for the calculation of output losses. The IMF method (output growth returns to its trend) results in different durations of crises compared to the Caprio and Klingebiel criterion, depending on the particular country. The level convergence criterion tends to increase considerably the number of years included in the output loss calculation, which leads to higher estimates of output losses. If the drop in output during the crisis period is large, level convergence may take several years after an economic recovery following the crisis. Thus, the use of this criterion has been rather limited.

Estimates of output losses are sensitive to the dating method used and the resulting length of the banking crisis. Differences in trend estimation methods may also influence the dating and therefore the output loss estimates. However, the Caprio and Klingebiel criterion is independent of such estimated trends. Therefore, taking into account the sensitivity of the trend estimation criteria, this dating method is used in this study for determining the period of gross output loss calculations. This also facilitates a comparison between our gross estimates of the output costs with those in Hoggarth et al. (2002).

In order to estimate net output losses, the beginning of the boom period has to be defined. Here, the periods of interest are those during which the banks' potential impact on positive GDP growth can be expected to be rather strong.

Table 1: Dating period used in the output loss calculations[1]

	Gross output losses			**Net output losses**[5]
	IMF (1998) approach[2]	Caprio and Klingebiel (2003)[3]	Output level convergence[4]	
Finland	1991-1993	1991-1993	1991-1997	1988-1993
Norway	1988-1993	1988-1992	1988-1996	1985-1992
Sweden	1991-1993	1991	1991-1998	1988-1993

1) The assumptions of trend estimation, which is used in the dating of the crises (except the Caprio and Klingebiel (2003) dating periods) are explained in the following subsection.

2) Beginning of crisis due to the Caprio and Klingebiel (2003) criterion. End of crisis when output growth returns to trend.

3) Dating based on the subjective judgements of expert opinion.

4) Beginning as in (3). End of crisis when actual level of GDP reaches its counterfactual trend level.

5) Beginning includes the pre-crisis boom period. End of crisis for Finland and Norway as in 3), for Sweden as in Sandal (Chapter 3 in this publication).

As described earlier, this is potentially the case in periods of high growth rates of bank loans. Although it is not possible to define objectively what "high" means, in this study this term is defined as the treshhold when growth rates of bank loans exceed 30 percent, which is an exceptional growth rate for the Nordic countries. This treshhold has been reached in Finland in 1987, in Norway in 1985 and Sweden in 1987 (Sandal, Chapter 3). Following the arguments described in section 4, these are the periods where banks potentially contributed strongly to GDP growth.[9] Table 1 presents the differences in crises duration due to the different dating methods.

The IMF approach yields longer durations of the banking crisis for Norway and Sweden, and the same duration for Finland as Caprio and Klingebiel (2003). Finland experienced a strong rebound in growth in 1993, so that trend growth of output was reached fast. The recovery in GDP growth rates after the banking crisis was more gradual in Norway and Sweden, so it took longer time to

[9] Although the beginning of the boom period can be shifted by changing the threshold value, e.g. one year earlier, this does not change the qualitative fact that the contribution of the banking sector to positive GDP growth decreases the gross output losses during the bust period.

reach the relatively high pre-crisis growth rates. However, Caprio and Klingebiel underestimate the duration of the Swedish banking crisis, which clearly continued in 1992 and 1993 (Sandal, Chapter 3 in this publication). Therefore, in this study the duration of the Swedish banking crisis is set from 1991 to 1993. When the duration of the Swedish banking crisis is extended to three years, the IMF (1998) yields identical durations of crises for Finland and Sweden and a slightly different duration for Norway (1 year difference), when gross output losses are estimated.

As argued above, the output level convergence criterion results in the longest crises durations for gross output loss estimations. This is not surprising, since it takes time to regain the pre-crisis output level. Finally, in the last column, the suggested durations for the estimation of net output losses, which include the pre-crisis boom period, are shown. The boom periods add two additional years for Finland and four additional years for Norway and Sweden to the estimation of gross output losses. This extension in duration obviously lowers gross output loss estimates.

5.2 Issue 2: Estimating counterfactual GDP trends

Estimates of output losses are based on the cumulative differences between the actual level (growth) and a counterfactual trend level (growth) of GDP. Therefore, it is important to apply a trend estimation method that takes into account the specific characteristics of actual GDP development in the countries analysed in this study. In particular, it is useful to link business cycles to the method of trend estimation, in order to avoid trend over- or underestimations.

A straightforward method of calculating a GDP trend is to assume that output would have grown at the same constant rate as in the past. This approach has been used by the IMF (1998), which estimated the trend based on the arithmetic average growth rate of output in the three-year period prior to the crisis. However, this ignores the fact that growth rates tend to fall after the boom period. Since the Nordic banking crises broke out on the peak of or shortly after the boom period, the assumption of a constant trend growth results in upwardly biased trend growth estimates.

Another method of trend estimation is to use a Hodrick-Prescott (HP) filter. HP filters are standard tools of obtaining output trend estimates that more closely reflect potential output.[10] Hoggarth et al. (2002) uses this filter on the basis of annual GDP-data *ten years* prior to the crisis to predict potential output

[10] In contrast to the method mentioned before, a HP-trend results in a smoothed business cycle. The extent of smoothing depends on the a priori choice of the filter bandwidth via a constant value for the smoothing factor λ. In studies of annual data the smoothing factor is often set to 100. A higher value of λ leads to a stronger smoothing of data, while a lower value results in a more closely representation of the actual data. For comparative reasons this study chooses the same value as Hoggarth et al. (2002), i.e. λ =100.

over the banking crisis period.[11] While the main advantage of this method is the higher number of years taken for estimation of the average growth rate, it still implies a constant trend growth during the crisis, thus ignoring the fact that growth rates tend to fall after a boom period. Furthermore, the choice of ten years as the estimation basis for the trend growth rate can be improved on. The basis for trend estimation should be chosen so as to incorporate complete business cycles, i.e. cycles including an expansionary and a recessionary period. Otherwise trend growth may be overestimated, if it is estimated on the basis of, e.g. two expansionary and one recessionary period.

A second method of trend estimation used by Hoggarth et al. (2002) is to base the forecast of GDP growth on OECD projections for output growth just before the outset of the crisis.[12] The advantage of this measure is that it accounts for changes in GDP growth taking place before the onset of a banking crisis. Hence, a part of future output losses is automatically ascribed to economic forces which are not directly linked to the banking crisis. Therefore, the risk of potential overestimation of output losses is reduced with this estimation method.

In order to tackle potential biases in trend estimation, the following approach is suggested here: For each of the three Nordic countries, trend estimation is based on three complete business cycles. The starting years of trend estimation, where growth was relatively low compared to preceding and following years, are 1973, 1976 and 1977 for Norway, Finland and Sweden, respectively. While the choice of three business cycles is rather arbitrary – one could also choose four cycles, – basically this choice yields a more realistic projection of a cyclical trend GDP than the inclusion of just one or two business cycles. Since a short-term trend estimation period overvalues the impact of short-term economic shocks, it is important to take into account longer-term economic developments that also influence the business cycles. Furthermore, since the Nordic banking crises start during or shortly after a boom period, trend estimation should start at the bottom of the first business cycle included in the estimation in order to attain complete business cycles. This corrects for the influence of the pre-crisis boom period on the estimated average growth rate of GDP, which is not done systematically in Hoggarth et al. (2002).

I estimate potential output by the use of a spline filter (T_{spline}). This filter yields identical smoothing results as the HP filter, when an appropriate smoothing parameter for T_{spline} is chosen.[13] However, in contrast to a HP filter, T_{spline} can predict varying post sample growth rates of GDP over time depending on its past performance, while with a HP filter you can only predict a constant, post sample growth rate. As discussed before, estimating a constant

[11] Hoggarth et al. (2002) calls the output losses which use this filter "GAP2".

[12] This corresponds to the GAP3 measure in Hoggarth et al. (2002), see p. 838.

[13] The algorithm to compute the spline is discussed extensively in Green and Silverman (1994, Chap. 2 and 3). For comparative reasons the smoothing parameter has been chosen to be identical to a HP filter estimation in Hoggarth et al. (2002).

Table 2: Real, counterfactual GDP trend growth rates, averages during the banking crises

	Norway	**Norway-Mainland**	**Finland**	**Sweden**
IMF method[1]	3.61	3.67	3.53	2.15
Hoggarth et al. (2002)[2]	3.13	2.75	3.14	2.25
$\mathbf{T}_{spline}$[3]	3.00	2.41	2.92	2.19
$\mathbf{T}_{HP}$[4]	3.04	2.03	1.45	1.46

1) Trend based on the arithmetic average growth rate of output in the three-year period prior to the crisis. Own calculations, since growth rates were not directly available from IMF (1998).
2) Based on a HP filter with GDP-data ten years prior to the crises. Norway-Mainland trend growth-rate estimated in this study.
3) Own calculations, based on a spline filter with annual GDP-data on three complete business cycles prior to the crisis.
4) Own calculations, based on a HP filter with annual GDP-data from the lower peak of the first business cycle up to 2001.

post sample growth rate ignores the observation that growth rates tend to fall after a boom period, when the economy enters into a recession. Here, a spline filter yields a more intuitive output projection as it can potentially estimate falling counterfactual growth rates after the boom period and will, therefore, not tend to overestimate systematically the counterfactual trend.

As a basis for estimating potential output with T_{spline} we use real, annual GDP data from the beginning of the first business cycle, as described above, up to the beginning of the banking crises. On this basis we estimate real, counterfactual growth rates of GDP during and after the banking crises up to 2001. By estimating the output potential with T_{spline}, we basically follow the methodology of the IMF (1998) and Hoggarth et al. (2002), who also use data up to the outbreak of the crises and then estimate output losses incurred during the crisis.

However, since all these estimation methods use data only up to the outbreak of the crises, which occurred at the peak of or shortly after the boom period, they will potentially overestimate counterfactual output growth, not taking into account that a boom is followed by a recession or at least a slowdown of economic growth. In other words, they put too much weight on the short term impact of the pre-crisis boom period on the development of the GDP potential.

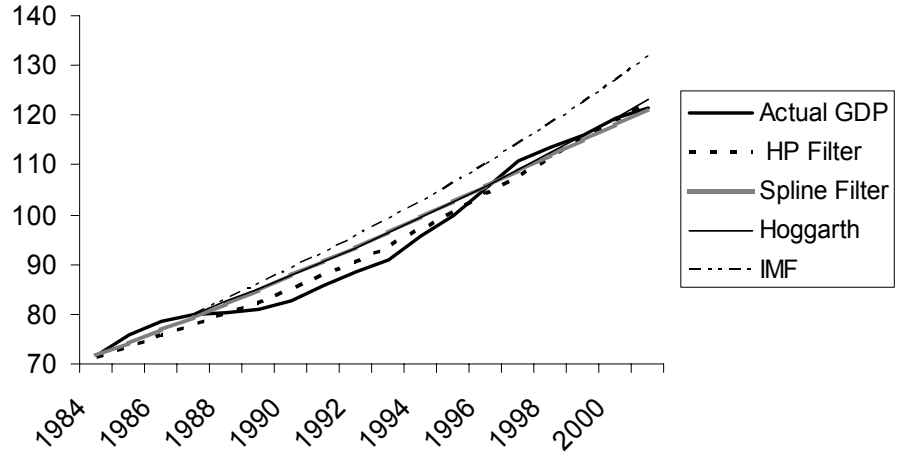
In order to countervail the short-term emphasize of the T_{spline} trend, a second trend (T_{HP}) will be estimated. In contrast to T_{spline}, this trend will be based on data which covers the entire estimation period, i.e. from the beginning of the bottom of the first business cycle up to 2001. Thus, this trend gives equal weight to all data points, lowering the impact of the pre-crisis boom period on GDP potential and hence describing the long-term trend of GDP. Since in this case GDP growth is not projected into the future, as was the case for T_{spline}, a usual HP filter can be used.[14] A comparison of the two trends allows reducing a potential bias in output loss calculation by properly weighting short-term and long-term economic factors. The differences in trend estimation techniques result in different average growth rates of output potential during the crises. These are presented in table 2 and can be traced graphically in figures 1 to 4.

First, as expected both the IMF and Hoggarth growth rates are generally higher than the corresponding T_{spline} and T_{HP} estimates. Second, in all cases T_{spline} and T_{HP} provide different values, which is due to the different estimation periods. The huge difference in average growth rates during the banking crises for Sweden and Finland shows the impact of the pre-crisis boom period on the average growth rates of GDP. Third, the smaller differences for Norway are due to the fact that the peak of the banking crisis in Norway was only reached, when the economy was already on the way to recovery, while Sweden and Finland experienced bigger recessions. Fourth, the smaller difference in T_{spline} and T_{HP} for total Norwegian GDP as compared to Mainland Norwegian GDP unveils that the oil sector – which is excluded from Mainland GDP – played an important role for higher average GDP growth rates during the crisis. Hence, it is important to differentiate between total and Mainland Norwegian GDP in the output loss calculations. Although not depicted in table 1, which only shows average growth rates of counterfactual GDP trends, T_{spline} estimated falling growth rates during and after the banking crises in all cases. This result confirms the intuition that growth rates should fall after the pre-crisis boom period. Thus, the estimation of a constant counterfactual growth rate by the HP filter, as done by the IMF (1998) and Hoggarth et al. (2003), seems to be too restrictive.

Figures 1 to 4 show the impact of the different average growth rates on the development of counterfactual GDP trends during and after the banking crises. The IMF and the Hoggarth method result in output potentials which exceed actual GDP. They heavily do so in the cases of Finland, Sweden and Norway Mainland GDP. If these estimations were correct, this would mean that the banking crises had long lasting effects on the performance of GDP, i.e. that they lowered permanently the average growth rate of GDP. Considering the lack of evidence of credit crunches in all countries, as discussed in sections 4.1 and 4.2, this result is not intuitive and indicates that these estimates might be too

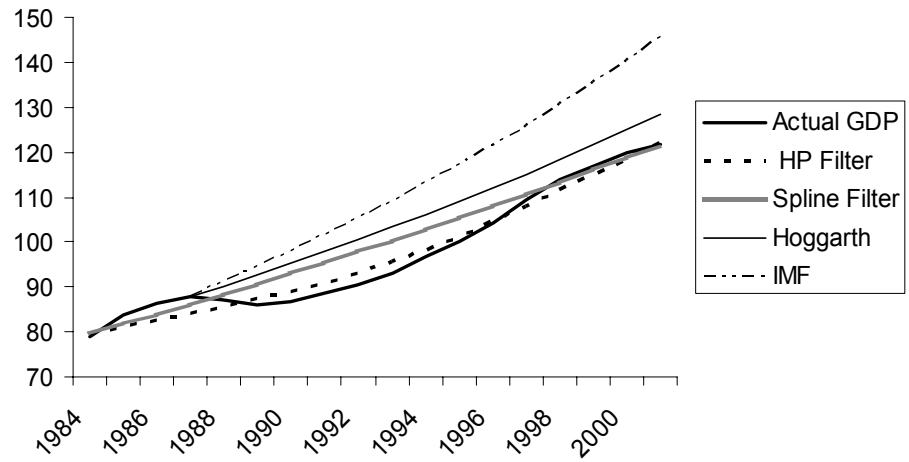
[14] For comparative reasons this study chooses the same value as Hoggarth et al. (2002), i.e. λ =100, which is usually used for annual data.

Figure 1 Trend Estimates for Norwegian GDP



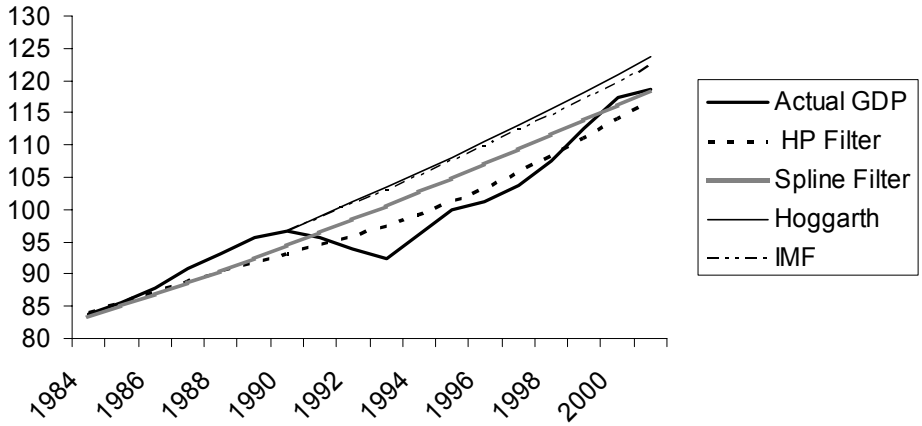
Sources: Actual GDP, Statistics Norway. HP Filter, Spline Filter and IMF, own calculations. Hoggarth, Hoggarth et al. (2002).

Figure 2 Trend Estimates for Norwegian Mainland GDP



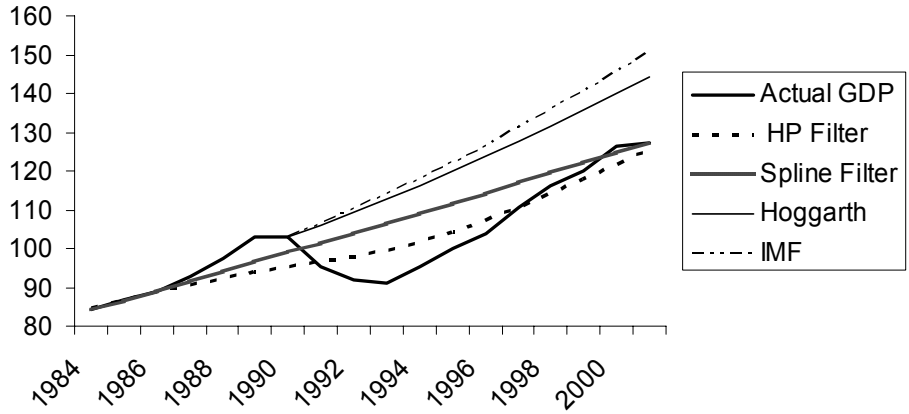
Sources: Actual GDP, Statistics Norway. HP Filter, Spline Filter and IMF, own calculations. Hoggarth, Hoggarth et al.(2002).

Figure 3 Trend estimates for Swedish GDP



Sources: Actual GDP, Statistics Sweden. HP Filter, Spline Filter and IMF, own calculations. Hoggarth, Hoggarth et al. (2002).

Figure 4 Trend Estimates for Finnish GDP



Sources: Actual GDP, Statistics Finland. HP Filter, Spline Filter and IMF, own calculations. Hoggarth, Hoggarth et al.(2002).

high.

This stands in contrast to T_{spline}, which is close to actual GDP in 2001, and more closely reflects qualitative evidence of a low impact of the banking crises on GDP performance. However, the deviation of trend GDP from actual GDP during the crises suggests that short term impact might have existed, although this deviation might have been caused by recessionary factors unconnected to the banking crises. The impact of the different weighting of data by T_{HP} in contrast to the other trends, is visible in all cases. Apparently, at the beginning of the banking crises, T_{HP} is on a lower level of GDP than the other trends. This has the effect that it exhibits a lower deviation from actual GDP and lower output losses than the other trends. Thus, these trends exhibit a "level effect", which means that they automatically account for higher output losses because of the fact that they are starting form a higher GDP level than would be the case if the recessionary period was taken into account.

5.3 Issue 3: Output loss measure

The final methodological issue relates to the actual measure of output losses. IMF (1998) proposes to measure output losses by summing up the differences between the growth rates of the trend and actual GDP. As pointed out by Mulder and Rocha (2000) and Hoggart et al. (2002), the focus on growth rates ignores the output losses generated by lower output levels that are carried over through the subsequent years of crisis. This method therefore underestimates output losses in crises that last longer than two years.[15] In order to avoid this underestimation, they calculate output losses as the cumulative difference between the levels of trend and annual GDP during the crisis period. Thus, the total shortfall of output relative to the trend is measured. As shown by Hoggarth et al. (2002) the two measures of output losses are only weakly correlated, and they systematically yield different results. Although measuring differences in levels rather than in growth rates yields a better estimate of the total shortfall of GDP relative to a trend GDP, the resulting output losses show a higher variance. This is mainly due to their sensitivity to the duration of the crisis. Thus, the longer a crisis lasts, the higher the expected deviation in output losses across the two measures. Because of the tendency of the growth rates method to underestimate output losses, this study measures deviation in levels of actual and trend GDP, as in Hoggarth et al. (2002).

For a comparison with the IMF (1998) and Hoggarth et al. (2002), first gross output losses will be measured with T_{spline}. This will allow for a comparison of the impact of different growth rates on output losses for all cases, which use the same dating period of the crises as the abovementioned studies. Second, these estimates will be adjusted by subtracting T_{HP} estimates of output losses

[15] Hoggarth et al. (2002) gives an accurate mathematical relationship between output loss measures based on growth rates and levels.

from T_{spline} estimates. By subtracting T_{HP} from T_{spline} estimates of output losses, it is possible to measure the difference between the trend, if we had not got the burst with a banking crisis and a long term trend taking into account that this actually happened. As argued above, this adjustment is useful, since T_{spline}– as well as IMF (1998) and Hoggarth et al. (2002) – potentially tend to overestimate the impact of the pre-crisis boom period on the average growth rates of potential output during the banking crises.

Then net output losses will be estimated. First, the difference between T_{HP} and T_{spline} estimates of output gains during the pre-crisis boom periods will be calculated. Second, these output gains will be subtracted from gross output losses, in order to attain net output losses. Thus, output losses generated during the banking crises can be directly linked to output gains incurred before the banking crises.

5.4 Summary of methodological issues

Table 3 summarizes the main methodological issues involved in the estimation of output losses.

Table 3: Summary of methodological issues

	Preferable measure	**Difficulties involved**	**Other studies**
Beginning of crisis	The inclusion of the pre-crisis boom period allows calculating net output losses during the banking crises.	Definition of the beginning of the crisis periods is not clear-cut.	No inclusion of the boom period.
End of crisis	Caprio and Klingebiel (2003) criterion: classification of episodes of banking crises based on the subjective judgements of expert opinion.	Underestimation of output losses, if level convergence of actual and trend GDP is not reached.	IMF uses growth rate convergence. Hoggarth et al. (2002) use the Caprio and Klingebiel (2003) criterion.
Trend estimation	Estimating two trends lowers potential biases in estimation.	Different possibilities for trend estimation render the right choice difficult.	Only one trend estimated on data up to the crisis period.
Output loss measure	Summing up differences in levels between actual and trend GDP avoids the bias resulting from summing up growth rates.	The large sensitivity of this measure relative to trend estimation and crisis duration can result in unreasonable output loss estimates.	IMF measures differences in growth rates, while Hoggarth et al. (2002) measure differences in levels.

6 Estimates of output losses

6.1 New estimates of output losses

Table 4 presents the new estimates of gross and net output losses, as well as the corresponding estimates from the IMF and the Hoggarth studies. The estimates in the first three columns show gross output losses based on cumulative differences in the growth rates (IMF) or levels (GAP2 in Hoggarth et al. (2002)) between the trends that use GDP data up to the outbreak of the crises. The numbers in parentheses in the Hoggarth study are based on OECD forecasts of GDP growth just before the outset of the crises, as described earlier in the text (GAP3 in Hoggarth et al. (2002)). The estimates vary considerably between the studies: the estimates based on the IMF method are considerably lower than the GAP2 and T_{spline} estimates. This is mainly due to the fact that the IMF method measures differences in growth rates rather than in levels of GDP. The low estimate by Hoggarth of output losses in Sweden is due to the wrong dating of the crisis period to only one year. Excluding Sweden, the T_{spline} estimates are lower than the corresponding Hoggarth (GAP2) estimates. This reflects the lower trend growth rates of GDP used in the T_{spline} estimates.

The estimates in the fourth column show output losses that are adjusted by the T_{HP} trend. Adjusting the output loss estimates given by the T_{spline} estimates (in the third column) results in output loss estimates (in the fourth column), which are 40 (Norway and Sweden) to 45 (Norway-Mainland and Finland) percent lower than the corresponding T_{spline} estimates and 46 (Finland) to 50 (Norway and Norway-Mainland) lower than the GAP2 estimates.

This is mainly due to the "level effect" described earlier and the higher growth rates of the GAP2 and T_{spline} trends. Interestingly, our adjusted gross output losses for Norway and Finland are close to the GAP3 estimates in Hoggarth et al. (2002), although the ways taken by the two studies to come to these results are quite different.[16] It seems that the necessary correction of overestimated average trend growth rates, which is achieved through the use of OECD forecasts of GDP growth prior to the crises is also sufficiently achieved through the use of the two trend lines in this study. Another result is that as expected in the discussion of trend growth rates, output losses are considerably higher for Norway-Mainland than for total Norway GDP, reflecting the importance of the oil industry for the recovery of GDP growth during the banking crisis.

Finally, the new estimates for net output losses are considerably lower than the corresponding gross output losses, reflecting the potential positive impact of the banking sector on GDP growth during the boom period. This result stands in line with those of Hove and Moum (1997), discussed earlier in the text, who ascribe part of the economic growth in the boom period to the liberalization of

[16] As mentioned before a comparison with Sweden is not possible due to the different dating of this crisis by Hoggarth et al. (2002). GAP3 estimates for Norway-Mainland are not given.

Table 4: Cumulative output losses in per cent of GDP

	Gross output losses				**Net output losses**[5]
	IMF (1998) method[1]	Hoggarth et al (2002)[2] GAP2 (GAP3)	This study		
			T_{spline}[3]	T_{spline} minus T_{HP}[4]	
Norway	9.8	27.1 (11.2)	21.6	12.9	6.8
Norway-Mainland	16.1	39.3	31.4	20.6	12.0
Sweden	11.8	3.8 (2.5)	21.0	12.5	3.8
Finland	22.4	44.9 (24.6)	44.5	28.8	9.99

1) Output losses based on cumulative differences in growth rates between trend and actual GDP during the crisis period. Trend growth rates as in table 3, row 1.

2) Output losses based on cumulative differences in the levels between trend and actual GDP during the crisis period. Trend growth rates as in table 3, row 2. Norway (total GDP), Sweden and Finland as in Hoggarth et al. (2002), Norway-Mainland based on own calculations. The numbers in parentheses are the GAP3 results, i.e. trend growth corresponds to OECD forecasts of GDP growth just before the outset of the crises.

3) Dating of crises same as in Hoggarth et al. (2002). Output losses based on cumulative differences in the levels between T_{spline} and actual GDP during the crisis period.

4) Output losses between THP and actual GDP are subtracted from the output losses in (3).

5) Beginning of output loss calculation is the pre-crisis boom period. End of crisis is same as in (2), (3) and (4). Negative output losses, i.e. output gains from the boom period, are subtracted from output losses in (4).

the credit market.

Although it is difficult to judge, which estimates of output losses are the "correct" ones, the differences in the results suggest that it is necessary to explore different methods of output loss estimation, in order to see how robust the estimates are to changes in methodology. Though this study presents some arguments for the appropriate choice of output loss estimation, the overall variance in results points to the potential weakness of the method to describe economic costs of banking crises by estimating output losses.

This argument seems also valid in the light of a possible contrast between qualitative and quantitative evidence. While qualitative evidence suggests that there was not much signs of a credit crunch or negative impact on economic activity from the banking crisis in the Nordic countries, estimates of output losses suggest that economic activity was in fact negatively affected. This, however, does not have to be a necessary contrast, since output losses in this study have no underlying causal analysis, i.e. output losses can be the outcome of economic factors unconnected to the banking crises. The same problem arises within the econometric analysis in Hoggarth et al. (2002). While they find that on average 85 percent of output losses during a banking crisis can be associated with the occurrence of the crisis, they leave open whether the banking crisis was the cause or the effect of the higher output losses, i.e. the causality is unclear. To be able to establish a causal link between a banking crisis and its effects on GDP growth the development of a formal model is necessary.

6.2 Shortcomings and refinements

The most important shortcoming of the current methodology is the lack of a formal framework linking a banking crisis to output losses. Therefore, it is hard to evaluate whether the estimated output losses can be ascribed to a banking crisis or an overall economic recession. One way to test whether banking crises impose costs on the economy is to study potential transmission mechanisms from the banking sector to the real economy. Thus, it may be useful to study the credit crunch hypothesis for Norway and Sweden, as this has already been done for Finland.

Another way to test whether banking crises impose costs on the economy would be to use a full scale macroeconomic model to study the counterfactual development of the economies without a banking crisis, and then compare this with the actual GDP development. Such a model should capture key features of the banking sector which affect economic growth, such as the volume of bank intermediation and financial sector efficiency, and which help to explain the occurrence of output losses during a banking crisis.

7 Conclusions

The purpose of this study has been to yield new estimates of economic costs of banking crises in Finland, Norway and Sweden, and to compare these new estimates with similar estimates in the reference studies of the IMF (1998) and Hoggarth et al. (2002). The main innovations of the current study are: (i) the attempt to correct potential biases in the estimation of output losses by estimating two rather than one output potential. (ii) the inclusion of a net output loss concept, which takes into account potential growth benefits of GDP incurred by the banking sector during the pre-crisis boom period.[17] The main results of the study are as follows:

There is *significant difference between estimates of gross output losses* between the studies: estimates based on the IMF method are considerably lower than the Hoggarth GAP2 and our T_{spline} estimates, because the IMF measures differences in growth rates rather than in levels of GDP, which tends to give lower estimates for longer crises. Excluding Sweden, the T_{spline} estimates are lower than the corresponding Hoggarth (GAP2) estimates. This reflects the lower trend growth rates of GDP used in the T_{spline} estimates.

Adjusted T_{spline} estimates (after subtracting output losses due to the T_{HP} trend) result in output loss estimates lower than the corresponding T_{spline} estimates and the GAP2 estimates. This is mainly due to the "level effect" and the higher growth rates of the GAP2 and T_{spline} trends. Moreover, adjusted T_{spline} estimates match closely the GAP3 estimates in Hoggarth et al. (2002), so that they both correct for the "level effect" and the higher growth rates of the other estimates. Another result is that as expected in the discussion of trend growth rates, output losses are considerably higher for Norway-Mainland than for total Norway GDP, reflecting the importance of the oil industry for the recovery of GDP growth during the banking crisis. Finally, the *new estimates for net output losses are considerably lower* than the corresponding gross output losses, reflecting the potential positive impact of the banking sector on GDP growth during the boom period.

The differences in results between different studies suggest that it is necessary to explore different methods of output loss estimation, in order to see how robust the estimates to changes in methodology are. Though this study presented some arguments for the appropriate choice of output loss estimation, the overall variance in results points to the potential weakness of the method to describe economic costs of banking crises by estimating output losses.

A better way to establish a link between a banking crisis and its effects on GDP growth would be to use a formal model, which does not lie within the scope of this study. This could help to explain to what extent the banking

[17] The motivation for this approach is the argument that banking crisis typically are a result of rapid growth in bank lending during the pre-crisis period characterized by high optimism among banks, firms and households.

crisis was the cause or the effect of the high output losses. In general, the uncertainties involved in the estimation of output losses, such as the dating of the crisis period, the estimation of an appropriate GDP trend, as well as the lack of an underlying causality analysis between banking crises and output losses, clearly point to a need for further research in this area.

References

Bernanke B. (1983). Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression, *American Economic Review*, 73, pp. 257-76.

Bernanke B.S. and Gertler M. (1995). Inside the Black Box: The Credit Channel of Monetary Policy Transmission, *Journal of Economic Perspectives*, Vol. 9 (4), 27-48.

Boyd J.H., Gomis P., Kwak S., and Smith B.D. (2001). A User's Guide to Banking Crises, *mimeo*, University of Minnesota.

Bordo M., Eichengreen B., and Klingebiel D.(2001). Is the Crisis Problem Growing More Severe? *Economic Policy*, 32, pp. 51-82.

Caprio G. and Klingebiel D. (1996). *Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?* in Bruno and Pleskovic (eds) , Annual Bank Conference on Development Economics.

Caprio G. and Klingebiel D. (2003). Episodes of Systemic and Borderline Financial Crises, *mimeo*, World Bank.

Demirgüç-Kunt A. and Detragiache E. (1998). The Determinants of Banking Crises in Developing and Developed Countries. IMF Staff Paper, 45.

Drees B. and Pazarbaşioğlu C. (1998). The Nordic Banking Crises: Pitfalls in Financial Liberalization? *IMF Occasional Paper*, 161, pp. 1-41.

Dziobek C. and Pazarbaşioğlu C. (1997). Lessons from Systemic Bank Restructuring: a Survey of 24 Countries. IMF Working Paper, 161.

Englund P. (1999). The Swedish Banking Crisis: Roots and Consequences, *Oxford Review of Economic Policy*, 15, pp. 80-109.

Frécaut O. (2002). Banking System Losses in Indonesia. Looking Out for Fifty Billion U.S. Dollars. Can the SNA Help? Paper Prepared for the 27th General Conference of The International Association for Research in Income and Wealth.

Friedman M. and Schwartz A.J. (1963). *A Monetary History of the United States 1867-1960.* Princeton University Press.

Frydl E.J. (1999). The Length and Cost of Banking Crises. IMF Working Paper, 30.

Frydl E.J. and Quintyn M. (2000). The Benefits and Costs of Intervening in Banking Crises. IMF Working Paper, 147.

Gerdrup K. (2003). Three episodes of financial fragility in Norway since the 1890s, Central Bank of Norway, preliminary draft.

Goldsmith. (1982). "Comment" in *Financial Crises: Theory, History and Policy.* Charles P. Kindleberger and Jean-Pierre Laffargue (eds.), Cambridge University Press.

Green P.J. and Silverman B.W. (1994). *Nonparametric Regression and Generalized Linear Models. A Roughness Penalty Approach.* London: Chapman and Hall.

Hamada K. (2002). On the Welfare Costs of Systemic Risk, Financial Instability, and Financial Crises. Edited by Johnson, O. E. G. in *Financial Risks, Stability, and Globalization*, IMF, pp. 195-217.

Hoggarth G., Reis R., and Saporta V. (2002). Costs of banking system instability: some empirical evidence. *Journal of Banking and Finance*, 26, pp. 825-55.

Honohan P and Klingebiel D. (2000). Controlling the Fiscal Costs of Banking Crises. World Bank Policy Research Working Paper, 2441.

Honohan P. (2002). Comment on "Costs of banking system instability: Some empirical evidence". *Journal of Banking and Finance*, 26, pp. 857-60.

Hove S.I. and Moum K. (1997). Fra kjøpefest til ledighetskø. Kredittliberalisiering, konsumutvikling og konjunktursvingninger 1983-1993, SSB *Økonomiske Analyser*, pp. 6-13.

International Monetary Fund (1998). Financial Crises: Characteristics and Indicators of Vulnerability, *World Economic Outlook*, Chapter IV.

Johnston R.B. and Pazarbaşioğlu C. (1995). Linkages Between Financial Variables, FinancialSector Reform and Economic Growth and Efficiency. IMF Working Paper, 103.

Jonung L. and Hagberg T. (2002). How costly was the crisis of the 1990s? unpublished manuscript.

Kiyotaki N. and Moore J. (1997). Credit Cycles. *Journal of Political Economy*, 105, pp. 211-248.

Kaminsky G.L. and Reinhart C.M. (1996). The twin crises: the causes of banking and balance-of-payments problems. *International Finance Discussion Papers*, 544, Board of Governors of the Federal Reserve System (U.S.).

Mulder C. and Rocha M. (2001). The Soundness of Output Losses in Currency Crises. IMF Working Paper (Draft).

Omotunde E.G.J. (2002). Comments on Hamada, edited by Johnson, O. E. G. in *Financial Risks, Stability, and Globalization*, IMF, pp. 229,238.

Ongena S., Dag M., and Smith D.S. (2003). Firms and their distressed banks: lessons from the Norwegian banking crisis. *Journal of Financial Economics*, 67, pp. 81-112.

Pazarbaşioğlu C. (1996). A Credit Crunch? A Case Study of Finland in the Aftermath of the Banking Crisis. IMF Working Paper, 135.

Stortinget (1998). Rapport til Stortinget fra kommisjonen som ble nedsatt av Stortinget for å gjennomgå ulike årsaksforhold knyttet til bankkrisen. *Dokument nr. 17* (1997-98).

Schwartz A. (1986). Real and pseudo-financial crises, in *Financial crises and the world banking system*, ed. F. Capie and G. Wood. New York: St. Martin's.

Sharpe S. (1995). Bank Capitalization, Regulation and the Credit Crunch: A Critical Review of the Research Findings. *Federal Reserve Board, Finance and Economics Discussion Series*, 20.

Vihriälä V. (1997). Banks and the Finnish Credit Cycle 1986-1995. *Bank of Finland Studies*, E:7.

Chapter 5

Three booms and busts involving banking crises in Norway since the 1890s

Karsten R Gerdrup

This paper provides a study of three boom and busts involving banking crises in Norway (1899-1905, 1920-1928, and 1988-1993). Financial sector development appears to be closely linked to booms and busts in economic activity during these years. The boom periods that preceded each of the three crises all have some common features: Significant bank expansion, considerable asset price inflation and increased indebtedness. The non-financial sectors increased their debt only slightly more than their income during the first two boom periods, but subsequent deflation increased their debt burden. A puzzle in the two first boom periods was that the commercial bank equity-to-total-assets ratio increased markedly. Nonetheless, the commercial banks were severely affected in each subsequent bust. Overall, the banking crises seem to reflect an unwinding of financial fragility built up in the preceding booms. The crises occurred in different institutional environments and monetary policy regimes, and the role of these is explored and policy lessons are drawn. In particular, the close link between monetary and financial stability is highlighted.

1 Introduction

The latest banking crisis in the Nordic countries ended 10 years ago. Since then, a growing literature has sought to explain the causes and the effects of the crisis. Most of this literature emphasises the role of financial liberalisation, which underpinned a boom and bust cycle in credit, asset prices and leverage. Different shocks, such as tighter monetary policy and tax reforms – both of which increased the real after-tax interest rate – and declines in export, have been seen as important factors triggering and reinforcing the bust in the Nordic countries. Relatively little attention has been devoted, however, to the causes and the effects of earlier banking crises, and similarities between different crises over time.[1] I believe there are additional lessons to be learned from Norwegian banking history.

Since the late 19th century, Norway has experienced three major banking crises, which have necessitated interventions by Norges Bank and the government. The first banking crisis was triggered by a real estate crash in 1899 and was largely confined to banks in Oslo,[2] but credit conditions throughout the country were affected. The second banking crisis erupted in 1920, and continued for most of that decade. The third banking crisis followed the deregulation of the financial system and liberalisation of capital movements. It began in 1988 when several small banks started to record high losses, and became systemic in 1991 when the capital of the largest banks was all but wiped out. This paper presents financial and macroeconomic data for these three boom and bust episodes. Although these episodes happened in different institutional environments and monetary regimes, I will focus on the common causes of banking crises. Kindleberger (1996, page 17) put it this way: "Individual features of any one crisis will differ from those of another: the nature of displacement, the object or objects of speculation, the form of credit expansion, the ingenuity of the swindlers, the nature of the incidence that touches off revulsion. ... the more something changes, the more it remains the same. Details profilerate; structure abides.

" In particular, I consider whether the banking crises reflect an unwinding of financial fragility built up in the preceding booms.[3] According to the financial

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[1] Exception is Herrala (1999), who studies banking crises in Finland in the period 1865-1998.

[2] Oslo was named Kristiania at the time.

[3] The tradition of the financial fragility approach is old, but its importance may have increased following the deregulation of financial markets and capital movements (Goodhart

fragility approach, eg. as described by Davis (1995), banking crises are a response to previous "excesses".[4] The boom is initiated by some "displacement", which leads to improved economic outlooks and better profit opportunities, leading to higher investment spending. Individuals and firms seek to take advantage of the new profit opportunities. Expansion of bank credit feeds the boom by supporting spending and by contributing to the success of new projects of various quality. Borrowers bid up the price of financial and real assets. Increased value of wealth contributes to increased spending and makes it easier to borrow against ample collateral. Financial institutions, non-financial firms and households overstretch their financial resources, leading to increased financial fragility and thus reduced robustness against adverse shocks. A change in the perception of the future outlook, an interest rate increase or some adverse economic shock finally ends the boom, and leads to an unwinding of real and financial imbalances built up in the boom. In the bust, highly indebted borrowers become unable to meet their obligations. Borrowers can be forced to liquidate assets, precipitating a crash in asset prices and reducing the net worth of borrowers. The result is particularly severe for highly leveraged banks, which during the expansion extended loans to increasingly less creditworthy borrowers.

The paper is organised as follows: Section 2 describes the approach used in this paper. Section 3 compares the three banking crises. The role of the different institutional environments, monetary regimes and other specific macroeconomic factors is also explored. Section 4 is devoted to policy lessons. I summarise the key findings and conclusions in Section 5.

In short, the results in this paper largely confirm a causal link between financial fragility and banking crises. Indicators of fragility behave in a way broadly consistent with the financial fragility approach. The results also show that severe macroeconomic declines unaccompanied by the unwinding of financial fragility appear not to be sufficient in creating banking crises.

(2003)). Fisher (1933) was an early proponent of the financial fragility approach. Minsky (1977) and Kindleberger (1978, 1996) are later, highly influential, proponents.

[4] I am not making a statement about whether financial cycles are the result of irrational behaviour or not. In contrast to the traditional proponents of the financial fragility approach, there are also a number of papers which explain financial cycles without requiring that people, at least not individually, behave irrationally. Herring (1999) and Herring and Wachter (1998) provide a rationale, "disaster myopia", that may explain why risks can be systematically underestimated during booms and overestimated during downturns. A possible explanation of financial cycles which focuses on the role of collateral is given by Kiyotaki and Moore (1995). Bernanke and Gertler (1989, 1990) show that, because of moral hazard, the net worth of borrowers' or banks' solvency can affect macroeconomic performance. A strengthening (weakening) of borrowers' net worth resulting from a boom (bust) can thus stimulate (dampen) investments and propagate the good (bad) times. Borio et al (2001) argue that the financial system can amplify swings in the macroeconomy and sow the seeds of widespread financial instability, and that an important source of this amplification is the inappropriate responses by financial market participants to changes in absolute risk over time.

2 Approach

In order to assess whether the financial fragility approach matches the Norwegian experience, I take a number of steps.
First, I construct indicators that highlight the different aspects of this approach:

- *Competitive environment:* The change over time in the number of banks is used as a crude measure of changes in the competitive environment. Additional evidence on the competitive environment is provided as well.

- *Bank behaviour:* Growth in real bank lending is used as one indicator of banks' overall lending policy stance. The change over time in the deposits-to-loans ratio is used as a second indicator of the lending policy stance. Finally, the change over time in the equity-to-total-assets ratio is analysed. A reduction in this ratio reflects higher leverage and a motivation to increase risk-taking. Arguably, this may at least be the case in commercial banks, because their owners have a limited liability.

- *Asset price developments:* Different indicators of asset market activity and price developments are presented for the different episodes, since I have not so far been able to construct similar indicators for the three episodes.

- *Non-financial sector indebtedness:* If non-financial sectors (non-financial companies, households and municipalities) increase their debt more than nominal income, they become vulnerable to unexpected declines in economic activity or prices. Debt from all sources is included (privately-owned and state-owned banks, non-bank financial institutions, foreign banks, bond market) and measured as a percentage of nominal GDP.

Second, I consider whether the behaviour of the indicators of financial fragility is consistent with the financial fragility approach.

Using the above indicators, I would expect an increase in the number of banks, including branches, during an economic boom. Further, banks are expected to increase their lending (in real terms) by more than the earlier trend increase, and overstretch their financial resources by increasingly finding other sources of finance than customer deposits. Bank equity is expected to decrease as a percentage of total assets during this process. The equity-to-total-assets ratio has, however, a caveat. Since I am not in a position to adjust total assets according to the risk inherent in the balance sheet, this indicator may be difficult to interpret. For example, an increase in a bank equity-to-total-assets ratio does not reflect lower risk-taking and larger cushions against future losses if the increased risk in the loan portfolio more than outweighs the higher ratio. According to the financial fragility approach, the development in asset prices is closely linked to the boom in the financial sector and in economic activity.

An asset price boom without a bank lending boom is not judged to lead to a significant increase in financial fragility. An asset price boom may, however, underpin a bank lending boom (or vice versa). This paper does not try to make a distinction between an asset price boom and a lending boom. Finally, the level of financial fragility during a boom is expected to increase if non-financial sector indebtedness increases markedly.

When the boom ends, the number of banks is expected to decrease because of bank failures and mergers and acquisitions involving weak banks. Real bank lending growth is expected to subside. Banks are expected to increase their deposit-to-loan ratio, as other sources of finance become expensive or absent. The equity-to-total-assets ratio may first decrease because of high losses (or increase if total assets fall more than equity because of a liquidity drain), and later increase as the banks adjust their balance sheets. Asset prices are expected to decline in the course of the bust. Non financial sector indebtedness may first increase because of a decline in nominal income (or lower growth), but later decrease as this sector also tries to reduce the burden of the debt.

Third, I consider whether such episodes have occurred frequently. A high degree of financial fragility may in itself be sufficient to trigger a crisis. Even so, the causal link between financial fragility and banking crises may still be weak if episodes of financial fragility occur often.

Finally, I investigate whether strong (exogenous) macroeconomic declines of the same magnitude as the three banking crises busts have occurred since the late 1890s. If this is the case, then this can be taken as an indication that a strong decline in economic activity by itself is not sufficient in creating a severe banking crisis, and that some initial conditions must be in place prior to a decline in economic activity in order to create a banking crisis.

3 Booms and busts and financial fragility

3.1 Study of three major banking crises

Macroeconomic environment

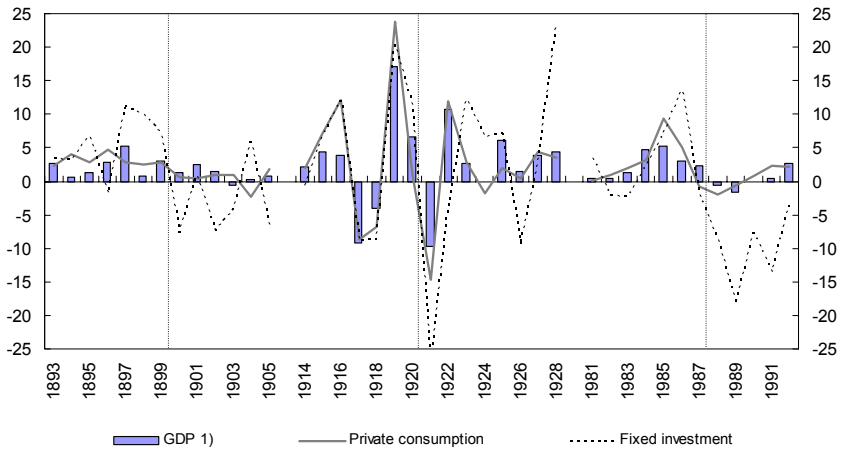
The three banking crises coincided with strong declines in economic activity, following 5-6 years of high growth (Graph 1). Different macroeconomic factors contributed to the three business cycles.

The economic development of the late 1890s-early 1900s was inextricably linked to a spectacular real estate boom and bust in Oslo and other large Norwegian cities. The real estate boom was triggered and reinforced by factors such as parliament' s decision to resume the construction of railways from Oslo to a few other cities, an international business cycle upturn, and monetary policy easing as indicated by an increasing money supply (Graph 2) and relatively low interest rates (Graph 3). Following the rules of the game of the gold standard,

Norges Bank eased (tightened) monetary policy when its holdings of international reserves rose (fell) a greater extent than the monetary base rose (fell).[5] Growth in economic activity, fixed investment and private consumption were high in the period 1895-99, but imbalances built up as the real estate boom led to overcapacity.

The failure of a large, highly leveraged, non-financial company, Chr. Christophersen, precipitated a domestic crash in asset markets and imposed high losses on several banks. A real estate crash took place in several Norwegian cities, but the banking crisis was mainly confined to Oslo banks. Even so, credit conditions throughout the country, as well as business and consumer confidence, were affected. Norges Bank tightened monetary policy (further) after the crash. The crisis was contained in 1899 and 1900 owing to continued growth abroad and liquidity support from Norges Bank, but the international business cycle downturn towards the end of 1900 contributed in the period 1901-05 to a more broad-based downturn and deflation. In particular, fixed investment was affected, reflecting earlier overinvestment in construction and real estate-related sectors. Growth in private consumption fell sharply from 2.8% in 1899 to 0.6% in 1900 and remained low for the next couple of years. The international downturn and deflation gradually eased the tight money market conditions, and discount rates in Norway and other countries could be reduced after 1900. The banking crisis ended and economic growth picked up from 1905.

Graph 1 GDP, fixed investment and private consumption. Annual growth. Constant prices. Per cent. 1893-05, 1914-28 and 1981-92*)

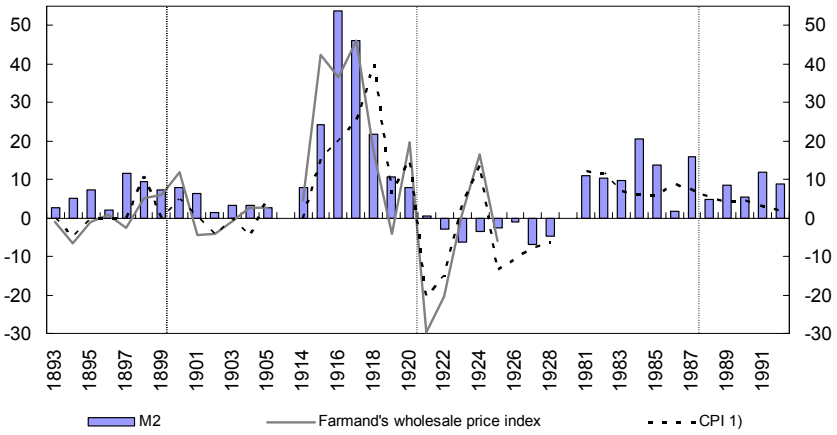


1) Private sector, mainland-Norway from 1971 *) The vertical dotted lines represent the beginning of each crisis

Sources: Statistics Norway and Norges Bank

[5] Bordo (1984) provides an overview of the operation of the gold standard. Gerdrup (2003) describes in more detail some main features of the gold standard in Norway from 1873 to 1914.

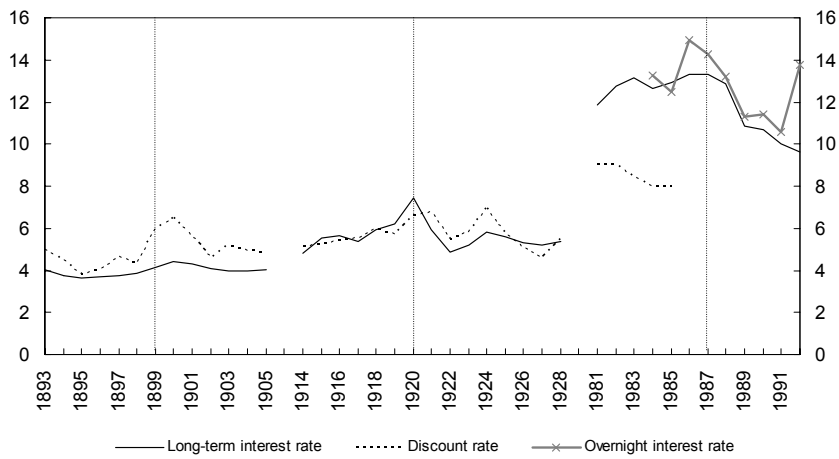
Graph 2 Money and prices. Annual growth. Year-end data. Per cent. 1893-05, 1914-28 and 1981-92[*)]



[1)] Only average CPI per year was available until 1920 [*)] The vertical dotted lines represent the beginning of each crisis

Sources: Statistics Norway and Norges Bank

Graph 3 Nominal interest rates. Average annual data. Per cent. 1893-05, 1914-28 and 1981-92[*)]



[*)] The vertical dotted lines represent the beginning of each crisis

Sources: Statistics Norway and Norges Bank

Even though the real estate boom and bust was spectacular, the amplitude of the business cycle as indicated by growth in economic activity, private consumption and fixed investment was not more pronounced than earlier business cycles after 1865. For example, there was strong growth in the Norwegian economy in the early 1870s and late 1880s, and deep recessions occurred in the late 1870s and mid-1880s. It appears that the business cycles of the classical silver (from 1842 in Norway) and gold standard (1873-1914) were generally milder than the later two cycles described in this paper, which also involved unstable monetary policy and currency problems. Norway never suspended convertibility of notes into gold before 1914. Currency or twin crises were accordingly avoided, but banking problems occurred relatively frequently.[6] The reason for this may be that the gold standard provided a monetary anchor for monetary policy, and it curbed rapid credit expansion underpinned by discounting at the central bank.[7] Adherence to the gold standard signalled a government's commitment to sound and stable policies (Bordo and Eichengreen (2002)). In order to avoid suspension of convertibility, it was necessary to conduct a monetary and fiscal policy aimed at internal and external stability, which contributed to a smaller amplitude of boom and bust cycles.

During WW1, the gold standard was, however, suspended and a period of rapid monetary expansion followed. Considerable macroecomic imbalances built up during the war and in its immediate aftermath. The money supply and prices rose to unprecedented levels (Graph 2). Economic activity grew markedly in 1915 and −16, as Norway was neutral and traded with both warring parties (Graph 1). Growth in private consumption rose to unprecedented levels. Growth in fixed investment was high too. Economic activity contracted markedly in the next two years when restrictions on imports and exports were introduced, and many ships travelling the North Sea were hit by torpedoes. Norway experienced a brief business cycle upturn after the war, but the lifting of trade restrictions exposed Norwegian industries to foreign competition. Imports rose by 121% in 1919 as private and public consumption and fixed investment

[6] Banking problems also occurred before 1899, for example in 1857 (savings banks), 1864 (in the rural district Oppland) and 1886 (the first commercial bank failure).

[7] The Cunliffe Committee (1918) describes this mechanism nicely: "When, apart from a foreign drain, credit at home threatened to become unduly high, the old currency system tended to restrain the expansion and prevent the consequent rise in domestic prices which ultimately causes such a drain. The expansion of credit, by forcing up prices, involves an increased demand for legal tender currency both from the banks in order to maintain their normal proportion of cash to liabilities and from the general public for the payment of wages and for retail transaction. In this case also the demand for such currency fell upon the reserve of the Bank of England, and the Bank was thereupon obliged to raise its rate of discount in order to prevent the fall in the proportion of that reserve to its liabilities. The same chain of consequences as we have just described followed and speculative trade activity was similarly restrained. There was therefore an automatic machinery by which the volume of purchasing power in this country was continuously adjusted to world prices of commodities in general. Domestic prices were automatically regulated to prevent excessive imports; and the creation of banking credit so controlled that banking could be safely permitted a freedom from state interference which would not have been possible under a less rigid currency system."

increased by 24%, 17% and 20%, respectively. This resulted in a considerable deficit in the trade balance.

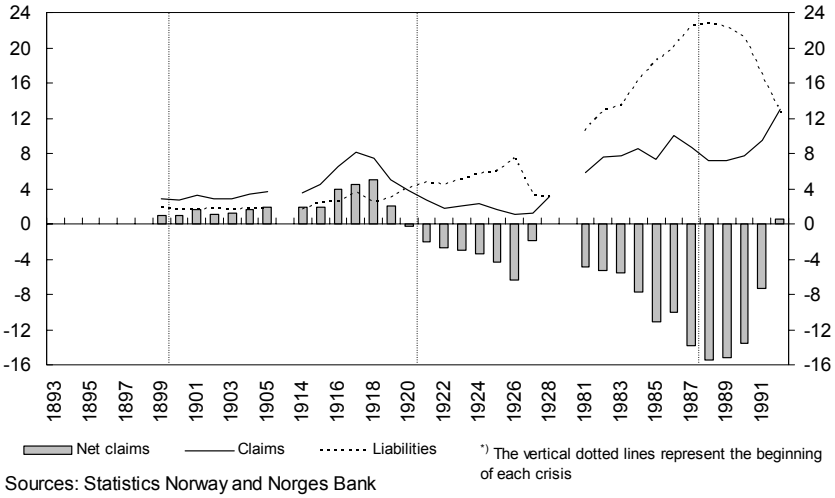
The world recession and the deflationary spiral that was created in the second half of 1920 inflicted a considerable adverse shock on the highly fragile Norwegian economy and banking sector. A banking crisis unfolded after 1920. The crisis was compounded by a change in monetary policy towards restoring the gold standard at the pre-war parity.[8] The period 1920-28 was a period of macroeconomic instability, unrest in labour markets, monetary contraction and deflation. Confidence in the Norwegian krone fell, and it depreciated precipitously against Norway‘s trading partners and its pre-war gold parity from 1920 to the mid-1920s. The banks‘ net foreign claims fell as a result (Graph 4). Norges Bank‘s discount rate was thus kept high compared to many other countries, but liquidity support to banks in crisis and other rescue operations constrained the central bank‘s efforts to return to the gold standard. As a result, deflation was not as severe as in many other countries in the first half of the 1920s, and there was even inflation in 1924 and 1925. However, the discount rate was raised significantly from 5% to 7% in the course of 1923, and was kept high in 1924. In 1925 there was an improvement in the current account and a contemporaneous appreciation of the Norwegian krone, and this development was reinforced by market expectations of continued appreciation. This resulted in a new wave of deflation and increased unemployment, the so-called "gold-parity depression" of 1925-27.[9] The Norwegian economy accelerated after 1927 in line with the international business cycle upturn. The gold standard was restored in 1928. At the same time, the banking crisis was largely over.

The run-up to the banking crisis of 1988-93 had its roots in the structural imbalances that developed in the 1970s and 1980s, which represented a transitional phase from the heavily regulated financial system after WW2 to the market-based system in the mid-1980s. Growth in the Norwegian economy accelerated from 1983 (Graph 1), and considerable imbalances built up. This development coincided with a change in fiscal policy from neutral to expansionary. Deregulation of the financial sector and capital movements facilitated strong growth in domestic spending, i.a by enabling banks to borrow from abroad to fund their high lending growth (Graph 4). The value of houses and commercial real estate became an important part of the boom and bust cycle in the Norwegian economy. Monetary policy was not aimed at containing this unsustainable

[8] Temin (1989, 1993) argues that the “single best predictor of how severe the Depression was in different countries is how long they stayed on gold”. The reason for this statement was the deflationary effects of the gold standard in the interwar period. Even though Norges Bank did not restore the gold standard before 1928, its monetary policy contributed to the “debt-deflation” crisis during much of the 1920s.

[9] See Klovland (1998), who describes the developments in Denmark and Norway, on the one hand, and Sweden, on the other. Denmark restored the pre-war parity gold standard in 1927 and Norway in 1928, after a period of deflationary policy. Sweden had no need to deflate the economy because it was close to target already in 1922, and restored the pre-war parity in 1924.

Graph 4 Banks' foreign claims and liabilities. As a percentage of total assets at year-end. 1893-05, 1914-28 and 1981-92*)



Sources: Statistics Norway and Norges Bank

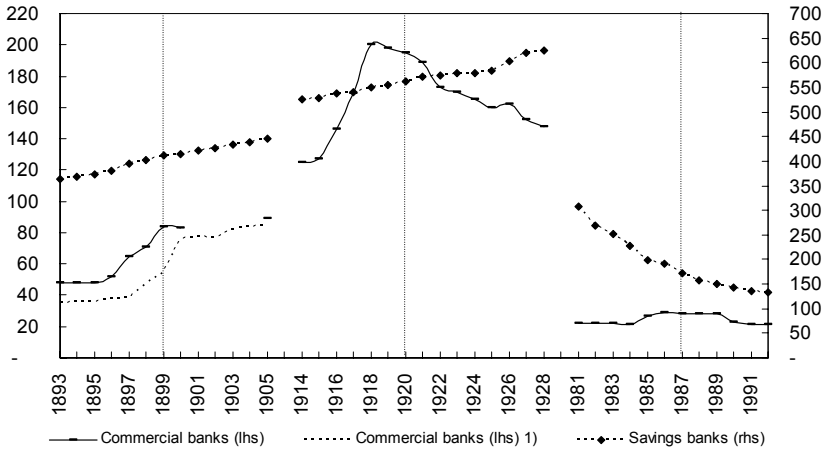
boom. A fixed exchange rate within narrower bands (from 1984) reinforced risk-free speculation against the Norwegian krone, underpinning capital inflows and rapid credit expansion (Grønvik (1986)).[10] Altogether, fiscal and monetary policy were not consistent with the fixed exchange rate regime.

The sharp oil price decline and high wage demands in early 1986 posed a great challenge to the Norwegian economy. Financial markets speculated heavily against the krone. Norges Bank tried to defend the Norwegian krone, and sterilised sales of foreign exchange due to the government‘s preference for a stable nominal interest rate. The krone was later devalued in May 1986 by almost 10% .It was only towards the end of 1986 that it became clear that the interest rate should be set with the objective of securing confidence in the fixed exchange rate regime, and not be politically determined.[11] This was combined with a contraction in fiscal policy. Inflation was soon brought down (Graph 2), and confidence in the exchange rate was largely restored by 1989. The high interest rates in Germany from 1989 had repercussions for Norway, because Norges Bank had to follow up with an interest rate increase (Graph 3), despite a considerable slowdown in the economy. The first signs of banking difficulties surfaced in 1987, and they peaked in 1991 when the capital of the largest banks was all but wiped out. Private consumption fell from 1987 to 1989, and private fixed investment in mainland Norway fell sharply each year from 1987 to 1993, reflecting in part overinvestment in many sectors during the boom. The banking

[10] A devaluation was not usually expected prior to an election, which was due in 1985. There was therefore confidence in the krone from 1984 to 1985.

[11] See Steigum (in this volume) on the role of the exchange rate regime for the economic development in Norway.

Graph 5 Number of banks. 1893-05, 1914-28 and 1981-92*)



*) The vertical dotted lines represent the beginning of each crisis

1) Number of reporting commercial banks. The share of reporting banks increased markedly in 1900.

Sources: Matre (1992), Statistics Norway and Norges Bank

crisis coincided with the worst recession since the interwar period.

Competitive environment

The number of commercial banks increased during all the three booms (Graph 5), and much faster than the previous trend increase.

During the latter half of the 1890s, six new commercial banks were established in Oslo. Evidence points to an aggressive lending policy stance at the new Oslo banks, e.g. that they were largely managed by young people who had no memory of earlier banking problems, were less risk-averse, and fought aggressively for market share (Sundt (1901)).

During WW1, the number of commercial banks grew considerably from 125 (1914) to 200 (1918). The banking structure thus became even less concentrated than before (Nordvik (1992)). The number of savings banks also increased, but not faster than before. There were signs, however, that also savings banks were expanding into new geographical or business areas, although their expansion may have been limited by regulation and on-site supervision.[12] By contrast, commercial banks were only subject to the law governing limited liability companies, which did not entail any regulation of risk-taking or large exposures.

[12] Savings banks were required to behave prudently and to abide by accounting and disclosure standards. There were also requirements relating to the organisation and management of savings banks. Tendencies to imprudent risk-taking and other irregularities during WW1 made the financial supervisory authority increase its on-site supervision activities. The number of on-site supervisions increased from on average 50-60 per year prior to WW1 to 264 in 1916-17 (Ecklund and Knutsen (2000)).

In the mid-1980s, commercial banks expanded rapidly mainly through an increased number of branches rather than by the establishment of new banks. One reason is that liberalisation made this possible. Higher actitivy in the lending market from insurance companies, and competition from foreign-owned banks, mortgage companies, and in particular finance companies, led to intensified pressures. Bank managers were not used to operating in a competitive environment and did not take appropriate account of risk. Many banks increased their focus on gaining market shares and expanded into geographical and business areas of which they had little prior knowledge, as many had done during the two earlier booms.

In all the three busts, new commercial banks and the banks that had expanded most during the booms were affected to the greatest extent. In the early 1900s, all the newly established banks in Oslo failed, and many other banks incurred high losses. During the 1920s, the number of commercial banks fell considerably, reflecting the systemic nature of the crisis. In the early 1920s, banks were reconstructed or they went bankrupt or were privately liquidated. From the mid-1920s, insolvent banks were placed under public administration. In the course of the banking crisis of 1988-93, the number of banks fell mostly because of mergers and acquisitions involving weak banks. Savings banks were affected to a greater extent than in the two earlier crises. Only one commercial bank was placed under public administration. There are indications of particularly high losses in the new branches, and the number of branches was reduced (not shown in Graph 5).[13]

Bank behaviour

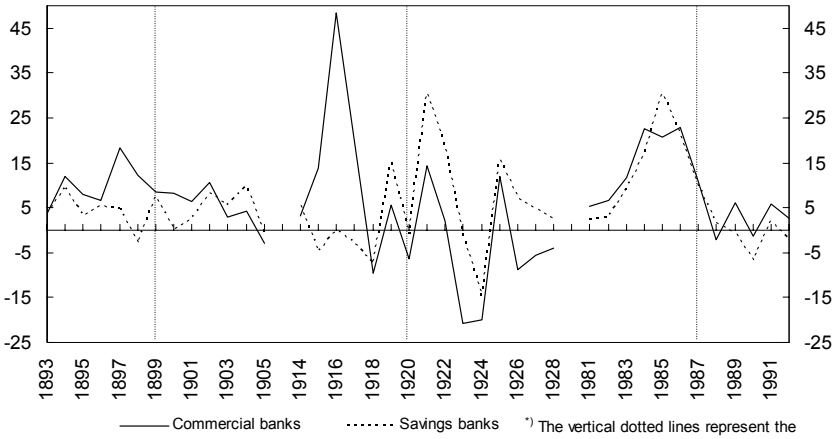
As mentioned above, many banks adopted an aggressive lending stance in all three episodes. As a result, real bank lending growth accelerated (Graph 6). The average loan quality probably deteriorated rapidly during these booms because it was (and is) generally difficult to increase screening and monitoring capacity in a short period of time.[14] Informational problems may have been particularly severe in cases where banks expanded into new business and geographical areas about which they had little prior knowledge.

Each boom created an environment in which banks‘ external financial constraints were lessened and decoupled from deposits, thereby facilitating rapid expansion of lending. Commercial banks increased their outstanding loans well

[13] See NOU 1992: 30 E, Report by the Comission on the Banking Crisis.

[14] A surge in bank loan losses is, according to Keeton (1999), highly probable when lending growth is caused by supply shifts in lending, for example because banks lower their minimum credit standards. According to Pesola (2001), it is likely that this was the case in the Nordic countries in the late 1980s-early 1990s. It also appears that this happened in the run-up to the crises of 1899-1905 and 1920-28. Gavin and Hausmann (1996) contend that banks incur greater risks during lending booms because they lend to new borrowers, borrowers whose cash flow is only temporarily high, and borrowers whose ability to pay depends upon the availability of credit from other banks.

Graph 6 Real bank lending growth[1)]**.** Year-end data. Per cent. 1893-05, 1914-28 and 1981-92[*)]



*) The vertical dotted lines represent the beginning of each crisis

1) Deflated by CPI. Only average CPI per year was available until 1920

Sources: Matre (1992), Statistics Norway and Norges Bank

in excess of what they collected in deposits in each of the three booms (Graph 7). This development can largely be attributed to commercial banks issuing new share capital (1895-99 and WW1),[15] retention of high bank earnings caused by unprecedented interest rate margins on (risky) business loans (WW1), and foreign capital market financing (1979-88).

Equity increased markedly as a percentage of total assets in the first two booms at the commercial banks (Graph 8). This development contrasts with conventional wisdom and the financial fragility story, because commercial banks seemed to become more robust to adverse shocks rather than less. (I will come back to this puzzle later) By contrast, savings banks could not take advantage of the buoyant stock market because they were mutually owned, and could for the most part only finance equity growth through retained earnings. In the 1980s, equity fell as a percentage of total assets for a long period at both commercial and savings banks, reaching an all-time low in 1987. In the same year, capital regulation was eased, possibly contributing to moral hazard problems by making it possible for banks to increase their leverage.[16]

In the course of each the three crises, the downward trend in the deposit-to-loan ratio at the commercial banks levelled off (1899-1905) or reversed (1920-28 and 1988-93). This ratio also increased at the savings banks in the period 1988-93, reflecting a reversal of the marked downward trend during the preceding

[15] Good stock market data are unavailable for the first episode. The stock market was very dispersed and a large part of trading was unlisted, even though an increasing part of the trading became listed during the latter half of the 1890s. There is, however, evidence that investors were highly willing to buy new shares. Shares were subscribed fast, and often oversubscribed (Kili (1996)).

[16] See *"Non-financial sector indebtness"* in section 3.1 for an explanation.

boom, which was a new feature for the savings banks compared with the two earlier booms described above.

On average, commercial banks experienced deeper crises than savings banks,[17] both because they expanded more during the booms and because they held a more risky portfolio of business loans as opposed to household loans. Hence, the equity-to-total assets ratio of the commercial banks fell in the course of each of the three crises in line with their sizeable losses. Provision of new capital by the government contained the crisis in the early 1990s. The crisis of 1988-93 affected savings banks to a greater extent than before, reflecting a narrowing of differences in behaviour compared with commercial banks.

Asset price development

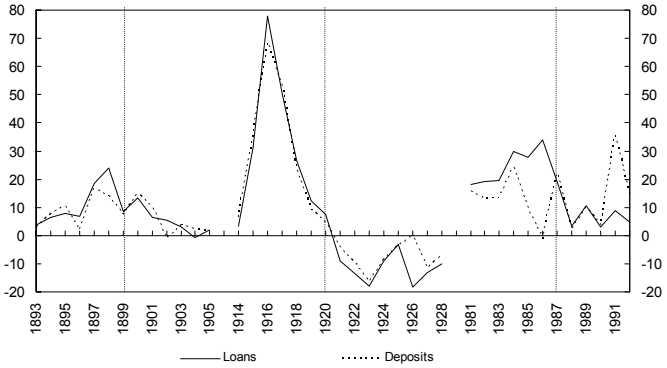
Each boom had its own objects of speculation. During the latter half of the 1890s, real estate prices and the share prices of real estate-related firms rose to unsustainable levels (Graph 9.a). House prices rose as much as 27% in 1897. This provided banks with ample collateral. Shares also rose rapidly in value, and the issuance of new shares rose year by year. The number of new real estate companies in Oslo increased from 16 in 1897 to 47 in 1898 and 52 in 1899. This development was supported by banks providing short-term loans for the purpose of purchasing shares against the shares provided as collateral. The precipitous fall in asset prices in 1899 reduced the net worth of non-financial firms and households. Liquidity in the stock market almost evaporated, and there was little activity on the stock market until WW1. The business cycle downturn encouraged emigration, notably to the United States. This resulted in a sharp increase in the vacancy rates of homes (in 1905 about one in every 10 homes was vacant), putting downward pressure on real estate prices.

During WW1, an unprecedented speculative bubble developed in shares, especially shipping and whaling shares (Graph 9.b). Shipping companies paid out very high dividends. The commercial banks contributed to the stock market boom, not by investing in shares or engaging in issuing activities, but rather by providing overdraft facilities to brokers, often without requiring collateral (Knutsen (1991)), or by providing loans for the purchase of shipping shares against shares provided as collateral (Ecklund and Knutsen (2000)). Overdraft facilities granted by commercial banks increased from 45% of their outstanding loans in 1913 to 74% in 1920. By contrast, mortgages provided by commercial banks changed very little even in nominal terms during this period. Savings banks also increased their overdraft facilities as a percentage of total outstanding loans significantly, but from a much lower level (5.4% in 1913). They were thus less exposed to adverse shocks arising from the stock market. The return to more normal economic conditions in late 1918 contributed in itself to a fall in

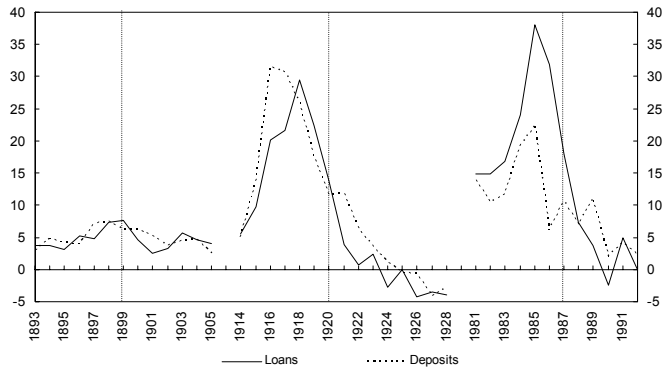
[17] See Gerdrup (2003) for more information on loan losses at commercial and savings banks in the course of the crises 1920-28 and 1988-93.

Graph 7 Loans and deposits from non-banks. Year-end data. 1893-05, 1914-28 and 1981-92*)

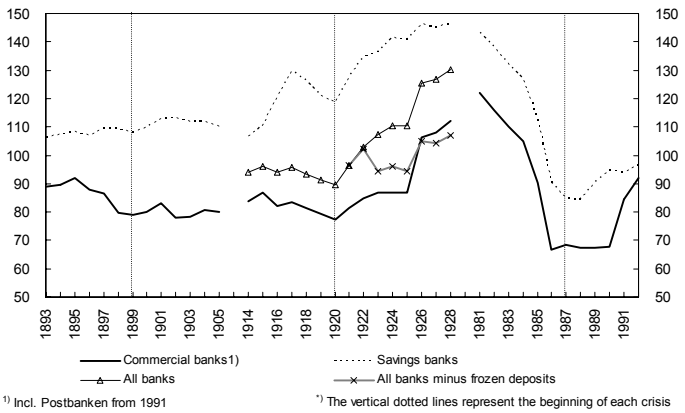
Commercial banks. Annual growth in loans and deposits. Per cent



Savings banks. Annual growth in loans and deposits. Per cent



Deposits from non-banks as a percentage of loans



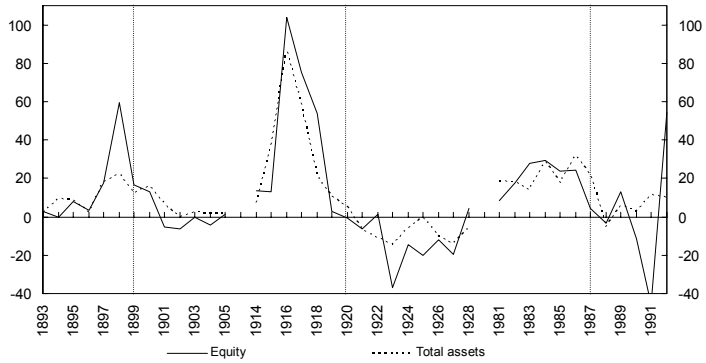
1) Incl. Postbanken from 1991

*) The vertical dotted lines represent the beginning of each crisis

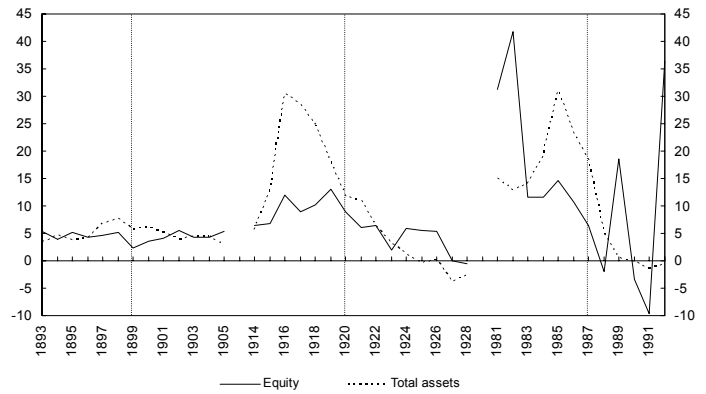
Sources: Klovland (1984), Matre (1992), Statistics Norway and Norges Bank

Graph 8 Equity and total assets. Year-end data. 1893-05, 1914-28 and 1981-92[*)]

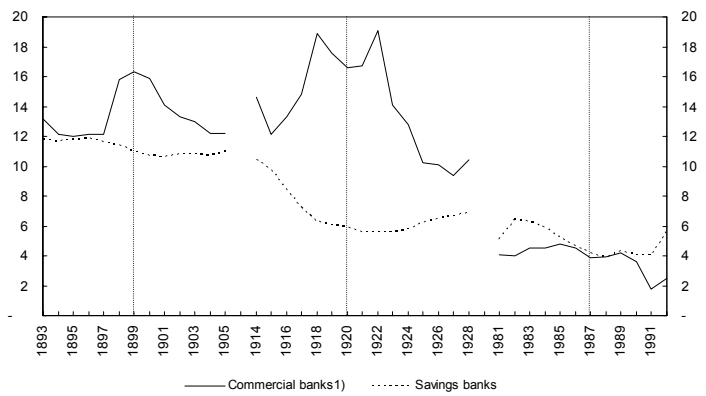
Commercial banks. Annual growth in total assets and equity



Savings banks. Annual growth in total assets and equity



Equity as a percentage of total assets

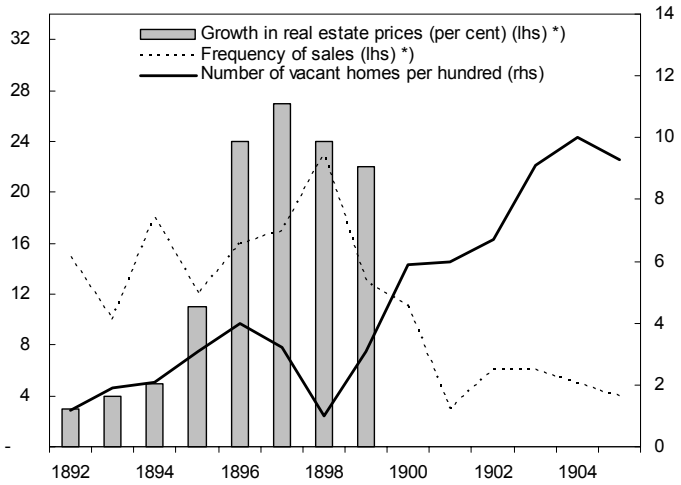


[1)] Incl. Postbanken from 1991

[*)] The vertical dotted lines represent the beginning of each crisis

Sources: Matre (1992), Statistics Norway and Norges Bank

Graph 9.a Asset prices. The real estate market in Oslo. 1892-1905



*) Based on a sample of 150 residential real estate buildings.
Sources: Hanisch and Ryggvik (1992), Statistisk årbok for Kristiania 1936

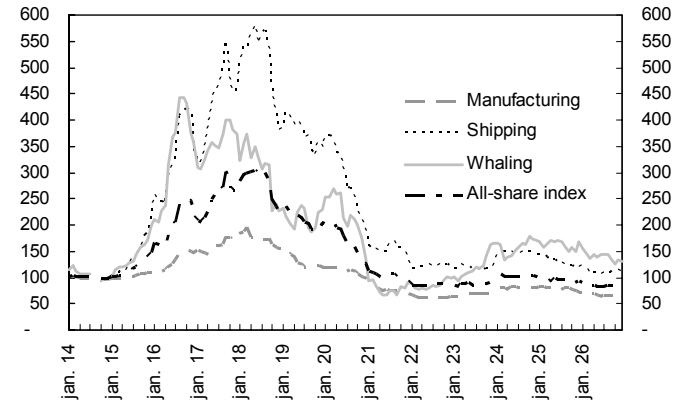
asset prices, but the world recession and deflation of 1920-21 precipitated a further fall.

During the 1980s, residential and commercial real estate prices rose rapidly (Graph 9.c). Rising house prices supported higher borrowing levels by households through their effect on collateral values, and fuelled consumption spending. As opposed to pre-WW2, most people now owned their own homes, and the value of houses became an important part of the overall level of economic activity. House prices fell by about 1/3 in real terms from 1988 to 1992, thus contributing to lower household spending and reduced economic activity. The decline in commercial real estate prices caused banks‘ losses to increase. The stock market followed developments in international stock markets more closely and was not strongly affected by the domestic slowdown. The stock market was more important for the financial strength of banks and their borrowers before WW2.

Non-financial sector indebtedness

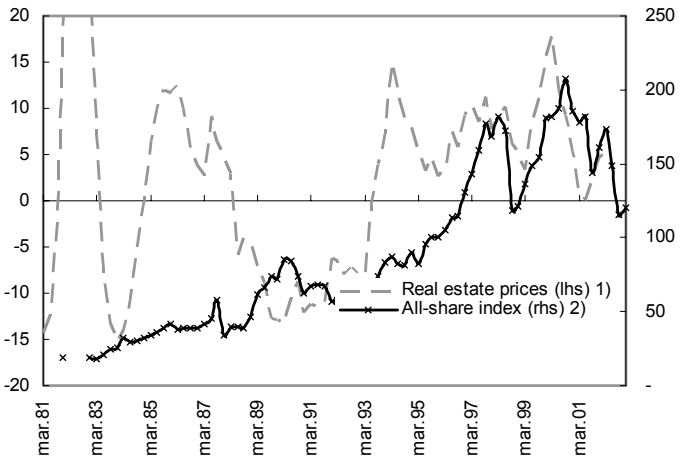
Non-financial sector indebtedness increased only slightly prior to 1899 and during WW1 (and fell when the years 1919-20 are included) (Graph 10). Subsequent declining nominal incomes increased the debt burden. In the last episode, the level of indebtedness increased markedly during the boom, but fell afterwards because of enduring, albeit lower, inflation and nominal income growth.

Graph 9.b Asset prices. Oslo Stock Exchange all-share index and various sub-indices. Monthly figures. Indexed, 1913=100. 1914-1926



Source: Keilhau (1927)

Graph 9.c Asset prices. Quarterly data. 1981-2002

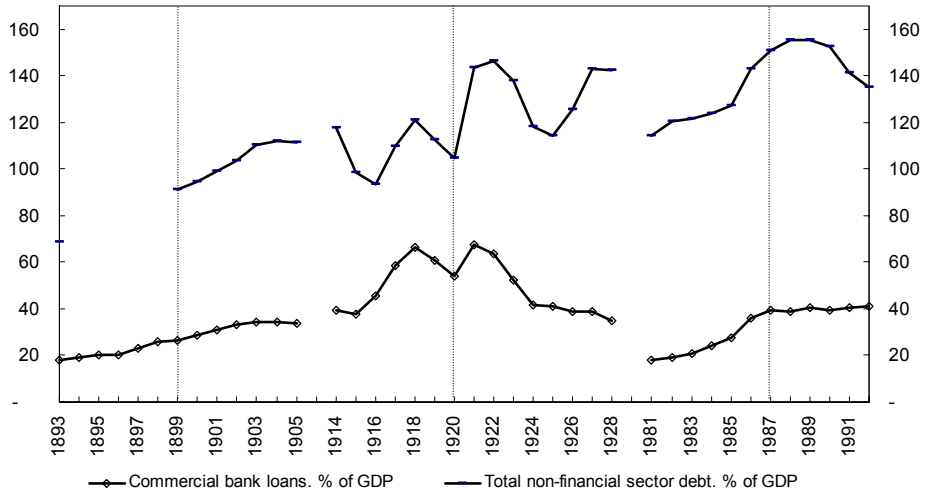


[1] 12-month rise in residential real estate prices deflated by CPI. Per cent.

[2] Oslo Stock Exchange All share-index. Index, 3. January 1983=100.

Sources: Statistics Norway; NEF/ECON; Norges Bank.

Graph 10 Non-financial sector indebtedness. 1893-05, 1914-28 and 1981-92*)



*) The vertical dotted lines represent the beginning of each crisis

Sources: Statistics Norway and Norges Bank

Even though the level of indebtedness increased only slightly prior to 1899 and during WW1, non-financial sectors may still have increased their vulnerability to adverse shocks. During the gold standard it was common to experience rising nominal incomes and increases in price levels during a boom in economic activity, and falling nominal incomes and declines in price levels during a bust. Consequently, when non-financial firms and households incurred debt in line with nominal incomes during a boom they were exposed to the decline in nominal incomes that usually followed, but the timing and strength of the decline could not be anticipated with great certainty.

During WW1, the monetary anchor provided by the gold standard was lost because of suspension of convertibility, but the gold standard per se was not abandoned. The non-financial sector incurred debt largely in line with the increase in nominal income during this period. However, since rising nominal income reflected an unsustainable monetary expansion, borrowers were exposed to a sharp reversal of nominal income. The reversal turned out to be larger, however, than perhaps anticipated, because of a change in monetary regime and the world recession of 1920 21. For example, nominal GDP in 1920 was not exceeded before the 1940s. Positive nominal GDP growth from 1923 to 1925 contributed to reducing the non-financial sector debt burden, but the "gold-parity depression" of 1925-27 led to a new peak in the debt burden. The level of indebtedness fell as economic activity picked up in 1927. The bond market lessened the consequences of the contraction in bank lending during the 1920s. Non-financial companies and municipalities increased their bond debt in nominal terms as they replaced short-term loans incurred during WW1. Nominal

expansion in state-owned banks worked in the same way. The contraction in economic activity and deflation in 1931 contributed to a rise to a historical peak of indebtedness (only matched by developments in the late 1980s), but the amount of bad debt was at this point much lower than in prior to the recession in 1920. Hence, the adverse consequences of this surge were less pronounced for the banking sector. Indebtedness fell sharply in the remainder of the 1930s as economic activity rebounded.

During the mid-1980s, borrowers probably anticipated high and enduring nominal income growth and inflation, and increased their debt more than nominal incomes during the boom. However, expectations turned out to be too optimistic, and the subsequent correction considerable. Deflation and declining nominal incomes did not materialise however. Non-financial sectors reduced their indebtedness in the course of the crisis as they corrected their balance sheet by increasing savings and reducing their debt. There was also a shift in the source of borrowing from state-owned banks to private banks, reflecting a political decision to reduce the role of state-owned banks. Indebtedness fell further when economic activity rebounded in 1993.

3.2 Does financial fragility build up frequently?

Evidence presented in *"Macroeconomic environment"* in section 3.1 provides general support for the notion that considerable financial fragility was built up during the three booms, and that the banking crises reflected an unwinding of this financial fragility. The boom periods that preceded each of the three crises all have some common features: Significant bank expansion, considerable asset price inflation and increased indebtedness. Additional (anecdotal) evidence points to intensified competitive pressure in the banking sector during the booms, and that the banks did not take appropriate account of risk. The banks that expanded the most during the three booms were affected to a greatest extent in the course of each subsequent bust. Asset prices fell and bank lending growth subsided or fell in the course of the three banking crises.

However, financial fragility may build up frequently without leading to crises. In the Norwegian case, only one period stands out as a period of rapid real bank lending growth and increasing non-financial sector indebtedness[18] without a subsequent crisis, namely the years immediately following WW2. However, the expansion in bank lending represented a return to more normal conditions and a normalisation of the balance sheet rather than excessive competition and increased fragility. The reason for this is that bank lending had subsided tremendously during WW2 in nominal terms, despite a considerable nominal increase

[18] Non-financial sector total debt increased from 52% of nominal GDP in 1946 to 72% in 1950. Commercial and savings bank lending (deflated by CPI) increased by 55% and 37%, respectively, in 1946. The real bank lending growth rates subsided rapidly in the four consecutive years.

in deposits caused by monetary expansion.[19] There was also no asset price inflation after WW2.

Hence, episodes of substantial financial fragility have been rare, and when they have occurred, banking crises have followed.

3.3 Can macroeconomic declines alone explain the occurrence of banking crises?

Did the banking crises occur because of particularly severe (exogenous) declines in economic activity rather than as a reflection of the unwinding of financial fragility? The banking crises have undoubtedly coincided with particularly severe macroeconomic declines. However, the banking problems of the early 1930s, for example, appear to be small compared to the size of the macroeconomic decline.

Real GDP declined by 8% in 1931, slightly less than the nearly 10% in 1921. Norwegian depositors were nervous when the Great Depression affected Norway in late 1930, and lost confidence in many banks, including banks that had been considered healthy. Norges Bank provided liquidity support. There were large bank losses in 1931, and some smaller banks failed. Nonetheless, a widespread solvency crisis was avoided. An important reason for this appears to be that there had been no build-up of financial fragility in Norway in the late 1920s. Instead, Norwegian banks had gone through a long period of restructuring, contributing to a stronger and more stable banking sector, as a reaction to the "excesses" of WW1. Bernanke (1983) highlights this point. He notes that the seriousness of the banking problems in the Great Depression in many countries were due not only to the extent of deflation (which was just as protracted during the 1920s in these countries), but also to the large and broad-based expansion of debt in the 1920s. As noted, this broad-based expansion of debt happened a decade earlier in Norway, not in the 1920s.

A change in monetary policy is also part of the explanation for better bank performance in the 1930s. Norges Bank suspended the pre-war parity gold standard in 1931. Arguably, liquidity problems would have been much more severe, with considerable consequences for economic activity if Norges Bank had tried by all means to abide by the gold standard.[20] Moreover, given the

[19] During WW2 the occupier's activities had largely been financed by printing money, but banks chose to place their funds in treasury bills and bonds instead of extending loans (Skånland (1967)). In addition, the supervisory authority was on the alert for a possible speculative boom. In contrast to WW1, banks appeared to be risk-averse, perhaps because the lessons from the last speculative boom had not been forgotten, but also because they lacked profitable lending opportunities (Ecklund and Knutsen (2000)). The scope for speculative investments and rapid banking expansion after WW2 was also lower because of a gradual introduction of credit and interest rate regulation.

[20] Growth in industrial production in countries not on the gold standard averaged about 7 percentage points higher a year between 1932 and 1935 than in countries remaining on gold, according to Bernanke and James (1991). Norway is included in the study.

presence of a financial supervisory authority and better knowledge of the banks, Norges Bank's reaction to liquidity problems was swifter and firmer than in the early 1920s.

All in all, the fact that indicators of financial fragility increased during the boom periods preceding the three crises, and the fact that a considerable decline in economic activity in itself has not been sufficient in creating a banking crisis, suggest that some initial conditions must be in place prior to a decline in economic activity in order to create a banking crisis. As mentioned above, I would suggest that banks and their borrowers were in a financially fragile state prior to the bust, and that the banking crises largely reflect the unwinding of financial fragility.

3.4 The puzzle - why did the commercial bank equity-to-total-assets ratio increase in the first two boom periods?

A special feature of commercial bank expansion in the booms in the latter half of the 1890s and WW1 was that these expansions were underpinned by buoyant stock markets. By issuing new share capital, commercial banks could expand their capital base, and new banks could grow rapidly and start competing with existing banks. The stock market thus lessened the commercial banks' external financing constraints, and decoupled them from deposits. High profits and retained earnings during WW1 also contributed to increasing the equity capital of commercial banks, thereby boosting their capital basis for further credit expansion.

The equity-to-total-assets ratio is often used as a microprudential indicator of bank risk-taking. When the ratio is low, a bank puts depositors' and other creditors' money at risk. The bank's shareholders then have a limited amount to lose, and potentially a lot to gain, if the bank invests in high-risk, high-return assets. Moral hazard problems may therefore arise. Nonetheless, the crises after the crash in 1899 and in the 1920s were largely confined to commercial banks. What does this suggest? Two different explanations are possible.

The first explanation stresses the role of equity as a way for commercial banks to relax their financing constraints in an environment of a regulated and underdeveloped domestic bond market.[21] Bond issuance was prohibited until 1897. Legislation on bond issuance was loosened that year, but the bond market remained heavily regulated. In this environment the original shareholders of the banks may have been motivated to issue new equity, even though it would dilute their share, as long as profits were expected to increase proportionally more. In order to increase the probability of high profits, banks may have been motivated

[21] To what extent short-term money market financing (from abroad) was an important elastic source of finance for some banks is uncertain. The banks had on average higher foreign claims than foreign liabilities, at least after 1899 and during the period 1914-19.

to choose high-risk, high-return assets.

The alternative explanation for the increase in the equity-to-total-assets ratio was that the banks wanted to build up cushions against future losses, for example in order to boost the confidence of depositors. A risk-adjusted (ex ante) ratio may have shown a decrease.

Further research is necessary to shed more light on this puzzle, in particular to what extent risks were perceived as high (ex ante). Possible explanations should be seen within the context of a regulated and underdeveloped domestic bond market.

3.5 Institutional framework, financial safety net and moral hazard

Prior to the crisis of 1899-1905

A weak institutional environment for the financial sector, including poor accounting and auditing practices, weak corporate governance and lack of transparency, was conducive to frequent episodes of banking problems. This environment made it difficult for creditors and depositors to monitor the performance or risk-taking of banks. It was therefore easy for bank managers to engage in defalcation and fraud, which were proximate causes of bank failures. To the extent that such dubious activities were easier to engage in during booms, for example because markets were more liquid, this contributed to greater financial fragility at the same time.

Prior to the crisis of 1920-28

The banking sector probably experienced a widening of the implicit financial safety net after the 1899 crash. First, Norges Bank was active in containing liquidity problems and it exposed itself to losses as part of an orderly reconstruction or liquidation of insolvent banks that were deemed important to the stability of the financial system.[22] Second, the scale of the crisis required the involvement of the central government and the local government in Oslo. Losses to depositors and other creditors were in this way limited. This may have contributed to perceptions of an implicit financial safety net prior to and during WW1.

In general, one way of reducing the risk of moral hazard arising from a financial safety net is to impose prudential regulation and supervision on banks. However, such measures were introduced too late for commercial banks to have any effect during the expansion of WW1. Commercial banks were then only subject to the law on limited liability companies of 1910, which did not imply any bank-specific regulation on risk-taking or large exposures. High commercial

[22] See Gerdrup (2003) for a description of crisis resolution techniques employed in the three crises.

bank risk-taking during WW1 may thus be explained, at least in part, by moral hazard problems that were not checked by regulation and supervision. By contrast, savings banks were already subject to some regulation and supervision, which contained their risk-taking during WW1.

Prior to the crisis of 1988-93

A broad explicit financial safety net was in place prior to the expansion of the mid-1980s. It may be argued that a broad implicit financial safety net was in place as well. Rescue operations and liquidity support by the central bank and the government in the two pre-WW2 crises may have contributed to the perception that banks of importance to the stability of the financial system would not be allowed to fail without support measures. A system of public administration (receivership) had been introduced in the interwar period to restructure or liquidate banks when different support measures could not cope with the problems, thereby relieving the pressure on failing banks and possibly contributing to moral hazard problems.

Guarantee funds for commercial and savings banks had also been introduced in the interwar period. The guarantee funds had wide mandates to support member banks in liquidity or solvency crises. However, the impact of these funds on the risk of moral hazard is unclear. On the one hand, the fact that they were funded and managed by the banking groups themselves (with a minority of one representative from the central bank and on from Kredittilsynet), may have reduced the risk of moral hazard. On the other hand, the levies were not linked to risk, only to size.

It was up to the discretion of the board of directors of the guarantee funds whether a bank should be supported or not in times of crisis. However, depositors at savings banks had an unlimited explicit guarantee, and there is reason to believe that a similar implicit guarantee applied to depositors at commercial banks as well. Since banks were poorly capitalised, they had strong incentives to maximise the option value of deposit insurance in the wake of deregulation and excessive competition.[23]

The increased importance of subordinated debt explains part of the rapid bank expansion, as bondholders had no strong incentive to monitor bank risk-taking. The explanation for this is that one of the conditions of bank issues of subordinated debt during the 1980s was that this debt could not be written down unless the bank was closed. Since there is reason to believe that such conditions were coupled with perceptions that banks would not be allowed to close, it follows that the risk associated with subordinated debt was perceived as limited.[24] Thus, when perpetual subordinated debt was approved on an

[23] See Drees and Pazarbaşiouğlu (1998).

[24] When the crisis surfaced and banks became insolvent, subordinated debt was consequently not written down because the banks were not closed but provided with new capital. The government did not require that subordinated debt should be written down as part of crisis

equal footing with equity for capital requirements in the 1980s, banks could increase their leverage without being restrained by higher risk premia in the bond market.

Moreover, banks were supervised by a relatively weak supervisory authority,[25] which reduced its on-site supervisory activities at a time when the financial sector was being deregulated, banks were expanding significantly, and banks' capital positions were being reduced to historically low levels. All in all, it appears that the high risk-taking at the banks in the 1980s may be partly attributable to moral hazard problems.

4 Policy lessons

Episodes of financial fragility appear to be an inherent feature of market-oriented financial systems. Banking problems and occasional crises may occur as a result. Avoiding banking crises and at the same time reaping the benefits of a market-oriented system therefore have been placed high on the agenda of the government of many countries and international standard-setting bodies. I would like to highlight two policy lessons: the importance of ensuring a stable macroeconomic environment and that of macroprudential regulation and supervision.

4.1 Stable macroeconomic environment

Procyclical or unstable macropolicy regimes contributed greatly to the seriousness of the banking crises of 1920-28 and 1988-93 which also involved currency problems By contrast, no currency or twin crises occurred in Norway during the classical gold standard era, and it appears that no systemic banking crises occurred either. Monetary and fiscal policy aimed at internal and external stability contributed to this.

Contrary to the pre-WW1 decades, many countries now have floating exchange rates and inflation targeting mandates. Inflation has been brought down since the 1980s and is now stable and low in most developed countries. This environment is conducive to financial stability.[26] Monetary policy aiming at price stability is forward-looking, and will by its very nature counteract large swings in macroeconomic developments, which often coincide with disturbances in the inflation rate. Thus, a potentially procyclical fiscal policy will be counteracted by monetary policy.

resolution, because it was concerned with the risk of loss of confidence from abroad, since a considerable part of the subordinated debt was provided by foreign creditors (this was also an important concern in the 1920s).

[25] Financial liberalisation has played a significant role in explaining the probability of a banking crisis in many countries, often because liberalisation came without an adequate regulatory and supervisory framework to accompany it (see for example Kaminsky and Reinhart (1996) and Demirguc-Kunt and Detragiache (1998)).

[26] This is supported by a study by Bordo et al. (2000) based on historical data from the United States.

Even so, episodes of bank distress in the future should not be ruled out. As the financial sector becomes deeper and wider in many countries, even the possibility of severe banking crises should not be excluded. The reason for this is that the financial sector may increase its ability to create credit, hence reinforcing boom and bust cycles by weakening external financing constraints. Consumption may react more strongly to asset price inflation and deflation as households increase their holdings of financial assets. The expansion of non-bank financial intermediation may affect banks to a greater extent than before because it may allow borrowers to increase their total indebtedness.

Borio et al. (2003) contend that a credible monetary policy and supply side improvements may contribute to prolonged booms without any inflationary tendencies in the short to medium term. As a result, significant financial fragility can be allowed to build up within the typical time horizon used by central banks for measuring price stability. When inflation finally picks up, the level of fragility may be too severe to be contained by monetary policy. An unwinding of this fragility could lead to a considerable economic downturn, and even protracted deflation, as in Japan. Thus, if the private sector becomes able to create large boom and bust cycles in a stable macroeconomic environment, a way to counteract this effect is to lengthen the horizon of focus for monetary policy.[27] Some have also argued that monetary policy should respond more directly to changes in asset prices. However, a consensus has by no means been reached.[28]

4.2 Macroprudential regulation and supervision

Regulation (e.g. minimum solvency and liquidity requirements) and supervision of individual financial institutions contribute to a safer and sounder financial system by reducing the probability of financial distress affecting individual institutions.[29] In particular, this kind of microprudential regulation and supervision protects the financial system against idiosyncratic risks, ie risks that initially only affect a few banks, but subsequently may affect the whole financial system through interlinkages between financial institutions.[30] Most financial institutions are also exposed to systemic risks which only to a limited extent can be reduced for the financial system as a whole. Exposure to the business cycle is an obvious example. Norwegian banking history, as well as experiences from other

[27] See Borio and Lowe (2002) and Borio et al (2003) regarding the challenges of monetary policy in an environment where booms and busts in asset prices and the financial sector may play an important role in the business cycle. See also Gjedrem (2003) for a speech about financial stability, asset prices and monetary policy in the case of Norway.

[28] Bean (2003) argues, for example, that the macroeconomic implications of asset price movements and/or financial imbalances can be adequately covered by an appropriately flexible and forward-looking concept of inflation targets.

[29] See for example Freixas and Rochet (1999) for a theoretical background of banking regulation.

[30] See for example Summer (2002).

countries,[31] suggest that systemic risk factors, such as the business cycle, are more important than idiosyncratic risks affecting individual institutions when the causes of banking crises are considered.

Further, it appears that financial fragility build up during booms, i.e the ground for a banking crisis is laid in the boom. Banks, investors and also supervisory authorities often use a short time horizon when measuring risk (Borio et al. (2001)). When realised losses are low and profits high during an upturn, risks also appear to be systematically low. This motivates banks to increase their lending. Consequently, banks may operate with inadequate buffers against future losses at the height of a business cycle upturn despite operating within regulatory solvency and liquidity requirements, and thus may not be appropriately equipped to face a downturn. In the case of Norway, banks with an aggressive lending policy stance during an upturn have clearly been affected far more than other banks by cyclical downturns. In fact, these banks may have reinforced the booms and busts. Conversely, when losses surface and profits fall during a downturn, banks may be forced to reduce their lending to build up their capital and liquidity, and/or choose to do so because risks appear to be systematically high.

Macro-orientation of prudential regulation and supervision is therefore required.[32] Rapid expansion in bank balance sheets (significant real bank lending growth and overextension of funding possibilities as indicated by decreased loan-to-deposit ratio), substantial asset price inflation and an increase in non-financial sector indebtedness may be used to signal impending banking difficulties.

One way to counteract the procyclicality of the financial system and reduce the risk of costly banking crises, is to encourage banks to build up cushions against future, unexpected, losses during booms, so that they are not forced to tighten credit supply excessively during a bust.[33] More forward-looking credit risk measurement by banks and other financial institutions should be helpful in this respect.[34]

Central banks can contribute to increased awareness of how risks evolve during the course of the business cycle. Possible measures include publishing financial stability reports, as many central banks now do, and cooperating with the supervisory authority. Speeches and regular contact with banks may also be used actively to address financial stability concerns (moral suasion).

When crises do occur, the challenge consists of striking a balance between trying to contain the crisis (in the short run), and reducing the risk of fu-

[31] For example, the banking crises in the other Nordic countries and the small-bank crisis in the United Kingdom at the beginning of the 1990s.

[32] Borio (2003) elaborates on this further. See also Goodhart (2003).

[33] For example, bank losses measured as a percentage of outstanding loans were higher in Denmark than in Norway, but because Danish banks had larger cushions against losses in the form of equity and provisions prior to the crisis, they performed far better than Norwegian banks and a systemic crisis was avoided (Vastrup (2002)).

[34] Lowe (2002) elaborates on this issue in the context of the New Basel Capital Accord.

ture moral hazard problems arising from crisis resolution. The advantages and disadvantages of different resolution techniques are described elsewhere.[35] On balance, however, the way the last banking crisis in Norway was resolved appears to have been constructive. For example, Allen and Gale (1999) contend that the government's prompt action in restoring the banking system meant that it was quickly able to revert to performing its normal economic function. In addition, measures were taken to punish those "responsible" for the crisis, by writing down the share capital of banks that were nationalised, replacing management, and restructuring the banks. Subsequently, a regulatory change may have underpinned market discipline: since 1997 banks have not been allowed to issue perpetual subordinated debt as tier 2 capital unless it can be written down against the bank's losses even if the bank is not closed down.

5 Summary

This paper has presented macroeconomic and financial data spanning three boom and bust cycles involving banking crises in Norway since the 1890s. The data largely confirm that the three banking crises reflect the unwinding of financial fragility built up in the preceding booms. All the boom periods were characterised by significant bank expansion, substantial asset price inflation and increased indebtedness. The non-financial sectors increased their debt only slightly more than their incomes during the 1890s and WW1, but subsequent deflation increased their debt burden. Severe macroeconomic declines unaccompanied by the unwinding of financial fragility appear not to be sufficient to create banking crises.

Contrary to the financial fragility approach, commercial banks increased their equity-to-total-assets ratio in the first two boom episodes. There may be (at least) two disparate explanations for this puzzle. The first explanation stresses the role of equity as a way for commercial banks to relax their financing constraints in an environment of a regulated and underdeveloped bond market. An alternative explanation is that the commercial banks wanted to build up cushions against future losses, for example in order to gain confidence among depositors. Further research is called for to shed light on this question.

Within the realm of a market-oriented financial system, it should be expected that banking problems may arise from time to time. A stable macroeconomic environment, in particular monetary policy aiming at price stability, is conducive to financial stability. The most severe banking crises have been those associated with an unstable macroeconomic environment. A wider and deeper financial sector may, however, contribute to prolonged swings in macroeconomic developments, and hence to new challenges for monetary policy. This calls for a

[35] See Sandal (in this volume) and BIS (1993) on resolution techniques employed in the Nordic banking crises.

strong supervisory authority and macro-orientation of prudential regulation and supervision to contain the procyclicality of the financial system and to reduce the risk of costly banking crises.

References

Allen F and Gale D. (1999). Bubbles, crises, and policy. *Oxford Review of Economic Policy*, Vol 15(3)

Bank for International Settlements (1993). Asset prices and the management of financial distress. *BIS 63rd Annual Report*, Chapter VII, June, pp 155-81.

Bean C. (2003). Asset prices, financial imbalances and monetary policy: are inflation targets enough? Paper presented at the BIS Conference on "Monetary stability, financial stability and the business cycle", BIS Working Papers, forthcoming.

Bernanke B. (1983). Nonmonetary effects of the financial crises in the propagation of the Great Depression. *The American Economic Review*, 73(3), pp 257-76.

Bernanke B.S. and Gertler M. (1989). Agency costs, net worth and business fluctuations. *American Economic Review*, 79(1), pp 14-31.

Bernanke B.S. and Gertler M.(1990). Financial fragility and economic performance. *Quarterly Journal of Economics*, 105(1), pp 87-114.

Bernanke B. and James H. (1991). The gold standard, deflation, and financial crises in the Great Depression. In R G Hubbard (ed), *Financial markets and financial crises*. University of Chicago Press, Chicago, pp 69-107.

Bordo M.D. (1984). The gold standard: the traditional approach. In M D Bordo and A J Schwarz (eds), *A restropective on the classical gold standard, 1821-1931*. University of Chicago Press, Chicago, pp 23-31.

Bordo M., Dueker M., and Wheelock D. (2000). Aggregate price shocks and financial instability: an historical analysis. NBER Working Paper, 7652.

Bordo M.D. and Eichengreen B. (2002). Crises now and then: what lessons from the last era of financial globalization? NBER Working Paper, 8716, January.

Borio C. (2003). Towards a macroprudential framework for financial supervision and regulation? BIS Working Papers, no 128, February.

Borio C., English B., and Filardo A. (2003). A tale of two perspectives: old or new challenges for monetary policy? BIS Working Papers, no 127, February.

Borio C., Furfine C., and Lowe P. (2001). Procyclicality of the financial system and financial stability: issues and policy options. In "Marrying the macro- and microprudential dimensions of financial stability", BIS Papers, no 1, pp 1-57.

Borio C. and Lowe P. (2002). Asset prices, financial and monetary stability: exploring the nexus. Paper presented at the BIS Conference on "Changes in risk through time: measurement and policy options", BIS Working Papers, no 114, July.

Cunliffe Committee on Currency and Foreign Exchanges after the War (1918). First interim report. (Reprinted in: B Eichengreen (1985) (ed.), The gold standard in theory and history, Methuen, New York and London.

Davis E.P. (1995). Debt, financial fragility, and systemic risk, Clarendon Press, Oxford.

Demirgüç-Kunt A. and Detragiache E. (1997). The determinants of banking crises: evidence from developing and developed countries. IMF Working Paper, WP/97/106.

Demirgüç-Kunt A. and Detragiache E. (1998). Financial liberalization and financial fragility. IMF Working Paper, WP/98/83.

Drees B. and Pazarbaşiouğlu C. (1998). The Nordic banking crises, pitfalls in financial liberalisation? *IMF Occasional Paper*, No 161, Washington DC.

Ecklund G.J. and Knutsen S. (2000). Vern mot kriser? Norsk finanstilsyn gjennom 100 år. Fagbokforlaget, Bergen.

Fisher I. (1933). The debt deflation theory of great depressions. Econometrica, No 1, pp. 337-57.

Freixas F. and Rochet J. (1999). Microeconomics of banking, The MIT Press, Cambridge.

Gavin M. and Hausmann R. (1996). The roots of banking crises: the macroeconomic context. Inter-American Development Bank, Working Paper 318, January.

Gerdrup K.R. (2003). Three episodes of financial fragility in Norway since the 1890s. BIS Working Papers, no 142, October.

Gjedrem S. (2003) Financial stability, asset prices and monetary policy. Speech held at Center for Monetary Economics, Norwegian School of Management, Oslo (available at http://webster/english/speeches/2003-06-03/speech-2003-06-03.html or at http://www.bis.org/review/review.htm.)

Goodhart C.A.E. (2003). The historical pattern of economic cycles and their interaction with asset prices and financial regulation. In W C Hunter, G G Kaufman and M Pomerleano (eds), Asset price bubbles: the implications for monetary, regulatory, and international policies, MIT Press: Cambridge, Massachusetts.

Grønvik G. (1986). Valutaterminmarkedet. Er bankenes utlånsvekst resultat av en stor etterspørsel etter kroner på termin - eller er det kanskje omvendt? *Sosialøkonomen*, No 6.

Hanisch T.J. and Ryggvik H. (1992). Eiendomskrakket i Kristiania. Norgeskreditt, April.

Herrala R. (1999). Banking crises vs. depositor crises: the era of the finnish markka, 1895-1998. *Scandinavian Economic History Review*, Vol XLVII, No 2.

Herring R. (1999). Credit risk and financial instability. *Oxford Review of Economic Policy*, 15(3), pp 63-79.

Herring R. and Wachter S. (1998). Real estate booms and banking busts: an international perspective. Presented at the Wharton Conference on Asian Twin Financial Crises, March 9-10, Tokyo, Japan.

Kaminsky G.L. and Reinhart C.M. (1996). Banking and balance-of-payments crises: models and evidence. Board of Governors of the Federal Reserve, Washington, DC.

Keeton W.R. (1999). Does faster loan growth lead to higher loan losses? *Economic Review*, Federal Reserve Board of Kansas City.

Keilhau W. (1928). Norge og verdenskrigen, Oslo.

Kili T. (1996). Aksjemarkedet in Norge 1880-1990. Det nye pengesamfunnet (Research on Banking, Capital and Society), Rapport nr 88, Norges Forskningsråd.

Kindleberger C.P. (1978, 1996). Manias, panics and crashes: a history of financial crises, Wiley, New York.

Kiyotaki N. and Moore J. (1995). Credit cycles. *Journal of Political Economy*, 105(2), pp 211-248.

Klovland J.T. (1984). Quantitative studies in the monetary history of Norway. Part I. Appendix A. Monetary Statistics, 1819-1983. *Norwegian School of Economics and Business Administration*, August.

Klovland J.T. (1998). Monetary policy and business cycles in the interwar years: the Scandinavian experience. *European Review of Economic History*, 2, pp 309-44.

Knutsen S. (1991). From expansion to panic and crash: the Norwegian banking system and its customers 1913-1924. *Scandinavian Economic History Review*, Vol 39.

Lowe P. (2002). Credit risk measurement and procyclicality. BIS Working Papers, no 116, September.

Matre H.I. (1992). Norske forretningsbanker 1848-1990. En tilbakeføring av forretningsbankstatistikken. Det nye pengesamfunnet, Rapport nr 41.

Minsky H. (1977). A theory of systemic fragility. In Edvard J Altman and Arthur W Sametz (eds), Financial crises: institutions and markets in a fragile environment, Wiley, New York.

Nordvik H.W. (1992). Bankkrise, bankstruktur og bankpolitikk i Norge i mellomkrigstiden. *Historisk tidsskrift*, 2, Universitetsforlaget.

NOU (1993: 30 E). Report by the commission on the Banking Crisis. Royal Ministry of Finance and Customs, Norway.

Pesola J. (2001). The role of macroeconomic shocks in banking crises. *Discussion Paper* 6, Bank of Finland.

Skånland H. (1967). The Norwegian credit market since 1900. Samfunnsøkonomiske studier 19, Statistisk sentralbyrå.

Summer M. (2002). Banking regulation and systemic risk. Working Paper 57, Österreichische Nationalbank.

Sundt E. (1901). Krisen i Kristiania. In G Gran (ed), H Aschehoug & Co, Samtiden, Kristiania.

Temin P. (1989). Lessons from the Great Depression, MIT Press, Cambridge.

Temin P. (1993). Transmission of the Great Depression. *Journal of Economic Perspectives*, Volume 7, Issue 2 (Spring), pp 87-102.

Vastrup C. (2002). Bankproblemer i Danmark 1984-1994. Paper presented at Kredittilsynet's "Seminar on financial crises - ten years after the Nordic banking crisis", Oslo, September.

Chapter 6

Management of the banking crisis and state ownership of commercial banks

Hans Petter Wilse

Mounting losses in 1987 and subsequent years created a growing crisis in Norwegian banks. Up through 1990 the problems were with a few exceptions handled efficiently without any economic involvement by the authorities other than temporary liquidity support. In 1991 the crisis had, however, reached such proportions that extensive government measures were necessary to bolster confidence in the Norwegian banking system. Banks holding more than 60 per cent of banks' total assets by the end of 1987 needed help to get through the crisis or would be closed down during the six succeeding years. The corresponding figure was 20 and 88 per cent for savings and commercial banks respectively [1].

Legislation and measures were developed as the crisis unfolded. After a brief introduction, this article describes chronologically the handling of the banking crisis in some detail and how, as a result of the crisis, the central government became majority owner of the three largest commercial banks. When banks ended up as government property, with the aim of continued operations, the intention was always to bring in private investors when conditions improved.

Two different public funds were created as part of the government involvement in crisis management. The Government Bank Insurance Fund (GBIF) was set up to handle the banking crisis, and should be of a temporary nature.

[1] Cf table 2. The figures mentioned above concern the banks mentioned in that table. In addition several banks had support loans form their respective guarantee funds or capital injections on commercial terms, facilitated by participation from the Government Bank Investment Fund.

The Government Bank Investment Fund (SBIF [2]) should invest in banks together with private investors and thus facilitate banks' access to new capital. Its role has evolved over time along with the policy for government ownership of banks.

The GBIF remained part of the safety net for commercial banks until it was phased out in August 2002.

At the beginning of 2003, the only state stake left in a commercial bank was the SBIF's stake of 47.8 per cent of Den norske Bank. The bank has merged with another bank (Union Bank of Norway). This brought the SBIF's stake down to 28.1 per cent. The parliament has, however decided that the governmental shareholding shall be increased to 34 per cent in DnB NOR by the end of 2004. It has also decided that the SBIF will be terminated at the end of the first quarter of 2004, and that its share in the merged bank will be transferred to the Ministry of Trade and Industry, which handles most of the government ownership in corporations.

1 Background[3]

During the post-war period up to the mid-1980s, Norwegian economic policy was to a great extent characterised by direct regulations and selective use of policy instruments in monetary policy. The interest rate was set by the authorities at a level below the market rate, there were quantitative regulations on bank lending and there were extensive foreign exchange controls. In the 1980s economic policy gradually became more market-oriented. In 1984 direct regulation of bank lending was abolished. At the same time, there was a lack of political willingness to accept an increase in the nominal interest rate, despite rising domestic demand pressure. Demand was bolstered by high oil prices which led to big current account surpluses and high expectations about future income. Fiscal policy was tightened somewhat in 1983-84, but this was followed by an expansionary stance in 1985. High marginal tax rates and full tax deductability for interest payments also spurred credit demand. As a result, domestic credit supply rose sharply, by 21 per cent in 1985 and 20 per cent in 1986. The household savings rate dropped dramatically in 1985 and became sharply negative for several years.

The growth in domestic demand and the sharp fall in oil prices at the beginning of 1986 led to a dramatic deterioration of the current account. This, together with the political authorities' priority of a stable nominal interest rate level, led to the need for substantial central bank interventions in order to supply liquidity to the banking system to meet the strong demand for credit. At

[2] Abbreviation for the Norwegian name (Statens BankInvesteringsFond), Norwegian abbreviation used to distinguish from The Government Bank Insurance Fund, as both have used the abbreviation GBIF in English.

[3] This section and the next are extensively based on Solheim, 1992

the end of 1986 central bank lending to banks stood at 14 per cent of the banks' total assets, compared to 1 per cent two years earlier. The ordinary liquidity loans were not collateralised. The banks' expansion was partly funded from abroad as well. By the end of 1987 such funding accounted for 13 per cent of the banks' total assets. The share was 18 and 6 per cent in commercial and savings banks respectively. The weakened current account also led to a 10 per cent devaluation of the Norwegian krone in May 1986 and to a markedly tighter economic policy towards the end of the year. Household demand contracted from 1987 as housing investment peaked and the savings ratio bottomed out in that year. Hence, in 1987 the mainland economy entered a four-year period of low, for two years even negative, growth.

2 1987-1990: First phase of bank problems

During the period of strong credit expansion, competition for borrowers and market shares intensified, and many high-risk companies and projects with low equity were funded. The banks' organisations and routines were developed under the previous regulatory regime, and not well adjusted to the challenges of the new, liberalised environment.The banks thus failed to match interest rates to the risks involved, and credit and control routines were not very well developed within all banks. Banks' loan losses increased moderately during the first half of the 1980s, but on average bank profitability after losses was largely maintained up to 1986.

Table 1 shows details concerning the banks' results from 1982 to 1993. Loan losses increased sharply in 1987. The heavy losses in 1987 were to some extent (estimated at about one fourth) due to tightened rules regarding loan write-offs, but the cyclical downturn was a main factor behind the losses both in 1987 and in the succeeding years. Between 80 and 90 per cent were on loans to the corporate market although about 35 and 60 per cent of loans from commercial and savings banks respectively were to the personal sector. Losses were heavy on i.a. fish farming, commercial real estate and consumer-oriented sectors like hotels and restaurants. Combined with losses on securities as a result of the stock market crash in the autumn of 1987, the loan losses led to a negative result for the commercial banks as a group in 1987, for the first time since World War II. A number of commercial and savings banks reported negative operating results after losses both in 1987 and in the succeeding years. As a result of this, several banks ran into severe problems from 1988 onwards, and had to ask for support.

The safety net for the banks consisted of two pillars: the guarantee funds for the two groups of banks, (The Savings Banks' Guarantee Fund (SBGF) and The Commercial Banks' Guarantee Fund (CBGF)) and Norges Bank as lender of last resort.

Table 1: Banks' results 1982-1993

a) Commercial banks 1)

	1982		1983	1984	1985	1986	1987		1988	1989	1990	1991	1992	1993	
	NOK mill	% ATA	% ATA	% ATA	% ATA	% ATA	NOK mill	% ATA	% ATA	% ATA	% ATA	% ATA	% ATA	NOK mill	% ATA
Net interest income	3099	2.59	3.02	2.75	2.26	2.14	9004	2.83	2.62	2.94	2.63	2.49	2.83	13791	3.37
Other operating revenues	2779	2.33	2.33	2.47	2.57	2.66	2270	0.71	1.35	1.45	0.92	0.59	1.06	6729	1.64
Other operating expenses	4444	3.72	3.70	3.62	3.40	3.21	9260	2.91	2.68	2.64	2.62	3.14	2.39	11564	2.82
Write-down and loss/gain on sale of fixed assets	-	-	-	-	-	-	-	-	0.02	0.07	0.13	-0.02	0.70	1247	0.30
Pre-loss operating result	1434	1.20	1.66	1.60	1.42	1.59	2014	0.63	1.27	1.68	0.81	-0.05	0.79	7709	1.88
Loss on loans and guarantees	699	0.59	0.66	0.70	0.73	0.84	3235	1.02	1.57	1.47	1.82	4.46	2.18	4852	1.18
Post-loss operating result	735	0.62	0.99	0.90	0.69	0.75	-1221	-0.38	-0.30	0.21	-1.01	-4.51	-1.38	2857	0.70
Capital adequacy ratio (at year-end)	-	-	-	-	-	-	-	-	-	-	-	7.1	8.6		12.4
Number of man-years (at year-end)		13942	14348	14949	15552	16537		16793	-	-	14683	13537	12235		12625

1) All parent banks (excluding Norwegian-owned branches abroad) and foreign-owned subsidiaries. Postbanken is included in 1993.

b) Savings banks 1)

	1982		1983	1984	1985	1986	1987		1988	1989	1990	1991	1992	1993	
	NOK mill	% ATA	% ATA	% ATA	% ATA	% ATA	NOK mill	% ATA	% ATA	% ATA	% ATA	% ATA	% ATA	NOK mill	% ATA
Net interest income	3463	4.14	4.28	4.01	3.39	3.23	8403	3.84	3.62	4.19	3.98	3.97	4.34	11734	4.67
Other operating revenues	1360	1.63	1.10	1.15	1.46	1.63	1284	0.59	0.65	0.89	0.63	0.58	0.71	3370	1.34
Other operating expenses	2916	3.49	3.85	3.79	3.73	3.54	6963	3.18	3.07	3.08	3.10	3.35	2.99	7365	2.93
Write-down and loss/gain on sale of fixed assets	-	-	-	-	-	-	-	-	0.03	0.02	0.05	0.01	0.10	238	0.09
Pre-loss operating result	1907	2.28	1.53	1.38	1.12	1.33	2724	1.24	1.17	1.98	1.46	1.19	1.97	7501	2.99
Loss on loans and guarantees	219	0.26	0.66	0.68	0.68	0.81	1428	0.65	1.23	2.06	1.54	1.89	1.64	2500	0.99
Post-loss operating result	1688	2.02	0.88	0.70	0.44	0.52	1296	0.59	-0.05	-0.08	-0.07	-0.70	0.33	5001	1.99
Capital adequacy ratio (at year-end)	-	-	-	-	-	-	-	-	-	-	-	9.4	12.2		15.3
Number of man-years (at year-end)		11737	12523	13175	14108	14677		15378	-	-	10669	11061	11700		11541

1) All parent banks.

Notes to tables:

Accounting rules for banks were changed as from 1987. As a result, banks were required to enter loan loss provisions. In the table, provisions to loan loss reserves have been included in the loss figures for the period 1982-1986. The loss figures are therefore not fully comparable with the figures as from 1987.

Based on rules from 1991 for calculating capital adequacy ratio.

Number of employees in the years 1982-1987, number of man-years from 1990. For the years 1988 and 1989, the number of employees/man-years broken down by bank groups is not available. The total number of employees in both bank groups was 31 478 and 29 653 respectively.

Source: SSB and NB

The two guarantee funds played an important role. Membership was compulsory for all banks. The funds' capital was built up through membership fees and guarantees from member banks. By the end of 1988 the CBGF had capital of NOK 4.1bn. This was equivalent to 2.4 per cent of the member banks' deposits from non-banks, while the required capital was 2.0 per cent. At the same time the SBGF had a capital of NOK 1.4bn, while the member banks guaranteed an amount of NOK 1.6bn. The sum of capital and guarantees was below the required 1.5 per cent of member banks' total assets, so the guarantees were increased by NOK 0.7bn by April 1989. Both funds had (and still have) wide mandates, enabling them to use several measures to help member banks fulfil their obligations and continue their operations. Although the funds were not public entities, both the Banking, Insurance and Securities Commission (BISC) and Norges Bank were represented on their boards, along with five members elected by the member banks.

Whereas the BISC was responsible for supervision and assessment of the solvency situation and, if needed, declaring an institution insolvent, the guarantee funds' role was to come up with proposals for possible solutions, which ultimately had to be approved by the authorities. If the guarantee fund did not provide the required support for continued operations, the Ministry of Finance might (and likely would) put the bank under public administration. The SBGF guaranteed all deposits made by non-banks, without any upper limit. The CBGF's board might set a limit if so decided. However, it was generally assumed that it would guarantee all ordinary deposits like the SBGF. The two cases mentioned below supported this assumption.

The first commercial bank which ran into serious problems was Sunnmørsbanken, by Norwegian standards a medium-sized, regional bank. In the late summer of 1988 the BISC concluded that the bank's capital would most likely be exhausted by the end of the year. The CBGF issued a general guarantee for all of Sunnmørsbanken's commitments. Concurrently Norges Bank assured that the bank would get the necessary liquidity support. Norges Bank's loans, given at the rate applying for ordinary short-term liquidity loans from the central bank, would be covered by the guarantee from the CBGF. The CBGF appointed a new board for the bank, on which the central bank was represented. The aim was continued operations of the bank under the guarantee from the CBGF while a lasting solution was worked out. In January 1990 it was decided that Sunnmørsbanken should merge with Christiania Bank, at that time the largest Norwegian commercial bank. Sunnmørsbanken had substantial funding from abroad. Such funding accounted for 19 per cent of the bank's total assets by the end of 1987. Hence, it was feared that if it failed to meet its obligations, continued extensive foreign funding of other Norwegian banks would become difficult.

In October 1989 the BISC informed the CBGF that the capital of Norion Bank, a small and recently established commercial bank, was probably

exhausted. The CBGF decided not to give support for continued operations of the bank. At the same time it guaranteed all deposits from non-banks. The Ministry of Finance put the bank under public administration. As the bank had ordinary liquidity loans from Norges Bank, the central bank had to take a loss. To facilitate the disbursement of deposits, Norges Bank provided a new liquidity loan against a guarantee from the CBGF. The bank was then wound up, a process which lasted until 1999 [4].

The weak results created problems for more commercial banks, although not as acute as the ones mentioned above. Against the backdrop of heavy losses which had reduced its capital below adequate levels, Fokus Bank, number three in size among the commercial banks, late in 1990 applied for a guarantee amounting to NOK 1.5bn from the CBGF. This was granted in December. At the same time, to bolster confidence and stability in Norwegian commercial banks, the CBGF declared its willingness to provide preference capital (non-voting capital which could be converted to ordinary share capital and had priority over share capital but below subordinated debt) to member banks.

From 1988 onwards several small and medium-sized savings banks lost their capital. In these cases the SBGF intervened with support in the form of guarantee capital, combined with support deposits (also from the SBGF) and/or liquidity support from Norges Bank subject to a guarantee from the SBGF. Concurrently, the SBGF worked to bring about mergers with nearby savings banks. To achieve such mergers, the SBGF had to take over the bulk of the banks' losses.

In 1987 the authorities became aware of growing problems facing Sparebanken Nord and Tromsø Sparebank, two relatively large savings banks, located in Tromsø in northern Norway. The two banks had been competing fiercely in the local market, and one of them made aggressive attempts to gain a foothold also outside the region. This led to too lax risk assessment and increasing losses. Norges Bank and the BISC kept in close touch on the issue. In the summer of 1988 they concluded that if market confidence were to wane, a situation which could necessitate supportive action from Norges Bank, might emerge. In September and October, Norges Bank granted extra liquidity loans to the banks as a result of liquidity problems ensuing from weak earnings and heavy losses. Conditions were set regarding the banks' further operations. In November, inspections in both banks revealed that the primary capital in both banks was to be regarded as exhausted. For both banks, the BISC set sufficient injection of new capital as a condition for continued operations.

The SBGF decided to provide guarantee capital of NOK 600m. Norges Bank, after consultations with the Ministry of Finance, granted a large loan which would provide an overall subsidy effect of NOK 200m over a five-year

[4] Norges Bank's initial, unsecured claim on Norion was almost NOK 184m. During the process of winding up the bank, 74.2 per cent of this amount was repaid. Hence Norges Bank's final loss amounted to approximately NOK 47m, not counting lost interest, cf table 2.

period. The subsidy element was approved as capital. A condition set for the measures was that the two banks should merge and that new boards be elected in accordance with a proposal from the BISC. Norges Bank was represented on the boards. On July 1, 1989, the two banks merged to become Sparebanken Nord-Norge. Subsequently the loan from Norges Bank, amounting to NOK 1.5bn, was disbursed. Shortly thereafter, further losses necessitated injection of fresh capital, amounting to approximately NOK 2bn. NOK 500m was provided by Norges Bank through a write-down on its loan. The rest was provided by the SBGF.

The extensive direct official involvement in Sparebanken Nord-Norge was due to specific circumstances. The bank had more than two thirds of the private market in northern Norway. This part of the country had been affected by a deep crisis in the fisheries sector. There were no potential merger partners, and Sparebanken Nord-Norge could not have been wound up without severe consequences for the entire region.

With the exception of the two banks which merged to become Sparebanken Nord-Norge, and Norion Bank, the problems up through 1990 were handled without government economic involvement other than temporary liquidity support.

3 Public authorities get more involved due to escalating problems from 1991

3.1 Early 1991: The establishment of the Government Bank Insurance Fund (GBIF[5])

Although the traditional safety net had handled the banking problems efficiently up through 1990, it soon became evident that it was about to become overburdened. As shown in Table 2, the drain on the financial resources of the SBGF and the CBGF had been considerable.

The Savings Bank Guarantee Fund disbursed NOK 1.9bn or close to 1 per cent of savings banks' total assets in connection with problems in nine member banks in 1989 and 1990. At the end of 1990 the fund had capital resources of only NOK 38m. The fund had also issued guarantees for member banks amounting to altogether NOK 1.2bn.

In 1989 and 1990 the CBGF made payments or provisions for losses of about NOK 1.4bn in connection with the problems in Sunnmørsbanken and Norion Bank. Nevertheless the fund's capital at the end of 1990 stood at NOK 3.8bn, about 2 per cent of member banks' deposits from non-banks. As mentioned above, the fund had, however, also issued an equity guarantee to Fokus Bank of NOK 1.5bn and adopted a resolution in principle to offer member banks

[5] See footnote 2.

injections of preference capital on a case-by-case basis. On 29 January 1991 the total limit for the arrangement was set at NOK 2bn, distributed among member banks in proportion to previous premium payments.

Hence, at the beginning of 1991 it was obvious that the two funds no longer had the necessary financial capacity to constitute a credible safety net for Norwegian banks. Losses through 1990 also demonstrated that there was a greater need for active measures in order to secure the stability of and confidence in the Norwegian financial system. It became necessary to establish a third line of defence for banks' solvency, behind their own capital and the two guarantee funds. As is shown below, the proof that this was necessary came over the next couple of years, when loan losses surged. A major share of these losses came on loans granted during the rapid loan expansion in the mid-eighties.

The weakness of the two guarantee funds and the weak bank results were the background for the Government's proposal on 25 January 1991 concerning the establishment of the GBIF. The aim was to ensure that the banks could play their normal role in society, by bolstering their solvency and thus strengthen the public's confidence in the banking system. This was seen as part of a broader set of measures to improve the growth performance of the Norwegian economy.

The Fund was established by an Act of 15 March 1991, with capital of NOK 5bn. A three-member board was appointed. In addition, the BISC and Norges Bank should appoint one representative each, who should participate in board meetings without voting rights. The secretariat was provided by Norges Bank. The mandate of the Fund was to provide support loans to the banks' guarantee funds to enable these funds to supply risk capital to the banks. It was presupposed that the loans would normally be subject to interest charges and be repaid, but the Storting (Norwegian parliament) under certain conditions could decide to waive such payments.

The support loan arrangement was intended to ensure that the arrangements and regulations in effect could continue to function as intended, and the soundness of the banking system could be improved. The GBIF was empowered to impose conditions on both the guarantee fund and the bank which benefited from the support loan. The conditions were intended to help the bank improve its earnings and capital position. The GBIF also had the right to appoint two board members in the guarantee fund which received support loans, replacing two of the five who had been elected by the guarantee funds' general meetings. Inasmuch as the Director of the BISC and a representative appointed by Norges Bank already had a seat on the boards of the two guarantee funds, this entailed that there would be a government majority on the board.

On 17 June 1991 the CBGF approved applications from Den norske Bank, Christiania Bank and Samvirkebanken for preference capital under the arrangement mentioned above, amounting to altogether NOK 1.6bn. Later the same

Table 2:
Disbursements and outstanding guarantees in connection with guarantee funds' involvement from 1 January 1988 - 31 December 1993[i]. In millions of NOK

	Savings Bank Guarantee Fund			Commercial Banks Guarantee fund				
Bank's name	Outstanding guarantees at 31.12.	Payments financed with own resources	Payments financed with support loans from GBIF	Payments financed with own resources	Payments financed with support loans from GBIF	Direct payments from GBIF	Norges Bank's losses	Total Disburse-ments
1988								
Sp.b. Nord-Norge	600						200	200
1989								
Sp.b. Nord-Norge	650	1456					500	1956
Sp.b. Romsdal		130						130
Spareskillingsbanken		135						135
Varhaug Sp.b.	20							
Flå Sp.b.	13							
Sp.b. Romsdal	40							
Sunnmørsbanken				580				580
Norion Bank				305			74	379
1990								
Sp.b. Moss Hobøl		145						145
Skiptvedt Sp.b.		10						10
Varhaug Sp.b.		11						11
Flå Sp.b.		5						5
Sp.b. Nord-Norge		7						7
Sp.b. Romsdal		1						1

Table 2: continues

	Savings Bank Guarantee Fund			Commercial Banks Guarantee fund				
Bank's name	Outstanding guarantees at 31.12.	Payments financed with own resources	Payments financed with support loans from GBIF	Payments financed with own resources	Payments financed with support loans from GBIF	Direct payments from GBIF	Norges Bank's losses	Total Disburse-ments
1990 (continues)								
Sp.b. Nord-Norge	650							
Sp.b. Nordland	500							
Varhaug Sp.b.	10							
Sp.b. Romsdal	50							
Hemnes Sp.b.	7							
Sunnmørsbanken				466				466
1991								
Den norske Bank				939				939
Fokus Bank				1500	650	475		2625
Christiani a Bank				924	1800	5140		7864
Samvirkebanken				22				22
Sp.b. Midt-Norge		365	160					525
Sp.b.Rogaland		440	160					600
Nordkapp Sp.b.		15						15
Hemnes Sp.b.		27						27
Sp.b. Romsdal		47						47
Flå Sp.b.		2						2
Tysfjord Sp.b.		1						1

Table 2: continues

	Savings Bank Guarantee Fund			Commercial Banks Guarantee fund				
Bank's name	Outstanding guarantees at 31.12.	Payments financed with own resources	Payments financed with support loans from GBIF	Payments financed with own resources	Payments financed with support loans from GBIF	Direct payments from GBIF	Norges Bank's losses	Total Disburse-ments
1991 (continues)								
Halsa Sp.b.		17						17
Nittedal Sp.b.		45						45
Sp.b. Nordland		350						350
Sp. Nord-Norge	800							
Nordkapp Sp.b.	40							
Halsa Sp.b.	43							
Nittedal Sp.b.	7							
Nore Sp.b.	27							
Varhaug Sp.b.	9							
Flå Sp.b.	6							
Tysfjord Sp.b.	6							
1992								
Den norske Bank						3250		3250
Sp.b. Midt-Norge			75					75
Sp.b. Rogaland			144					144
Hof Sparebank	6		10					10
Christiania Bank						1900		1900
Fokus Bank						600		600

Table 2: continues

	Savings Bank Guarantee Fund			Commercial Banks Guarantee fund				
Bank's name	Outstanding guarantees at 31.12.	Payments financed with own resources	Payments financed with support loans from GBIF	Payments financed with own resources	Payments financed with support loans from GBIF	Direct payments from GBIF	Norges Bank's losses	Total Disburse-ments
1992 (continues)								
Sp.b. Nord-Norge	800							
Halsa Sp.b.	43							
Nittedal Sp.b.	2							
Nore Sp.b.	16							
Flå Sp.b.	1							
Tysfjord Sp.b.	4							
1993								
Den norske Bank						1500		1500
Fokus Bank						20		20
Oslobanken						88		88
Fokus Bank						200		200
Sp.b. Nord-Norge	800							
Halsa Sp.b.	15							
Nittedal Sp.b.	2							
Nore Sp.b.	15							
Hof Sp.b.	2							
Tysfjord Sp.b.	2							
Total		3 209	549	4 736	2 450	13 173	774	24 891

i)For cases already settled the figures cover realised losses by the end of 1993(e.g. in the case of Norion Bank). Assets acquired from banks are entered at the same value as recorded in the guarantee funds' accounts at the time the assets were acquired. Outstanding guarantee liabilities at 31 December are entered in full irrespective of expected payments. In addition to the amounts mentioned, the Commerical Banks Guarantee Fund furnished a deposit guarantee in Norion Bank in 1989, an equity guarantee in Fokus Bank in 1990 and guaranteed for all of Sunnmørsbanken's obligations in 1988. In 1993 the CBGF issued a guarantee for the fulfilment of Oslobanken's obligations. As most of these guarantees had no limit, amounts are not mentioned. The Commercial Banks' Guarantee Fund also contributed support deposits to 10 commercial banks totalling NOK 196m in 1991.

The payment date is applied. Resolutions on payments were in several cases adopted in the previous year, cf. Table A in the *Survey of support measures* at the end this chapter.
Disbursements up to and including 1993 under various guarantees from the CBGF and the SBGF are included in the table. I have not tried to find the exact figures for later disbursements and/or dividends under the guarantees, and hence the CBGF and the SBGF's final losses as a result of the guarantees. The CBGF has informed that the final bills regarding Sunnmørsbanken and Norion Bank were roughly as stated in the table. Disbursements under the guarantee for Oslobanken amounted to NOK 563m. Norges Bank's final loss was NOK 27m smaller than stated in the table, not counting lost interest. The SBGF informs that the guarantee regarding Sparebanken Nord-Norge, outstanding by the end of 1993, expired at 1 December 1994, without any disbursements made under the guarantee.

It seems that adding the NOK 563m for Oslobanken to the table's total, getting approximately NOK 25.4 bn., gives a good estimate of total disbursements.

Sources:CBGF, SBGF and GBIF (The table is from Report no. 39 to the Storting (1993-1994). Minor adjustments have, however, been made).

month it was decided that the equity guarantee of NOK 1.5bn in Fokus Bank was to be replaced by an injection of preference capital for the same amount. On 28 June 1991 the CBGF decided to offer member banks a new round of preference capital infusions within a total limit of NOK 1bn, based on the same distribution as earlier. Only Samvirkebanken benefited from this arrangement since the other applicants did not satisfy the stipulated conditions. However, other banks did receive infusions outside this arrangement, cf. 3.2.

On 28 June it was also decided that banks which had not applied for preference capital could alternatively apply for support deposits from the CBGF. This was offered to limit competitive distortions which might arise as a result of the infusions of preference capital. The support was granted for one year at a time and was to be charged interest at the same rate as the return the CBGF received on preference capital which had been provided to other banks. All in all NOK 196m was allocated in this manner. This is not included in the survey of capital injections in Table 2. As a result of these measures most of the CBGF's resources were either tied up or had been disbursed. If new problems arose in the commercial banks, there would thus be a need for support from the GBIF.

3.2 The first support loans from the GBIF

Both Christiania Bank and Fokus Bank recorded weaker-than-expected results and considerable deficits in the first half of 1991. Both applied for an infusion of preference capital from the CBGF. The CBGF had very limited resources at its disposal, and the GBIF was therefore requested to provide support loans to finance most of the capital infusions. Support loan agreements, amounting to NOK 1800m and 650m respectively, were concluded to finance preference capital infusions in Christiania Bank and Fokus Bank. As a consequence of this, nearly half of the GBIF's resources had been used, and the CBGF had a debt which corresponded to 4-5 years of full premium payments from member banks.

The accounts for the period May-August 1991 showed that large losses had resulted in negative equity in two medium-sized, regional savings banks (Sparebanken Rogaland and Sparebanken Midt-Norge). The banks applied to the SBGF for capital injections. The SBGF could not cover all of the capital required with its own resources, and therefore applied to the GBIF for support loans to finance part of the capital injections. Two support loan agreements were concluded in October 1991, amounting to NOK 160m each. The entire loan amounts were to be used to subscribe for primary capital certificates in the two banks.

The support loans were granted under certain conditions, i.a. that to each of the two funds' boards the GBIF should appoint two representatives to replace two elected by the member banks (leading to a majority of government representatives in both cases) , and that the bank boards were replaced by new

ones acceptable to the CBGF or the SBGF thereafter. Although not explicitly included in the agreements, changes in top management of the banks were also common.

With the exception of Fokus Bank, the capital injections were intended to give the banks a capital adequacy ratio which satisfied statutory requirements at the end of the year.

3.3 Late 1991: Need for additional governments funds and new instruments. the government Bank Investment Fund(SBIF [6]) is established

After the third quarter of 1991 it was clear that losses in the largest commercial banks were substantially higher than assumed just a few months earlier. In view of the debt already accumulated by the CBGF, cf. above, the guarantee fund would have had en entirely untenable debt situation if the system involving support loans from the GBIF should also be used for capital injections of the magnitude now envisaged.

Against this background, the Government in October 1991 tabled extensive proposals in the Storting for additional appropriations, new measures and legislative amendments aimed at strengthening earnings and improving the financial position of Norwegian banks. The main elements of the proposal were: 1) an allocation of NOK 6bn to the GBIF and an expansion of its instruments, 2) establishment of the SBIF with capital of NOK 4.5bn, 3) subsidised deposits from Norges Bank, 4) reduced premium payments to the two guarantee funds, 5) an appropriation of NOK 1bn to the SBGF and 6) reduced liquidity requirements for banks.

The legislative amendments which extended the GBIF's instruments were adopted on 29 November 1991. They allowed the Fund in special cases to acquire shares, primary capital certificates[7] or other equity capital instruments in Norwegian banks which were unable to raise capital in other ways. Thus, the GBIF would have to be the real owner of banks which had lost their entire capital. The goal in the longer run was to bring in private owners.

The purpose of the SBIF was to contribute capital to Norwegian banks based on commercial principles. The background for the establishment of this Fund was that banks which were not in crisis were often unable to raise capital in the private market due to the general lack of confidence in banks. The SBIF was only to participate together with private investors in banks' issues of capital instruments.

Amendments to the Commercial Banking Act were also adopted, entailing that the King in Council could under certain conditions write down a bank's

[6] See footnote 2.

[7] Primary capital certificates are the savings banks' equity instrument. Holders' rights are to some extent limited compared to shareholders' rights in commercial banks.

shares to zero, and also approve new issues laying down conditions as to who could subscribe, etc. This ensured that share capital was really written down to the extent the capital was lost, and prevented the government from taking over the risk that should be covered by the shareholders.

The statutory amendments permitted large government capital infusions to the banking system without having the banks' own guarantee funds incur a debt which they could not service. It also permitted government participation in the form of bank ownership through the two different funds, The GBIF and the SBIF.

Christiania Bank's accounts for the third quarter of 1991 showed that all equity capital and all preference capital amounting to a good NOK 2.7bn (contributed by the Commerical Banks Guarantee Fund) had been wiped out, and that the net worth of the bank was markedly negative. In Fokus Bank, the entire share capital and some of the preference capital were also lost. In Den norske Bank, NOK 327m of the share capital was left, and the CBGF's preference capital was intact.

Against this background, the three large commercial banks received substantial capital infusions from the GBIF through agreements concluded at the end of the year. In connection with these capital injections, requirements were established with regard to economic performance and cost reductions. Old capital had to be written down to cover losses. As the shareholders' meetings failed to make such decisions, the share capital in both Christiania Bank and Fokus Bank was written down to zero by royal decrees of 20 December 1991 before the banks received new share capital from the GBIF. The GBIF thus became the sole owner of Christiania Bank and Fokus Bank. Den norske Bank still had private owners. The infusion in this case was made in the form of preference capital. An agreement was also reached entailing that Den norske Bank was to take over the mortgage company Realkreditt, while Realkreditt's shareholders would subscribe for shares in the bank and together with the SBIF underwrite a new issue of preference shares.

The injections aimed at giving Den norske Bank and Christiania Bank a capital ratio of 8 per cent at the end of the year, in accordance with statutory capital adequacy requirements set by the BISC. In the case of Fokus Bank a capital ratio of 5.5 per cent was deemed sufficient inasmuch as the bank was to reduce its balance sheet considerably over a two-year period.

3.4 1992: Need for additional government funds

In line with the desire to bring in private shareholders, those shareholders who had seen their shares written down to zero were offered an option to buy up to 25 per cent of the GBIF's shares in Christiania Bank in the spring of 1992. Only 2.3 per cent of the shares were sold to former shareholders. In Fokus Bank, a similar offer was postponed based on a recommendation by the bank's board.

In connection with the capital infusion to Den norske Bank in the autumn of 1991 the SBIF and private investors agreed, as noted earlier, to underwrite an issue of preference shares. This was carried out in the spring of 1992. The guarantee was effective for most of the amount, and the SBIF thus became majority owner of Den norske Bank with 55.6 per cent of the shares.

In the spring and summer of 1992 three support loans amounting to altogether NOK 219m were granted to the SBGF to enable the fund to provide equivalent capital injections to Sparebanken Rogaland and Sparebanken Midt-Norge. Furthermore, a support loan of NOK 15m was granted to cover the deficit in Hof Sparebank and the Savings Banks' Guarantee Fund's guarantee liability vis-à-vis Hedmark Sparebanken when it merged with Hof Sparebank.

In the autumn of 1992 it was clear that the three large commercial banks would show considerable deficits for the year as a whole, and that they would require substantial capital injections in order to fulfil the capital adequacy requirement of 8 per cent at 31 December 1992. Satisfying the requirement was considered important to underpin confidence in key Norwegian financial institutions. The GBIF did not have sufficient resources for this purpose, and a proposal to allocate additional funds was tabled in the Storting.

With the proviso that the Storting adopted the necessary resolutions for appropriations and legislation, the GBIF concluded agreements concerning direct infusions of altogether NOK 4bn to the three banks. The aim was to allow Den norske Bank and Christiania Bank to satisfy the capital adequacy requirement of 8 per cent at the end of the year by a comfortable margin. The capital infusion to Fokus Bank would result in a capital ratio of 8 per cent after parts of the bank were sold in accordance with the plans underlying the agreement with the GBIF. In addition to the direct infusions, the GBIF agreed to inject an additional NOK 600m and 200m in Den norske Bank and Fokus Bank respectively if the core capital ratio fell below 3.8 per cent when the third quarter 1993 accounts were presented or at a later time.

It was presupposed that NOK 1.5bn of the total capital infusion would be covered by the sale of equity capital instruments in the banks to the SBIF, entailing that the allocations required came to NOK 2.5bn. The Storting passed the necessary resolutions. The GBIF later sold nearly 229 million shares in Christiania Bank to the SBIF. The price was based on the equity capital per share in the bank's annual accounts for 1992.

The agreements imposed new and stringent requirements on the banks, including cost and balance sheet reductions. Moreover, it was a precondition that capital with the lowest priority be written down against uncovered losses before new capital was injected. The original, privately owned, share capital, the CBGF's preference capital and the lowest ranking part of the GBIF's preference capital were thus written down to zero in Den norske Bank. In Christiania Bank, the par value of shares was written down from NOK 25 to NOK 7. In Fokus Bank, the CBGF's remaining preference capital was written down to zero, while

the shares' par value was written down from NOK 25 to NOK 11.

As a result, the CBGF's total loss of preference capital in the three banks in 1991 and 1992 came to a good NOK 5.8bn.

3.5 Other investments made by the SBIF in 1991 -1992

Apart from the transactions mentioned above, the SBIF made six investments during its first two years.

In 1991, the Fund purchased 19.6 and 32.3 per cent of the shares in Oslobanken and Samvirkebanken respectively. Both stakes were acquired by participation in transactions where new equity was raised to meet capital adequacy requirements.

In 1992, the Fund participated in four issues of subordinated debt in savings banks. This includes participation of altogether NOK 1 bn. in two convertible loans in Union Bank of Norway and participations of NOK 70m. and NOK 25.6m. in issues by Sparebanken Vest and Sparebanken Møre respectively.

4 1993: The end of the crisis

The banks recorded sharply improved results in 1993. The improvement was ascribable to a positive trend in the Norwegian economy, and in particular a marked fall in interest rates. The decline in interest rates had a direct impact on banks' results through substantial gains in their securities portfolios; it improved the customers' ability to service their debts and it increased the value of the collateral furnished for loans. Net interest income was strengthened through a reduction in non-accrual loans. The commercial banks recorded an improvement in results of nearly NOK 7bn in 1993, and posted a profit of 0.58 per cent of average total assets (ATA). Much of the improvement was attributable to reduced losses, although losses remained high. The same mechanisms were in evidence for the savings banks, but the initial level was more favourable, and the 1993 results were a record high 2.04 per cent of ATA.

Developments in Oslobanken, a small commercial bank, deviated from the overall situation. On 1 April the bank applied to the GBIF for a capital infusion because the accounts for the first quarter would most likely show a capital ratio below the statutory requirement. The Fund decided that it would not approve the application, but would attempt to contribute to a solution based on a merger with another bank. Negotiations aimed at achieving this proved unsuccessful. The revised first-quarter accounts showed that the bank had negative equity capital. Based on an overall evaluation in which special emphasis was placed on the consideration for the financial system's stability, the GBIF injected new share capital with the purpose of carrying out an orderly liquidation of the bank. The CBGF issued a guarantee for the bank's obligations based on the promise of support loans from the GBIF. Norges Bank pledged to provide the necessary

liquidity. The liquidation process lasted until November 2000. The guarantee from the CBGF became effective for an amount of NOK 563.1m.

With the exception of Oslobanken, no additional crisis arose in individual banks in 1993. However, the GBIF's pledge to provide conditional capital contributions to Fokus Bank under certain circumstances was effectuated. In connection with the merger of Fokus Bank and Samvirkebanken the GBIF provided NOK 20m in share capital so that the merger would not hamper Fokus Bank's efforts to achieve the capital adequacy requirement. The merger resulted in a small minority of private owners in Fokus Bank.

The banks' performance and financial strength at the end of 1993 showed that the banking crisis was over.

The improved performance of the banks and the brighter outlook entailed that investors both in Norway and abroad showed a growing interst in buying Norwegian bank shares. Since Christiania Bank's capitalisation was considered somewhat weak, it was deemed particulary desirable to inject new capital into this bank. It was decided to launch an issue of an estimated NOK 2bn. This was carried out in December 1993 and brought the government's stake down to 68.9 per cent.

In December 1993 the GBIF decided to make use of its right to convert its preference capital in Den norske Bank to shares. This made the GBIF the majority owner and increased the government's ownership share to 87.5 per cent. The GBIF and the bank then adopted plans entailing that shares worth at least NOK 2bn would be placed in the market, of which about NOK 1bn would be an increase in capital and the remainder the sale of shares from the GBIF. The issue and sale of shares took place in May/June 1994. Following this, state ownership was 72 per cent.

The growing optimism with regard to the banks' future was also manifested in a greater interest in primary capital certificates. In connection with the banking crisis the Savings Bank Guarantee Fund had purchased primary capital certificates in Sparebanken Rogaland, Sparebanken Midt-Norge and Sparebanken Nord-Norge with its own funds and support loans from the GBIF. In the spring of 1994 the Savings Bank Guarantee Fund sold these at prices above par. The Savings Bank Guarantee Fund was thus able to pay its outstanding debt to the GBIF and still have disposable capital of more than NOK 2bn. As a result, the savings bank sector had no outstanding obligations to the GBIF. This entailed that the representatives the GBIF had appointed to the board of the Savings Bank Guarantee Fund resigned, and member banks' representatives again constituted a majority.

There was no need for capital infusions from the GBIF after 1993.

5 State ownership and the roles of the GBIF and the SBIF

5.1 Two government funds with different purposes became bank owners

When, in the authumn of 1991, it was decided that both the GBIF and the SBIF could become owners of Norwegian banks there was no thorough discussion of the relationship between the ownership roles of the two funds.

In the Revised National Budget 1992 it was maintained that state ownership of banks was based on the two different roles of the two institutions: state ownership as part of crisis management, which was the role of the GBIF, and state ownership as investor on a commercial basis together with other private investors, which was the responsibility of the SBIF. Ownership as an element in crisis management was expected to be temporary, and the activities of the GBIF of limited duration. Ownership through the SBIF should have a more long-term objective. This Fund, together with other state and private Norwegian investors, was to contribute to help secure a substantial element of national ownership in Norwegian banks.

The GBIF thus had two roles. It was to provide support, and in each case agreements were concluded concerning support and the conditions for this. Requirements involving cost cuts and balance sheet reductions were typical. The banks had to draw up plans to achieve the objectives and were also required to report to the Fund. The Fund also reserved the right to impose new conditions. The follow-up of plans became an important part of the Fund's work. When the Fund was given the right to buy shares and primary capital certificates in the banks, it was also given an ownership role. Based on the size of the ownership (sole owner in two banks), the Fund in principle could play an important role in the banks' governing bodies. However, the GBIF generally chose to exert influence as a contracting party, and has in this way refrained from becoming involved in the day-to-day operations of the banks.

5.2 GBIF from crisis management to ownership

As the situation in banks improved, and the banks could generally fulfil the requirements stipulated in the agreements, the role as contracting party required less work. The GBIF was instead increasingly confronted with typical "ownership issues" in connection with questions pertaining to increases in capital and bringing in private shareholders in the banks. This entailed the basis for issues and sales of shares, pricing, etc. At the same time, the question of new issues affected the GBIF as party to the agreements because important aspects of the agreements between the Fund and the banks were considered incompatible with the attainment of a sensible price for the banks' shares.

The Fund therefore had to decide whether it was acceptable to abandon requirements and rights that were laid down in the agreements. When new issues were recommended, new agreements were therefore concluded, in late 1993 and early 1994 respectively, with Christiania Bank and Den norske Bank to replace the former support agreements.

The new agreements were based on the GBIF's role as the real safety net for these banks until the CBGF again had sufficient resources. According to the agreements, the banks had some reporting obligations to the Fund. No limitations were imposed on their commercial scope for manoeuvre, and the Fund only had the right to impose new requirements if the banks' capital again fell below the statutory minimum. The new agreements would last until the CBGF had achieved its minimum statutory size or earlier if the GBIF was of the view that the CBGF had sufficient resources available for its activities. This underlined the temporary nature of the GBIF's involvement and the aim of basing a future safety net on the previous system with central roles and wide mandates for the SBGF and the CBGF.

A corresponding agreement was concluded with Fokus Bank in the spring of 1995 after the bank showed improved results. This was also to pave the way for sales of shares to private investors.

5.3 1995: Management of state ownership becomes the sole responsibility of the SBIF

With the new agreements, the relationship between the three banks and the GBIF entered a new phase. In a safety net context, the GBIF was becoming a pure contingency body. At the same time, the GBIF was still a large owner, alone or along with the SBIF the majority owner.

Future state ownership was considered in Report no. 39 to the Storting (1993-94) The plans called for a continuation of state ownership in Den norske Bank and Christiania Bank. The purpose was to ensure that central decision-making functions remained in Norway to ensure continued focus on the potential of Norwegian industries. This could be achieved by having the state retain one third of the equity capital. However, the government would not reduce its stake to less than 50 per cent in the current parliamentary period ending in 1997. State ownership in Fokus Bank should be phased out. The SBIF was to dispose of its assets other than the shares in the two largest banks. Assets were to be sold gradually when commercial conditions so permitted. The SBIF could acquire shares in Den norske Bank and Christiania Bank from the GBIF on market terms. The Storting gave its approval to these plans.

In Ot. Proposition no. 33 (1994-95), the Government tabled a proposal to amend the objects clause of the SBIF to assign it the task of ensuring national ownership in the two largest commercial banks. The proposition also contained necessary amendments to the Act on the GBIF to fully transfer the management

of its ownership in the banks to the SBIF. As a result, the GBIF was no longer involved in the management of ownership in those banks. With the exception of its involvement in the liquidation of Oslobanken, the GBIF gradually was given a purely contingency role in the safety net, while the SBIF was the active, state owner.

6 Reductions in the state ownership and the end of the two funds.

The gradual reduction of state ownership in Norwegian banks is shown in Table 3. It should be noted that Fokus Bank was fully privatised by the end of 1995 and that by the end of 1996 the SBIF and the GBIF altogether only held shares in Den norske Bank and Christiania Bank, and that the state stake in those two banks had been brought down to the level then desired by the Storting.

From 1997 onwards state ownership in the two largest commercial banks has been considered by the Storting several times. The (so far) final conclusion is that government ownership should be concentrated in one institution, built around Den norske Bank. In accordance with this, the shares in Christiania Bank were sold to MeritaNordbanken in 2000.

In 2001 the GBIF's remaining stake of about 13 per cent in Den norske Bank was sold. The GBIF was no longer an owner of bank shares.

The National Budget 1994 declared: "The Ministry has made it clear that the GBIF's activities shall be of limited duration... It follows from the functions assigned to the GBIF that the Fund shall exist as part of the safety net until the two guarantee funds have accumulated sufficient capital. The GBIF's capital will be transferred to the Treasury as the private guarantee funds gradually build up their capital". In accordance with this, funds have over the years from 1994 onwards been transferred from the GBIF to the Treasury as support loans have been repaid and shares sold. The annual amounts were decided on the basis of an assessment of the GBIF's liquid resources and what the Fund needed.

While the SBGF had acquired substantial resources already in 1994, the CBGFs' financial situation took long to recover. Remaining support loans from the GBIF were repaid during 1995, and the GBIF-appointed representatives withdrew from its board. But the rebuilding of the capital of the fund would take many years. Therefore the GBIF remained part of the safety net for commercial banks.

In the autumn of 2001 the government concluded, however, that the situation in the banks and their guarantee funds was such that there was no longer a need for the GBIF, and that it should be phased out. A proposal to abolish the GBIF Act was accepted by the Storting in April 2002. The practical procedure took some months, but on August 19 the Fund was finally phased out. Before the closing, the agreements with Den norske Bank, Christiania Bank (later Nordea)

Table 3:
Government ownership in Norwegian Banks.

	Government ownership. Per cent[1)]										
	GBIF			SBIF						Total[2)]	
End of year	DnB	CBK	Fokus	DnB	CBK	Bergens Skillingsbank	Oslo-banken	Samvirke-banken	Sparebanken NOR	DnB	CBK
1991	0	100	100	0	0	0	19.6	32.3	0	0	100
1992	0	97.7	100	55.6	0	0	18.5	32.3	0	55.6	97.7
1993	0	27.3	97.9	69.0	41.6	13.9	0[3)]	0	48,0[4)]	69.0	68.9
1994	46.4[5)]	18.8[6)]	97.9	25.6	50.1	13.9	0	0	43.7	72.0	68.9
1995	46.4	0[7)]	0	25.6	51.1	13.9	0	0	40.6	72.0	51.1
1996	16.2[7)]	0	0	35.9	51.0	0	0	0	0	52.2	51.0
1997	16.2	0	0	35.9	51.0	0	0	0	0	52.2	51.0
1998	16.2	0	0	35.9	51.0	0	0	0	0	52.2	51.0
1999	13.4[8)]	0	0	29.5[8)]	34.6	0	0	0	0	60.6[8)]	34.6
2000	13.4	0	0	47.3[8)]	0	0	0	0	0	60.6	0
2001	0	0	0	47.3	0	0	0	0	0	47.3	0
2002	0	0	0	47.8	0	0	0	0	0	47.8	0
2003[9)]	0	0	0	47.8	0	0	0	0	0	47.8	0

This table covers ownership only. This includes shares (including preference shares) and, in the case of Sparebanken NOR, primary capital certificates. Non-voting preference capital is not included. Not in the table: GBIF owned Oslobanken 1993-2000, cf 3).

2) The only two banks where both funds had shares at the same time are DnB and CBK. Hence, only these two are mentioned here.

3) All existing shares in Oslobanken were written down to zero as a condition for GBIF's injection of new capital. From that time the GBIF was the sole owner of Oslobanken until it was finally liquidated in November 2000.

4) Conversion of previously injected, convertible, subordinated debt.

5) GBIF had in 1991 and 1992 injected convertible preference capital, of which NOK 3.5 bn were intact after write-downs. Conversion of the total amount increased the GBIF's share in 1994. The share initially became even higher, but the combined transaction where new shares were issued and some of the shares held by the GBIF were sold, brought GBIF's share down to 46.4 per cent.

6) Reduction due to sale to the SBIF.

7) Partly sale to the SBIF.

8) DnB merged with the state bank Postbanken in 1999. The shares the Ministry of Finance received were transferred to the SBIF in 2000. The reduction in two funds' stake in 1999 was solely due to the increased number of shares.

9) As of November 20, 2003.

Sources: Annual reports from the GBIF and the SBIF.

and Fokus Bank, which had required the banks to report to the GBIF on a quarterly basis up to and including the second quarter of 2002, were terminated.

Like the GBIF, the SBIF has transferred money to the Treasury from 1993 onwards as funds have become available, and it was considered that the fund would not need it. The SBIF has over these years, before it is dissolved in 2004, paid more than 26 billions NOK as dividend to the State.

At the beginning of 2003, The SBIF still had a 47.8 per cent stake in DnB Holding ASA, the parent company of Den Norske Bank. After having entered into merger negotiations with the second largest financial group in Norway, Union Bank of Norway, the extraordinary shareholders' meeting of the two groups approved the merger between the two institutions to form DnB NOR ASA. The new institution was registered the 4th of December 2003. As a consequence of the merger the SBIF's holding was reduced to 28.1 per cent in DnB NOR. The parliament has, however decided that the governmental shareholding shall be increased to 34 per cent in DnB NOR by the end of 2004. This will be done through purchases in the market. After the merger has been completed and The SBIF has bought shares in the market with the intention to re-establish the ownership of 34 per cent, the parliament decided on 15 December 2003, that the SBIF will be terminated at the end of the first quarter 2004. Consequently the shares in DnB NOR will be transferred to the Ministry of Trade and Industry, which handles most of the governmental ownership in corporations.

The termination will mark the end of the special institutions which were born as a result of the banking crisis and which played important roles in bringing the Norwegian banking system through it.

Survey of support measures

In the course of 1991-1993 the GBIF adopted 17 resolutions concerning capital injections of altogether NOK 16.2bn to Norwegian banks. Of this, NOK 554m was allocated to savings banks via support loans to the SBGF. The remaining NOK 15.6bn was channelled to commercial banks, primarily the three largest. Of this, nearly NOK 2.5bn was injected via support loans to the CBGF. The various resolutions are shown in Table A.

Altogether, the Storting appropriated NOK 13.5bn to the GBIF. Total disbursements from the SBF were thus higher than the appropriations. This was possible because the Fund had received interest on part of its capital, the SBGF and the CBGF have paid instalments on support loans and the GBIF has sold shares to the SBIF.

The authorities' support to the banks through the crisis has not been confined to support via the GBIF. As noted, the Storting allocated NOK 1bn to the

Table A:
Overview of GBIF's decisions concerning support measures. Figures in millions of NOK

Guarantee Fund/Bank[1]	Amount	Type of capital[2]
1991:		
CBGF/Christiania Bank	1 800	Preference capital
CBGF/Fokus Bank	650	Preference capital
SBGF/Sp. Rogaland	160	Primary capital certificates
SBGF/Sp. Midt-Norge	160	Primary capital certificates
Den norske Bank	3 250	Preference capital
Christiania Bank	5 140	Share capital
Fokus Bank	475	Share capital
Total	11 635	
1992:		
SBGF/Sp. Midt-Norge	75	Primary capital certificates
SBGF/Sp. Rogaland	24	Primary capital certificates
SBGF/Sp. Rogaland	120	Primary capital certificates
SBGF/Sp. Hedmark	15	Primary capital certificates
Den norske Bank	1 500	Preference capital
	(600)[3]	Conditional capital contribution
Christiania Bank	1 050	Preference share capital
	850	Convertible subordinated loan
Fokus Bank	600	Share capital
	(200)[3]	Conditional capital contribution.
Total	4 234	
1993:		
Fokus Bank	20	Share capital
Oslobanken	80	Share capital
Fokus bank	200	Share capital
Total	308	
Combined total	16 177	

1) In those cases where only a bank is listed, the capital injection has been made directly from the GBIF to the bank.

2) In those cases where the CBGF or the SBGF is involved, the support has always been provided as loans from the GBIF, while the respective guarantee funds have injected the capital in the form mentioned.

3) Conditional capital contributions not disbursed in 1992 and not included in the total for the year. The capital contribution to Fokus Bank was paid in 1993 and is included there. The conditions for the payment of the contribution to Den norske Bank did not materialise.

SBGF in 1991, and this was accompanied by the introduction of an arrangement involving subsidised deposits from the central bank. The costs of the arrangement are estimated at NOK 2.7bn in the period it existed. Finally, Norges Bank recorded losses of approximately NOK 0,75bn in crisis banks. Altogether this entails gross government support of nearly NOK 20.7bn, or about 3 per cent of the banks' combined average total assets in 1990, the last year before major government disbursements took place.

Injections via the SBIF are not included in this survey because this Fund was to inject capital based on commercial criteria. To the extent there has been a departure from this rule, it has been in connection with purchases of shares from the GBIF, and double counting would occur if this was added to the gross injections from the GBIF.

As indicated by Table 2, the CBGF and the SBGF disbursed NOK 4.7bn and NOK 3.2bn respectively of their own resources to their member banks. The Savings Bank Guarantee Fund recouped a considerable share of the amounts disbursed, while the CBGF lost virtually all of its disbursements through subsequent write-downs of the preference capital it had contributed. This reflects the fact that the crisis was more extensive in commercial banks than in savings banks.

Table B shows the total injections from the GBIF and the CBGF to the three large commercial banks.

It is seen in the table that Fokus Bank in relative terms received the largest injections of capital of the three, while Den norske Bank received least. This would not change if the SBIF's subscription of preference shares in Den norske Bank in connection with the issue in the spring of 1992 had been included in the support amount. The CBGF's entire injection of preference capital in the three banks, amounting to altogether NOK 5813m, was written down to zero. An amount of NOK 1250 of the GBIF's capital infusions was also written down to zero, and there were considerable write-downs of other assets acquired by the GBIF as a result of its capital injections.

Table B:
Capital injections from the CBGF and the GBIF to the largest commercial banks in 1991-1993. In millions of NOK

	Den norske Bank	Christiania Bank	Fokus Bank
Preference capital from CBGF	939[1]	2 724[1]	2 150[1]
Preference capital from GBIF	4 750[2]		
Other injections from GBIF		7 040[3]	1 295[4]
Total	5 689[5]	9 764	3 445[6]
Per cent of bank's balance sheet at 31 December 1990	2,9	7,0	7,4
Book value of equity at 31 December 1993	7299[7]	5377[8]	1214

1) Written down to zero. In Christiania Bank and Fokus Bank partly financed through support loans from the GBIF.

2) Of which NOK 1 250m written down to zero. Remaining 3 500m converted to shares.

3) Of which premium for shares (to cover losses) NOK 2 390m and further write-down of shares NOK 1 980m.

4) Of this amount NOK 1 075m share capital, written down by 602m.

5) In addition, the bank received NOK 2 620m through transactions in connection with the take-over of Realkreditt and the issue of preference shares largely guaranteed by the Government Bank Investment Fund in the spring of 1992.

6) In addition, the bank received about NOK 37m from the CBGF and shareholders in Samvirkebanken in connection with the merger with Samvirkebanken.

7) Including NOK 3500m as preference capital, which the GBIF by the end of the year had demanded should be converted to shares.

8) The bank increased its equity by a net amount of NOK 2039m by issuing shares in the market.

References

Norwegian Official Reports (1992). Report by the Commission on the Banking Crises. NOU 1992: 30E, Royal Ministry of Finance and Customs, Oslo.

Ot. Prp. Nr. 8 (1991-92). Om lov om Statens Bankinvesteringsfond, endringer I lov 15. mars 1991 nr. 2 om Statens Banksikringsfond mv. Finansdepartementet.

Ot. prp. nr. 10 (1991-92). Om lov om endring i lov 24. mai 1961 om forretningsbanker mv. Finansdepartementet.

Solheim J.A. (1992). The Norwegian Experience with Financial Liberalization and Banking Problems. In *Financial regulation: Changing the rules of the game*. Vittas D., ed. Economic Development Institute Development Studies. Washington, D.C.: World Bank, 237-61

St. meld. nr. 24 (1989-90). Om Kredittilsynets, Norges Banks og Finansdepartementets behandling av Sparebanken Nord-Norge i 1989. Finansdepartementet.

St. meld. nr. 39 (1993-94). Bankkrisen og utviklingen i den norske banknæringen. Finansdepartementet.

St.prp. nr. 43 (1990-91). Om bevilgning til Statens Banksikringsfond. Finansdepartementet.

St. prp. Nr. 16 (1991-92). Om bevilgning til Statens Banksikringesfond, Statens Bankinvesteringsfond og Sparebankenes sikringsfond. Finansdepartementet.

Other sources:

Annual reports from the Savings Banks' Guarantee Fund 1988 - 1993

Annual reports from the Commercial Banks' Guarantee Fund 1988 - 1993

Annual reports from the Government Bank Insurance Fund 1991 - 2002

Annual reports from the Government Bank Investment Fund 1991 - 2002

Appendix A

Extract from Report No. 17 (1997-98) to the Storting on the Norwegian banking crisis

Thorvald G. Moe

The Norwegian banking crisis ended in 1993, but the discussion about the different causes of the banking crisis continued. The Ministry of Finance established an inquiry into the causes of the crisis in 1991, the "Munthe-report" (NOU 1992:30 The Banking Crisis), and the Banking, Insurance and Securities Commission (Kredittilsynet) had already established a committee ("the Wiker group") to unveil any criminal acts related to the crisis. This group was active between 1990 and 1995. Both inquiries were, however, criticised for being too close to key relevant policy makers in the crisis and too early to gain a broader perspective on the banking crisis. The conduct of macro economic policies and the design of regulatory policies in the 1980s and early 1990s were especially subject to debate, as was the decision to write down the private equity capital in the key crisis institutions (Christiania Bank, Fokus Bank and Den norske Bank).

Eventually, the Storting (the parliament) decided to conduct its own inquiry. A commission was established in May 1997 with a mandate to analyse the different causes leading up to the banking crisis in Norway, and to indicate which lessons could be learnt to prevent future banking crises. The commission was in particular asked to study how similar banking crises had been handled in other countries.

The commission delivered its report in June 1998. The report was structured

around four "themes": The pre-crisis period in the early 1980s when credit markets were liberalised and bank lending expanded; the peak of the crisis period in the early 1990s; the development of the regulatory framework and bank behaviour in the late 1980s; and finally, the lessons for the future.

The Commission noted that the government failed on important points in its responsibilities for supervision and systemic oversight in the 1980s. But banks should not be exempted from responsibility, even though the bulk of their losses were in sectors sensitive to the domestic business cycle. They followed an aggressive market share strategy that eventually led to sharp loan losses when the cycle turned. Better regulations and supervisions could perhaps have dampened, but not avoided the crisis.

When the crisis hit, the Commisison's overall impression was that the key actors handled the banking crisis in a responsible manner. Bearing in mind the gravity of the situation and the time available, they note that: "... the financial crisis in late 1991 was handled in an impressive manner". The Commission was more critical of the way the crisis was handled in 1991/92, especially the writing down of the share capital in DnB in the winter of 1992-93. However, they noted that there was no private domestic capital forthcoming at that time, and no political support for foreign ownership of the bank.

With regard to crisis prevention, the Commission noted that: "The single most important observation is that good capital adequacy is decisive to stability of the banking system". They also identified proper regulations of loan loss provisioning and more active ownership of banks as key to crisis prevention, but noted that procyclicality of loan loss provisioning was a problem, e.g. that insufficient provisions are made in good times. These issues have since been high on the policy agenda.

The report was considered by the Standing Committee on Scrutiny and Constitutional Affairs of the Storting in 1999. The committee noted that the report covered key elements of the banking crisis according to the commission's mandate, and that the commission had exercised good judgement in evaluating the different causes of the crisis. The committee went on to note that: "The report includes all the relevant information needed for the final conclusion of the Norwegian banking crisis."

The report has not previously been available in English. Given its standing in the evaluation of the Norwegian banking crisis, an unofficial translation of the report's Summary is provided here.

The report's summary

The tree

The Commission has chosen to structure this report like a tree. Following a brief "introduction" (part 1), there are separate sections on "the roots" (part

2), "the trunk" (part 3), "the fruit" (part 4) and "the seeds" (part 5). The idea is to show that business cycles and banks' behaviour etc. in the 1980s ("the roots") were crucial elements in the build-up to the banking crisis and are closely linked to the unfolding of the crisis around 1991 ("the fruit"). Regulations and practices relating to loss provisions and financial strength ("the trunk") were an important binding factor. The symbolism thus makes it natural to call the Commission's recommendations for the future "the seeds" of the banking crisis.

Part 1 - Introduction

Chapter 1 is an account of how the Commission was appointed, its working conditions and access to material. *Chapter 2* looks at different aspects of the Commission's mandate. It is pointed out that the inquiry primarily focuses on events in the 1980s in the run up to the banking crisis and the manner in which the peak of the crisis in 1991 was handled. Considerable emphasis is given to how the crisis was handled in Christiania Bank, Fokus Bank and Den norske Bank. The inquiry covers the period up to March 1993 when the ordinary shares in DnB were written down to zero. The chapter also includes an overview of earlier reports on the banking crisis and the basic division of responsibilities between various parts of government.

Part 2 - The roots: Banks and the government in the 1980s

Chapter 3 looks at macroeconomic conditions as a cause of the banking crisis. Following a short description of the business cycle leading up to the crisis, the Commission studies certain aspects of economic policy in more detail. Questions that are raised include: What was done to curb credit-financed consumption and investment growth in the mid-1980s? And what was done to slow the downturn once economic activity had peaked?

During the upturn, the government failed to implement measures that could have curbed the strong growth in demand for loans. Interest rates and the tax system (rules for tax deductions of interest expenses) could both have been used for this purpose. Instead, the government chose instruments that affected banks' profitability. The robust credit growth, however, shows that the instruments used were not particularly effective.

For several years there was a considerable discrepancy between government targets for credit growth and actual growth. Even though the Ministry was well informed of the strong growth in credit, it failed to propose appropriate measures to ensure that these targets were realised. Furthermore, target figures were not adjusted upwards to a more realistic level.

A third alternative to curb the strong lending growth could have been to restrict banks' possibilities for financing. However, the way in which banks financed lending growth in 1985 demonstrates the lack of independence in mon-

etary policy in a situation with fixed exchange rates and free capital movements. In a credible system with a more or less fixed exchange rate, the authorities were essentially unable to control banks' possibilities for financing lending growth. If attempts had been made to apply pressure on Norwegian interest rates by means of a stringent liquidity policy before the fall of 1985, it would probably only have served to strengthen capital inflows and thereby banks' opportunities to transform foreign loans into loans in the Norwegian credit market.

However, turbulence in the foreign exchange market in late autumn 1985 and in 1986 changed this situation. Today there appears to be widespread agreement that, at end-1985, the authorities could have countered the ensuing loss of foreign financing (of the Norwegian krone loans) by withdrawing banks' liquidity in such a way as to force a slowdown in credit growth.

But once again, a more effective monetary policy was blocked by political opposition to the implementation of instruments that would have resulted in higher interest rates. In two periods in 1986, Norges Bank had to supply substantial liquidity in order to compensate for the loss of foreign funding and to keep interest rates at the level desired by the government. The Commission is of the view that the substantial supply of liquidity from Norges Bank in 1986 – in the form of market operations and liquidity loans – must be seen, first and foremost, as a result of the government's interest rate policy at the time. But if Norges Bank disagreed with this policy, it should have stated so more clearly.

The sharp increase in real interest rates in the period from 1987 to the banking crisis was not the result of a conscious policy tightening. Rising interest rates abroad and falling inflation, in particular, contributed to the increase in real interest rates in this period. And then in 1989, an expansionary countercyclical policy was implemented.

The Commission is of the view that the authorities' primary contribution to the downturn from 1987 – and thereby to the banking crisis – lies in what was done (or to be precise, not done) in the mid-1980s when growth was particularly strong.

Chapter 4 discusses banks' behaviour as a cause of the banking crisis. The Commission emphasises that the banks are fundamentally responsible for their own behaviour. Even though economic policy is to a large extent responsible for the very strong growth in credit demand in the mid-1980s, banks must also take responsibility for the fact that they met this demand with aggressive expansion and competition for market shares. The chapter looks at lending growth and at poor management and control systems, etc. in many banks.

The connection between bank losses and the cyclical downturn has been a key issue in the public debate about the banks' role in the banking crisis. It is claimed that the losses are more due to the sharp cyclical downturn than to bad banking.

The Commission's review of loan losses following the expansion show that, when looking at the period 1990-1993 as a whole, losses amounted to roughly

13 % of total lending at the start of 1990. The general impression is that, in contrast to what happened in Sweden and Finland, losses were spread over a number of sectors. The distribution of bank losses by industry confirms the link between losses and business cycles: The share of commercial bank losses that cannot immediately be linked directly to the downturn in the Norwegian economy, accounted for no more than around 18 % of total losses in the period 1990-93.

Even though the bulk of losses (over 80 %) was in sectors that was sensitive to domestic business cycles, banks can still not be exempted from responsibility. The banks are directly responsible for the essentially unrestrained growth strategy that was adopted by many banks and for insufficient follow up of the need for control and supervision as a result of the growth.

Banks also have an indirect responsibility, as growth in bank lending was an important driving force behind the sharp increase in investment and consumption in the mid-1980s. Without the growth in lending, the strong self-reinforcing rise in property prices would have stopped at an earlier stage. The three largest commercial banks, in particular, where share capital was written down to zero, had such large market shares that it seemed only natural to expect that they would take into consideration the fact that their growth strategies were having an effect on domestic business cycles. They also had the basis for understanding that this would in turn have an impact on the banks themselves.

Foreign losses were particularly large for DnB. It is reasonable to say that the bank's foreign commitments were open to criticism and were a determining factor in the subsequent decision to write down the shares to zero. If the bank had refrained from this part of its expansionary strategy, the original shareholders in DnB might possibly have had the strength to survive the great wave of losses that hit banks in Norway.

Chapter 5 deals with the responsibility for public supervision and the financial system. The Commission's review shows that banking supervision functioned more poorly than is desirable in a situation with deregulation, strong credit growth and keen competition. At the same time as the sudden expansion in the banking industry in the mid-1980s laid the foundations for the future crisis, inspection activities had more or less ceased and banking supervision was given a low priority. Activities were further weakened by organisational problems in connection with the establishment of the Banking, Insurance and Securities Commission. Moreover, the warnings that nevertheless were given by the Banking, Insurance and Securities Commission were rarely followed up with adequate policy measures.

In earlier reports, criticism has primarily been directed at the Banking, Insurance and Securities Commission. The Commission is also of the view that parts of the professional activities of the Banking, Insurance and Securities Commission's are open to criticism; a key issue is the Banking, Insurance and Securities Commission's involvement in the increased use of subordinated loan

capital in banks.

However, the government must assume primary responsibility for the failure of the banking supervisory system. The Ministry of Finance was the Banking, Insurance and Securities Commission's governing body and actually followed its activities closely. The Ministry of Finance was also responsible for their budget and other resources for supervision and for issuing key guidelines as to how these resources should be used.

The responsibility to ensure that the financial system as a whole functioned satisfactorily in the run up to the banking crisis was equally crucial. Of particular importance in this connection, is who was responsible for following key trends in the financial services industry and for giving warning of less desirable trends resulting from economic policy or other conditions?

Again, the Ministry of Finance carries primary responsibility for the system. The legislative and administrative apparatus that has been built up does not allow this responsibility to be passed to the Banking, Insurance and Securities Commission or to Norges Bank. And there is no reason whatsoever to claim that the government and the Ministry lacked the information necessary to fulfil this responsibility.

The Commission is of the view that at crucial times in the 1980s, the government failed in its supervisory- and systemic responsibility on important points that largely formed the roots of the banking crisis. However, it is unclear how significant this failure may have been to the further unfolding of the crisis. The Commission is of the view that it would be unreasonable to assume that the crisis could have been *avoided* had supervision functioned better during these years.

On the other hand, it is reasonable to assume that if the responsibility for supervision and the financial system had been better fulfilled, it could have helped to dampen the crisis. This being so, it could be said that this failure resulted in some banks experiencing greater problems than might otherwise have been the case.

The Commission does not, however, believe that the government has any legal liability on the grounds of such failure. This view is, among other things, based on the problems associated with isolating the effects of given forms of failure in such a complex economic and social reality as was the case at the time. Moreover, the effects of the government's failure to fulfil its supervisory and system responsibility must be weighed up against the significance of the banks' own behaviour during the 1980s.

The lack of effective banking supervision does not mean that the banks bear no responsibility for the consequences of the sharp increase in risk exposure and associated qualitative and quantitative deterioration in their financial strength, etc. as experienced in the mid-1980s. The Commission is of the view that the banks' behaviour was a far more important cause of the banking crisis than those failures that can be identified on the part of the government in fulfilling

its supervisory and systemic responsibilities.

Part 3 - The trunk: Loan loss provisions and financial strength

Chapter 6 looks at the regulations and banks' accounting practices for recording loan losses. The regulations for recording losses have, in fact, played an important part in the public debate. Among other things, it has been claimed that regulations in Norway were stricter than in other countries and that the banking crisis was a paper crisis caused by loan loss regulations that were far stricter than was either appropriate or necessary.

It has often been stated that prior to implementation of the loan loss regulations of 1987, only *actual losses* were recorded and that the regulations introduced a new, stricter regime where *estimated* losses also had to be recorded. Such claims are misinformed. Banks were previously also required to record estimated losses in addition to actual losses, and in fact many banks did so. The main content of the 1987 regulations was a clarification of procedures that were in accordance with the original regulations and generally accepted accounting principles.

It is, however, true that the 1987 regulations restricted banks' discretion as to when a loan could be deemed to be non-performing and the value that should be ascribed to the underlying collateral. The objective of the loan loss regulations was precisely to ensure a more uniform practice in banks.

The Commission concludes that Norwegian loan loss regulations were not the strictest in the world. We do not believe that, at any significant point during the crisis, Norwegian regulations were out of line with regulations in other comparable countries. Overall, the similarities of different countries' regulations, including those in Norway, are more striking than the differences.

Furthermore, the Commission finds no reason to criticise the Banking, Insurance and Securities Commission for introducing the loan loss regulations in 1987. At the time, no-one could have predicted that Norway and Western Europe would soon be hit by a deep economic crisis. And the regulations did not entail the sharp tightening that many have implied. Moreover, the most important change incorporated in the 1992 regulations opened for greater discretion in terms of the size of loan loss provisions.

A significant share of loan loss provisions have been reversed since the banking crisis. But this in itself does not prove that loss provisions were too large during the crisis. Some of the reversals should rather be seen in the light of the strong upswing in the Norwegian economy from 1993. Likewise, available information do not indicate that banks' discretion when setting the size of loan loss provisions was particularly strict during the crisis when compared with provisioning practices before and after the crisis.

The Commission can not find support for the claim that it was the loan

loss regulations that created the crisis. It was not the loan loss regulations that caused the large number of non-performing loans and bankruptcies.

The main reason for banks' substantial losses in 1986-1993 was the "explosion" in credit growth in the 1980s that left many banks extremely exposed to risk. The downturn from 1986 accentuated this risk. This, combined with poor financial strength, resulted in catastrophic results for some banks.

Overall, the Commission is of the view that the loan loss regulations were prudent. The mandatory accounting practice for recording loan losses pursuant to the regulations did indeed result in a form of asymmetry in that banks recorded expected losses, but not expected income. However, it should be possible to solve this problem by ensuring that banks' financial strength is such that they generally can carry the consequences of this asymmetry.

Chapter 7 looks at capital adequacy and financial strength in banks. Financial institutions, including banks are, to a greater extent than other businesses, subject to mandatory minimum capital requirements. It is surprising that so little attention has been given to banks' financial strength in the debate regarding the banking crisis. The Commission is of the view that this issue is central to understanding the banking crisis.

Banks' must in the first instance assume responsibility for their own financial strength. Many banks in Norway did not take this responsibility sufficiently seriously in the 1980s.

But the authorities also have to assume their share of the responsibility for the poor financial strength in many banks. Even though the authorities were aware that levels was far from satisfactory, little attention was given to banks' financial strength.

The increase in banks' risk exposure as a result of deregulation and robust growth in lending should have been followed up with more stringent requirements regarding banks' financial strength. Instead, the authorities accepted a qualitative deterioration as a result of the increased use of subordinated loan capital. Such capital can only be utilised if a bank is liquidated and cannot be used to cover running losses in banks that are to continue operations. Moreover, increased use of subordinated loan capital made it easier for banks to increase their lending. The Commission is therefore of the view that the authorities can be criticised for allowing the increased use of subordinated in a period characterised by vigorous lending growth.

As a result of poor financial strength in the mid-1980s, many banks did not have any real first-line defences against sharp economic downturns. When the crisis hit, many of them were already at the legal minimum level, which meant there was little capital to absorb loan losses. In countries such as Denmark, Sweden and the UK, however, many of the largest banks had sufficient financial strength to enable them to deal with substantial losses.

The Commission is of the view that poor financial strength was an important cause of the crisis that affected many banks in Norway.

Part 4 - The fruit: Crisis and crisis management 1991-93

Chapter 8 describes the legal rules for crisis management. It shows, among other things, that the cessation of operations is not an automatic consequence of a bank failing to meet the minimum capital adequacy requirement.

The chapter also looks at alternatives to writing down the private share capital to zero in order to cover recorded losses, as with Christiania Bank and Fokus Bank and (following a decision by the bank's own organs) Den norske Bank. In the public debate it has been claimed that solutions other than the one applied in the case of the three largest commercial banks should have been chosen.

Legislation permitted banks to be placed under public administration and then later transferred to "free operations". However, this model provides no guidelines as to how to resolve the banks' liquidity and/or solvency difficulties. The same is true of the possibility to transfer the "rotten" parts of a bank's portfolio to a "bad bank", so that the remaining, "healthy" parts of the bank can continue operations. In both cases, it is necessary to find new sources of risk capital. And during the banking crisis in Norway, it was not easy to find any sources other than the government.

The debate regarding the possibility of providing "guarantees" has been unclear as to precisely what sort of guarantee is meant. The Commission differentiates between guarantees to banks' creditors and equity guarantees. The Swedish bank support guarantee, which is often referred to, is of the first type. Creditor guarantees are intended to remedy or prevent acute liquidity problems in banks, in particular (similar instruments were also used in Norway). Such guarantees cannot in themselves restore the solvency of banks following heavy losses, as was the case in the three largest commercial banks in Norway.

Equity guarantees are thus the only form of guarantee that could have remedied the problems that initially troubled the three banks. But even the Swedish government did not provide equity guarantees without requiring that shareholders should carry the losses in the first instance. Equity guarantees are therefore only a possible alternative to injections of preference capital when a bank's possibilities of surviving a crisis are deemed to be good. The same applies to other forms of support such as conditional loans, etc.

The only possibility that remains is thus state support to banks without a requirement that owners carry their share of the losses in the first instance. In practice, such a solution would imply a capital transfer from the government to bank shareholders without any quid quo pro on the part of the shareholders. Shareholders obviously did not have the right to demand this and this line of action was not chosen by our neighbouring countries either. On the contrary, there was broad agreement in the Storting that the aim of the crisis management strategy was to save the financial system and not to support banks' shareholders.

Chapter 8 also provides an overview of the crisis management apparatus

and how the troubled banks were handled in general. It concludes with a brief summary of the material presented in part 4. It is pointed out that it is important to differentiate between how the crisis was handled in banks where share capital was written down to zero following a unilateral decision by the government (Christiania Bank and Fokus Bank, see Commercial Banking Act § 32, paragraph 6) and in DnB, where the decision to write down the bank's equity was made by DnB's own decision-making bodies.

Chapter 9 deals with how the crisis was handled in banks that had their share capital written down to zero by royal decree. A key issue in the debate has been the extent to which the Royal Decrees of 20 December 1991 to write down share capital to zero in Christiania Bank and Fokus Bank were well founded. This raises questions with regard to both the result and the chosen course of action.

The Commission has explored the accounting basis for writing down the shares to zero and whether there was any added value in Christiania Bank and Fokus Bank. The Commission has studied the banks' liquidation value, net asset value and discounted future profit value, as well as reversals of earlier loan loss provisions in the period following the crisis. It has also simulated what the banks' situation would have been had they adhered to another practice for recording losses. And finally, the Commission has checked whether the banks' market value on 19 March 1998 indicates that there was any added value in Christiania Bank or Fokus Bank in the third quarter 1991.

The conclusion is that the Royal Decrees of 20 December 1991 to write down shares to zero were adopted on the basis of prudent judgement. The Commission is of the view that it is beyond reasonable doubt that the share capital in both Christiania Bank and Fokus Bank had been lost. Thus, there can be no question of compensation.

The Commission's overall impression is that the key actors handled the crisis in Christiania Bank and Fokus Bank in a responsible manner. Bearing in mind the gravity of the situation that had arisen and the time that was available, it seems reasonable to say that the financial crisis in late 1991 was handled in an impressive way.

The Commission substantiates that the Ministry of Finance did seek to avoid tax deductions for shareholders for losses on bank shares in its deliberations on how to manage the banking crisis in late 1991. But the Commission finds that it is neither proven nor likely that the consideration of avoiding tax deductions for "small shareholders" was decisive to the government's decision to write down the shares in Christiania Bank and Fokus Bank before end-1991.

However, the Commission is critical of the fact that shareholders were not given a fair opportunity to safeguard their interests in connection with the unilateral government intervention to which they were subjected. It is difficult to understand why an arrangement was not established whereby the value of the shares was determined independently by a procedure where shareholders were given ample opportunity to present their arguments. Instead, the government

used every opportunity to prevent shareholders from having the decision to write down shares reviewed independently.

The Commission is convinced that this line of action is worthy of criticism and contributed significantly to create and sustain a lack of confidence in the basis for the decision to write down the banks' shares to zero.

However, the Commission does not see any reason to assume that a more prudent line of action on this matter would have made any difference to the final result that shares were written down to zero with no compensation. As mentioned, the Commission is of the view that it is beyond reasonable doubt that the share capital in the two banks had been lost.

Chapter 10 focuses on the crisis in Den norske Bank. Following a description of developments in the bank leading up to the crisis and how the crisis was handled by the authorities, there is a discussion of the financial basis for writing down the ordinary share capital. The capital structure in DnB at the time when the shares were written down was far more complex than in the two other large commercial banks. Whereas only preference capital was injected into Christiania Bank and Fokus Bank during the crisis, new share capital was also injected in DnB. The bulk of the share capital that was supplied by the Government Bank Investment Fund and major shareholders in Realkreditt was given priority ahead of the older share capital, i.e. preference share capital.

The injection of new preference share capital meant that recorded equity capital in the bank was still positive at end-1992. But the deficit in 1992 was so great that the ordinary share capital and other capital with low priority were lost.

Part of this loss was due to the fact that DnB - under duress - accepted to buy the crisis-stricken mortgage company Realkreditt. The Commission is of the view that the Ministry of Finance was clearly the architect behind this operation, which had serious consequences for ordinary shareholders in DnB. But the loan losses included in Realkreditt's portfolio were not sufficiently large in themselves to explain the writing down of the bank's ordinary share capital.

The Commission's assessment of the bank's value at the time that shares were written down follows the same procedure as for Christiania Bank and Fokus Bank (see Chapter 9). The share capital in the two other banks was lost with such a large margin that it cannot be said that the discretion related to loan loss provisions was of any significance to the fate of the shareholders. The same conclusion cannot be drawn in the case of DnB, where the negative value of the ordinary shares was considerably lower in relation to total loss provisions in the bank. It can therefore not be ruled out that if discretion had been exercised differently – within the current legal framework – the outcome for shareholders might have been positive.

In addition, the reversals of loan loss provisions in DnB after the crisis were considerably larger than in the two other banks. This does not in itself prove that the loan loss provisions during the crisis were too big, given the situation

in which banks found themselves at that time. But the accumulated reversals in DnB indicate that the negative value of the ordinary shares in DnB was far more marginal than in the other two banks.

The Commission is critical of the fact that the evaluation the bank's discounted future profit value was not completed. In addition to analyses based on the liquidation value and net asset value, the Commission therefore also carried out a special assessment of the discounted future profit value of DnB. This assessment concludes that DnB had a considerable value at the end of 1992 (see annex 9). According to the assessment, the value must be assumed to have been so great that even the ordinary share capital had some value.

However, in order to exploit this embedded value, the shareholders were dependent on a new major shareholder (or group of shareholders). Such an offer would presumably have had to come from abroad. But even if there had been an offer to buy DnB in its entirety or just a majority share, any sale of DnB to foreign owners would have faced legal and political obstacles. In the winter of 1992-93, DnB's shareholders could therefore not have had any justified expectations of being able to exploit the bank's discounted future profit value.

As DnB was considerably better off than the two banks that were written down in the fall of 1991 and as it cannot be ruled out that the ordinary share capital still had some value, Chapter 10 concludes with a discussion of responsibilities. Primary responsibility rests with the bank's shareholders, who accepted the board's proposal to write down shares with a large majority. The government must assume responsibility for having forced Realkreditt onto DnB. But the bank's board and administration have to take responsibility themselves for the crisis management strategy chosen in the final stages and for not having actively looked for solutions with better prospects for the ordinary shareholders.

Chapter 11 looks more closely at how the banking crises were handled in Sweden, Finland and Denmark. A recurring theme in the debate about the Norwegian banking crisis has been that the crisis here was managed in a way that was different to comparable crises in other countries. In particular, it has been claimed that shareholders in crisis-stricken banks in Sweden were treated in a more lenient manner than shareholders in the three largest commercial banks in Norway and that this was possible because the Swedish government chose other – presumably better – ways to resolve the crisis than the authorities in Norway.

The Commission's review of how the crisis was handled in Sweden shows that this claim is unfounded. On the contrary, the Swedish and Norwegian models for crisis management are very similar on many points. The Swedish *bank support guarantee* and statements published by the Ministry of Finance and Norges Bank in autumn 1991 were intended to bolster confidence in the financial system and prevent a run on the banks. The systems in both Sweden and Norway were never intended to save the banks' shareholders.

Nor is it correct that shareholders in Swedish banks that experienced an

equally deep crisis as the largest commercial banks in Norway, kept their capital. This can be seen most clearly when we look at how the crisis was managed in Gota Bank: Once it had been established that the bank had lost all its equity capital, the end result was that the shareholders also lost their capital. In Nordbanken, private shareholders were handled somewhat differently. But the government's position as the dominant owner and the fact that private share capital was acquired on an unsound basis in autumn 1991 means that any comparison with the course of action chosen in Norway would be of little interest.

One important difference, however, is that legislation in Sweden allowed for shareholders in crisis-stricken banks to have the value of the shares fixed by means of an independent review. On this point, the Commission is highly critical of the course of action taken in Norway (see Chapter 9).

Any comparison with the handling of the banking crisis in Finland must take into account that the crisis in the Finnish economy in the first half of the 1990s was far deeper than in Norway. The extremely high rate of unemployment (by Norwegian standards) was just one of many expressions of this fact. As such, the handling of the banking crisis in Finland was more interwoven with the management of a social crisis than was the case in Norway.

Another difference is that the Finnish banking crisis largely affected savings banks, whereas the Norwegian crisis primarily impacted on commercial banks with private owners. In the latter situation, it made sense in terms of both the real economy and the legal system to stick to the principle that share capital is risk capital and that private shareholders – to the extent permitted by the share capital – should cover losses before the government got involved. All the shares in the largest Finnish bank affected by the crisis (the commercial bank, Skopbank) were in fact owned by savings bank foundations. The very fact that these foundations do not have owners makes any direct comparison with Christiania Bank, Fokus Bank and DnB difficult. Furthermore, a resolution to write down the share capital in Skopbank would, judging by what happened, have resulted in an acceleration and deepening of the crisis in the Finnish savings bank system. Given the situation in Finland at the time, the crisis resolution methods chosen is not surprising.

Other elements of the crisis resolution methods used in Finland also differ so much from the Norwegian course of action that a direct comparison is not easy. But in light of the public debate, it is worth mentioning that private shareholders in Finland in the last instance also had to stand down faced with the prospects of instability in the financial system.

Denmark also experienced an economic recession and loan losses were on average as large as those in Norwegian banks. However, Denmark managed to avoid a systemic crisis of the depth experienced by its neighbours. This is primarily because Danish banks had far better financial strength when the crisis hit than, for example, the large Norwegian banks. The Danish banks had

also for a long time adhered to far stricter rules regarding loan loss provisions. As unused loss provisions were generally not reversed when the economy was buoyant, it was possible to build up extra reserves. The tax system encouraged banks to make substantial loan loss provisions when times were good. And finally, the Danish banking supervisory authority carried out stringent checks to ensure that banks had set aside sufficient funds to cover any future losses.

Part 5 - The seed: The bank crisis as a lesson

Chapter 12 highlights some important experiences from the banking crisis that the Commission believes we can learn for the future. The recommendations are in part aimed at how to prevent future banking crises and in part how to handle any new crises that may arise.

With regard to *crisis prevention*, the single most important observation is that good capital adequacy is decisive to stability in the banking system, as are regulations and practices for loan loss provisions that can clearly identify potential losses.

However, the Commission points out that the regulations for loan loss provisions result in low provisions in periods when the future looks bright. This means that in such periods, sufficient provisions are not made for losses that will occur when the economy has normalised and that provisions are in no way sufficient to cover losses during serious economic downturns. The Danish system for loan loss provisions with tax deductions may provide one solution to this problem. The system has contributed to stability in the Danish banking system.

Statutory provisions pertaining to limited ownership of financial institutions impose severe restrictions on the possibility of active ownership. It should therefore be considered whether current restrictions on concentrated ownership should be modified. This may lead to shareholders taking greater responsibility for bank operations and to banks' management receiving more correctives from their owners.

Banking supervision should become more active. In our part of the world, Denmark stands out as a possible model, given the considerable emphasis there on regular and intensive supervision, by means of inspections etc. A system should be considered where the supervisor has the right to impose loan loss provisions according to the actual risk profile. It may also be worthwhile assessing whether the Banking, Insurance and Securities Commission should be permitted to set minimum requirements for capital adequacy in banks in relation to each bank's activities and operations (risk profile, concentrated portfolios or spread risk, etc.).

The Commission emphasises that the government (and the Ministry of Finance in particular) and Norges Bank have primary responsibility for preventing any future banking crises. These institutions have access to all available infor-

mation that may be of importance to identifying warning signals that call for counter measures. They also have the authority to adopt resolutions or submit proposals to the Storting with the aim of preventing or curbing a crisis. Comments from the Banking, Insurance and Securities Commission in the form of recommendations or proposals can only constitute a limited part of such a picture.

Unfortunate trends in the period prior to the banking crisis reinforce the importance of ensuring and maintaining *clarity* with regard to the division of the legal and political responsibility for following up and if necessary speaking out on these matters, between the Ministry, the Banking, Insurance and Securities Commission and Norges Bank. It is also important that responsibility for the system is organised in such a way that recommendations and warnings will be heard regardless of whether the content is politically popular or not.

And finally, the Commission underlines that the responsibility for prudent bank operations within the framework set by statutory provisions at any given time, rests with the banks themselves.

With regard to *crisis management*, the Commission would first emphasis that consideration for the system is more important than consideration for shareholders. There is no reason to abandon the established policy that shareholders should cover losses in the first instance.

The Commission points out that if shares are written down following a unilateral decision by the government, shareholders must be given the right to have the value of the shares fixed by an independent body according to procedures that allow shareholders to present their arguments. Costs related to the determination of the value of shares should be carried by the government. But, the resolution of any crisis should not be delayed until the value of the bank has been determined.

The Commission finally emphasises that ad hoc-laws of the type instituted by the government during the banking crisis are unfortunate. Well-founded legislation for how to handle a banking crisis should ideally be in place before the crisis erupts.

Appendix B

The present value of central government investments in and support to Norwegian banks

Harald Moen

During the banking crisis at the end of the 1980s and beginning of the 1990s, the Government Bank Insurance Fund, the Government Bank Investment Fund and Norges Bank provided support and invested in Norwegian commercial and savings banks. Commissioned by Norges Bank, I have calculated the present value of the public sector's capital injections. The calculations have been made on the basis of purely commercial principles. The social consequences of enabling the banking system to maintain activities are not included. The net present value respresents discounted revenues from the sale of state-owned shares, etc. less discounted gross costs of the support. The calculations show a net present value of the capital injections of a negative NOK 8.6 billion at end-1995 and NOK 5.7 billion at end-2001. A positive present value at end-2001 means that central government capital injections yielded a return in excess of the discount rate, partly reflecting favourable price movements for the state-owned shares.

1 Introduction and summary

This appendix presents calculations of the present value of government investments in and support to Norwegian banks during the banking crisis. The calculations include the Government Bank Insurance Fund (GBIF), the Government Bank Investment Fund (SBIF[1]) and Norges Bank in addition to one case of direct support from the central government.

The calculations have been made by discounting all payment flows to the same date. In the main alternative the calculations are made as at 31 December 2001. On this date, central government investments had been sold, with the exception of a substantial ownership interest in Den norske Bank. This was valued at the stock exchange price on 31 December 2001.

In addition, calculations have been made as at 31 December 1995. The banking crisis is often considered to have ended in 1993. It may therefore be maintained that government commitments after this time may be looked upon as financial investments and not a crisis solution. On the other hand, the reason for continued government involvement in a number of banks (both as owner and lender) after 1993 was the banking crisis itself. There was also a thin market for bank shares and primary capital certificates in 1993, so it is uncertain whether the state could then have sold its large stakes at an acceptable price. This would indicate that the fact that the state used some time to sell off its ownership shares acquired during the banking crisis can be looked upon as part of the overall rescue operation.[2]

The present value is calculated for outgoing payments, incoming payments and net payment flows individually. The costs of support in the form of loans are based on the value of any subsidised borrowing rate and loan amounts written-off. The costs that accrued in connection with Norges Bank's support loans are further discussed in section 3.3.

In the main alternative, different interest rates are used for different types of support and investments. Moreover, the interest rate varies over time. The main principle has been that the interest rate selected should correspond to the alternative expected return on investments with more or less the same degree of risk. In addition, calculations have been made based on a risk-free interest rate (rate on one-year Treasury note).[3] The assumptions concerning interest rates

[1] Abbreviation for the Norwegian name (Statens Bankinvesteringsfond). The Norwegian abbreviation is used to distinguish it from The Government Bank Insurance Fund which we throughout refer to as GBIF.

[2] A calculation date some time after the actual crisis was resolved is not unique internationally. For example, Swedish calculations evaluated the net present value of Swedish crisis costs as at 1 July 1997, i.e. about four years after the resolution of Sweden's banking crisis. This was motivated by the winding up of activities in the Swedish "bad bank" Securum on this date. See Jennergren and Näslund (1998).

[3] The interest rates applied in our calculations deviate from the interest rate applied in other contexts (see e.g. Report No. 39 (1993-1994) to the Storting). This is one reason why the discounted amounts deviate somewhat in different calculations. Deviations may also arise

are presented in greater detail in section 2. The various investment vehicles and the various types of support are reviewed in the following. The assumptions applying are presented case by case.

Table 1 shows estimated present values at end-2001. When payment flows are discounted forwards, they are higher than they were on the payment dates. As long as the same payment flows are applied, however, the relative difference between the figures is not influenced by the discounting date. For investments in ownership interests in banks, the sales amount and residual values on the calculation dates are recorded as incoming payments, i.e. positive values, in the analysis. For support measures like a subsidised borrowing rate, the subsidy amount is recorded net under outgoing payments, i.e. as a negative value.

Table 1: Present value 31.12.01

In NOK 1000	**Outgoing payments**	**Incoming payments**	**Net**
DnB	-20 889 524	31 544 867	10 655 343
Kreditkassen	-17 355 559	19 245 837	1 890 278
Fokus Bank	-2 578 393	2 590 308	11 916
Oslobanken	-253 371	2 476	-250 895
Sparebanken NOR	-2 050 065	3 022 882	972 817
Other banks	-346 162	427 717	81 555
Support loans to SBGF and CBGF	-90 941	0	-90 941
Adm. costs GBIF and SBIF	-101 009	0	-101 009
Support dir. from the state to SBGF	-1 886 240	0	-1 886 240
Special term deposits	-3 820 339	0	-3 820 339
Sparebanken Nord-Norge	-1 511 027	0	-1 511 027
Norion Bank	-218 039	0	-218 039
Total	**-51 100 668**	**56 834 088**	**5 733 419**

SBGF: Savings Banks' Guarantee Fund, CBGF: Commercial Banks' Guarantee Fund

From the top and down to "Support loans to SBGF and CBGF", the figures relate to investments and support measures from the GBIF and SBIF. The cate-

because our calculations are more complete and the dates for the calculations are different.

gory "Other banks" includes some smaller banks in which the Government Bank Investment Fund invested. The line "Adm. costs GBIF and SBIF" comprises the operating expenses of the two funds. However, direct selling costs, etc. in connection with the funds' investments are included in the line for each bank. The line "Support dir. from the state to SBGF" relates to a transfer of NOK 1 billion which the Savings Banks' Guarantee Fund received from the state in November 1991.

The last three items relate to support from Norges Bank. The line "Special-term deposits" is the present value of an estimated interest rate subsidy for Norges Bank's deposits on special terms in Norwegian banks in the years 1991 to 1993. "Sparebanken Nord-Norge" includes in part the interest rate subsidy for loans from Norges Bank to the bank in the period 1991-1994 and in part the writing down of loans. Finally, "Norion Bank" relates to Norges Bank's losses on claims on the bank in connection with the winding up of the bank in 1989-1990.

The table shows that the total present value as at 31 December 2001 was NOK 5.7 billion. In principle, this means that even when the purpose of the support and investments is disregarded, government agencies recorded a commercial return which at that time had a value of NOK 5.7 billion more than could have been expected from other investments with comparable risk. In the calculations, direct support measures for which later repayment could not be automatically assumed are also included. Moreover, we see that the present value of the investment in Den norske Bank makes the largest contribution, whereas investments and support measures have a total negative present value of about NOK 4.9 billion.

Table 2 shows the present values at the end of 1995. The calculations have been made along the same lines as the calculations of present values at the end of 2001 (see above). However, in these calculations payment flows have only been taken into account up to 31 December 1995. For investments that were not sold at the time, an attempt has been made to apply a market value on this date. The banking crisis was then over, but there was a thin market for equities and it is uncertain what prices could have been obtained. Detailed assumptions are presented in the discussion of each bank.

The calculations show a net present value of a negative NOK 8.6 billion. This therefore indicates that it would have been considerably less favourable to dispose of equities owned by the state after the banking crisis as early as assumed here. For both incoming and outgoing payments, the present value is naturally reduced when the calculations are made for an earlier date, but for incoming payments the reduction in value is much greater in this case. This is particularly due to the higher payments that could be achieved for ownership interests by keeping them longer.

As noted, calculations of present values have also been made in which the risk-free interest rate alone is used as the discount rate (see section 4 for details).

Table 2: Present value 31.12.95

In NOK 1000	Outgoing payments	Incoming payments	Net
DnB	-9 120 185	9 974 510	854 325
Kreditkassen	-10 347 425	5 788 109	-4 559 315
Fokus Bank	-1 801 335	1 809 507	8 171
Oslobanken	-184 852	1 816	-183 035
Sparebanken NOR	-1 443 702	2 129 733	686 030
Other banks	-234 649	287 710	53 061
Support loan to SBGF and CBGF	-65 985	0	-65 985
Adm. costs GBIF and SBIF	-33 813	0	-33 813
Support dir. from the state to SBGF	-1 368 620	0	-1 368 620
Special term deposits	-2 771 988	0	-2 771 988
Sparebanken Nord-Norge	-1 096 373	0	-1 096 373
Norion Bank	-162 805	0	-162 805
Total	**-28 631 731**	**19 991 385**	**-8 640 346**

The same payment flows are used in these calculations as in the calculations described above. The net present value at 31 December 2001 then reaches NOK 13.7 billion, compared with NOK 5.7 billion in the other calculation where a higher discount rate was used (discount rate which reflected the risk associated with the investments). If the calculations are made for end-1995, the present value is still negative but the value is closer to zero.

2 Technical assumptions

The calculations cover the main items shown in Table 1 and 2. It is assumed that no other type of support of significance was provided.

The calculations extend from 1989, when Norion Bank was placed under administration and support loans of NOK 500 million were paid to Sparebanken Nord-Norge, until end-2001. The support measures were discontinued fairly early in the 1990s, and in the last half of the 1990s most of the government's

ownership interests in the banks were disposed of. At the end of 2001, however, the Government Bank Investment Fund still had a sizeable stake in Den norske Bank.

Discount rates represent an important set of assumptions when calculating present values. When calculating present values, we are most often looking at future expected cash flows. As a rule, analyses use a discount rate that reflects the uncertainty in the cash flow covered by the calculations and the time horizon. Alternatively (and more precisely), different discount rates are used for the different expected cash flows, depending on how far into the future they are. The interest rates will then reflect current market rates for the respective periods up until the time the expected cash flows take place.

When calculations are made retrospectively, the cash flows are known. Uncertainty therefore no longer exists. We should nevertheless take into account the uncertainty that existed at the time the investment decisions were taken. In these calculations, this is done by incorporating a risk premium in the discount rate. On the other hand, for those periods in which there was no uncertainty, it is not natural to incorporate this risk premium in the discount rate. This applies, for example, to support measures for which the scale of the support was stipulated in advance. This also applies to the period following the sale of e.g. shares that were purchased and up to the time of calculating the present value. If, for example, we look at investments in Fokus Bank, shares in the bank were sold in 1995. For the following period and up to the end of 2001 (the time for calculating present values), the risk-free rate is then used.

Inasmuch as different interest rates are used for different periods in the calculations, it was decided to apply a one-year risk-free rate (i.e. rate on Norwegian Treasury notes) when calculating present values. In principle, additional interest rates on government paper with both shorter and longer maturities could have been used. The one-year rate as at 31 December is a practical choice.[4] For equity instruments, the same risk premium is used for all investments and for all periods. A risk premium of 4 percentage points was used in this connection. This was close to the consensus for the risk premium used for the sum of listed companies in Norway in the 1990s. The sharp fall in prices in recent years may have resulted in differing perceptions concerning the risk premium, but what has occurred in more recent periods is deemed to be less relevant to this analysis.

It is therefore assumed (somewhat imprecisely) that the risk associated with investments in these banks was approximately the same as the average risk associated with investments in the stock market in Norway. During the actual crisis, it is clear that the market considered the risk associated with the banks that received support to be very high. This indicates that a risk premium of 4 percentage points may be somewhat low, particularly for the Government Bank Insurance Fund's investments.

[4] A one-year rate was also used in the calculations for Sweden., cf. Jennergren and Näslund (1998).

The same risk rate cannot be used for loans to banks. In order to take account of the risk associated with loans, NIBOR is used as the discount rate. In most cases, the one-year rate is used, but the semi-annual rate is also used when the loan periods have been semi-annual. Table 3 shows the risk-free rate that has been used, the rate plus a risk premium and one-year NIBOR.

Table 3: Discount rates in per cent

Payment date	**Risk-free rate One -year**	**Rate plus a risk premium**	**One-year NIBOR**
1989	11.40	15.40	12.25
1990	10.30	14.30	11.59
1991	10.10	14.10	10.57
1992	10.30	14.30	11.54
1993	5.25	9.25	5.25
1994	6.15	10.15	6.72
1995	5.20	9.20	5.24
1996	4.05	8.05	4.34
1997	4.14	8.14	4.43
1998	6.81	10.81	6.87
1999	5.67	9.67	6.04
2000	7.09	11.09	7.27
2001	5.93	9.93	6.17

The figures are based on Norges Bank's statistics. For the period prior to 1996, the figures are based on somewhat incomplete statistics, but the interest rates used here are nevertheless deemed to be those that best reflect the alternative rate for the period being examined.

3 Detailed calculations

A detailed description of the various items in the support from government agencies is presented below. The support from the Government Bank Insurance Fund and the Government Bank Investment Fund, which was decidedly the most extensive, is discussed first. This is followed by a discussion of a separate transfer directly from the central government and, finally, the support from Norges Bank.

3.1 Support from the Government Bank Insurance Fund (GBIF) and the Government Bank Investment Fund (SBIF)

Den norsk Bank (DnB) (now part of DnB NOR)

Table 4 shows the calculations of present values at the end of 2001 for DnB.

The first column "Payment date" shows the date for the various payment flows. These are partly approximate and thus not always exact. This is because exact dates have not always been available. This may have resulted in minor inaccuracies in the present value calculations, but the errors that may have arisen are not deemed to be of any significance.

The second column describes the payments that have taken place. For the sake of completeness, some important events that have not resulted in any payment at the time in question have also been included.

The third and fourth columns, "Number of shares", shows the number of shares subscribed, purchased or sold by the GBIF and the SBIF on the respective dates. Again, for the sake of completeness, the number of shares at the end of each year is also included.

The fifth column, "NOK per share", shows the price or dividend in NOK per share.

The sixth column, "Cash flow", shows the amount paid in thousands of NOK. A negative sign shows that this relates to payments from the respective funds.

The seventh column, "Cum. present value", shows the cumulative present value on the respective dates. The first line shows the cash flow which took place on 30 March 1992. The next line shows the same amount with the addition of the discount rate until the next payment date (10 April 1992) and the new cash flow that took place on this date. The same procedure has been used for all lines up to 31 December 2001.

The eight column, "Only outgoing payments", shows the cumulative present value of outgoing payments alone, calculated in the same way.

The ninth column, "Discount rate", shows the interest rates that are used for each period. The interest rates are from Table 3.

As at 31 December 2001, the Government Bank Insurance Fund owned about 368.2 million shares in the bank. When calculating the present value on this date, the value of these shares has been added based on the share price at the time (see last line in table 4). The net present value was close to NOK 10.7 billion at the end of 2001.

The sum of the present values of the amounts paid-in, as presented in section 1, is calculated by deducting the present value of outgoing payments from the total present value.

As noted, when calculating the present value as at 31 December 1995, the market was thin and the assessment of the shares' value more difficult. In these

Table 4: Den norske Bank

Payment date	In NOK 1000	No. of shares GBIF	No. of shares SBIF	NOK per share	Cashflow	Cum. present value	Only outgoing payments	Disc. rate
30.03.92	Underwriting effectuated		163 872	10.00	-1 638 717	-1 638 717		14.3 %
10.04.92	Supplied preference capital				-3 250 000	-4 895 331		14.3 %
31.12.92	No. of shares 31.12.92		163 872		0	-5 394 178		14.3 %
31.03.93	Supplied preference capital				-1 500 000	-7 074 912	-7 074 912	9.3 %
31.12.93	No. of shares 31.12.93		163 872		0	-7 562 558	-7 562 558	9.3 %
27.01.94	Conv. pref.cap. to shares	350 000			0	-7 612 212	-7 612 212	10.2 %
31.05.94	Public offering	-53 000		16.75	887 750	-6 978 615	-7 866 365	10.2 %
31.05.94	Costs assoc. with sale				35 043	-6 943 572	-7 866 365	10.2 %
31.12.94	No. of shares 31.12.94	297 000	163 872		0	-7 348 497	-8 325 104	10.2 %
15.05.95	Dividend received			1.25	576 090	-7 039 912	-8 628 159	9.2 %
31.12.95	No. of shares 31.12.95	297 000	163 872		0	-7 441 367	-9 120 185	9.2 %
29.04.96	Sales from GBIF to SBIF	-66 128	66 128	19.20	0	-7 659 829	-9 387 934	8.1 %
30.06.96	Public offering	-126 872		19.30	2 448 625	-5 312 607	-9 512 214	8.1 %
30.06.96	Costs assoc. with sale				-71 716	-5 384 323	-9 512 214	8.1 %
15.05.96	Dividend received			1.50	691 308	-4 640 733	-9 419 850	8.1 %
31.12.96	No. of shares 31.12.96	104 000	230 000		0	-4 872 758	-9 890 817	8.1 %
15.05.97	Dividend received			1.75	584 500	-4 429 812	-10 178 148	8.1 %
31.12.97	No. of shares 31.12.97	104 000	230 000		0	-4 653 732	-10 692 637	8.1 %
15.05.98	Dividend received			1.75	584 500	-4 205 899	-11 006 649	10.8 %
30.06.98	Costs assoc. with planned sale				-2 932	-4 263 593	-11 149 959	10.8 %
31.12.98	No. of shares 31.12.98	104 000	230 000		0	-4 490 022	-11 742 105	10.8 %
15.05.99	Dividend received			1.35	450 900	-4 212 864	-12 196 467	9.7 %
30.06.99	Costs assoc. with planned sale				-441	-4 262 600	-12 339 178	9.7 %
31.12.99	No. of shares 31.12.99	104 000	230 000		0	-4 465 635	-12 926 915	9.7 %
31.01.00	Increase in capital (Postbk.)		138 158	30.10	-4 158 553	-8 659 334	-17 187 209	11.1 %
15.05.00	Dividend received			1.75	826 276	-8 099 045	-17 715 145	11.1 %
31.12.00	No. of shares 31.12.00	104 000	368 158		0	-8 653 969	-18 928 936	11.1 %
15.05.01	Dividend received			2.25	828 355	-8 168 874	-19 679 755	9.9 %
10.04.01	Sale remaining shares GBIF	-104 000		41.50	4 316 000	-3 779 050	-19 501 905	9.9 %
10.04.01	Costs assoc. with sale				-90 242	-3 869 292	-19 501 905	9.9 %
31.12.01	Value of remainder 31.12.01	0	368 158	40.20	14 799 947	10 655 343	-20 889 524	

calculations, the value per share is estimated as follows:

Price achieved per share at public offering 30.06.96	19.30
Costs, 2.65%	0.51
Value 30.06.96	18.79
Discounted per 31.12.95, ca.	18.00

The estimated present value in thousands of NOK was therefore as follows:

	Total present value	**Only outgoing payments**
Present value at 31.12.95	-7 441 367	
460 872 shares à NOK 18	8 295 691	
Total	**854 325**	**-9 120 185**

It is seen that in the case of DnB there was already a small net present value at that time.

Christiania Bank (now Nordea Norge)

For the other banks, the present values have been calculated in the same way as for DnB. The main figures for Christiania Bank are shown in Table 5.

It is seen that the present value is also positive for Christiania Bank, but it is far lower than for DnB. This is particularly because the Government Bank Insurance Fund covered a substantial negative net asset value in Christiania Bank in 1991. As the sale took place at the end of 2000, there was no longer any risk associated with this investment in the year 2001. For that year, the risk-free interest rate has therefore been used to calculate the present value.

When calculating the present value at the end of 1995, the value per share is calculated as follows:

Price achieved per share at public offering 15.12.95	14.20
Costs, 2.80%	0.40
Value 15.12.95	13.80
Discounted per 31.12.95, ca.	13.85

Table 5: Christiania Bank

Payment date	In NOK 1000	Number GBIF	Number SBIF	NOK per share	Cashflow	Cum. present value	Only outgoing payments	disc. rate
20.12.1991	Fully paid share capital	110 000		46.73	-5 140 300	-5 140 300	-5 140 300	14.1 %
15.07.1992	Sales of shares to priv.	-2 476		16.00	39 618	-5 501 960	-5 541 578	14.3 %
15.07.1992	Costs assoc. with sale				-7 310	-5 509 270	-5 541 578	14.3 %
21.12.1992	Fully paid pref. shares	150 000		7.00	-1 050 000	-6 889 557	-6 923 802	14.3 %
21.12.1992	Convertible subord. loan				-850 000	-7 739 557	-7 773 802	14.3 %
31.12.1992	No. of shares 31.12.92	257 524	0		0	-7 767 950	-7 802 321	14.3 %
26.03.1993	Sale from GBIF to SBIF	-228 829	228 829	6.56	0	-8 013 533	-8 048 991	9.3 %
31.12.1993	Interest subord. loan				114 401	-8 461 861	-8 614 209	9.3 %
30.06.1993	Loan conv. to shares	121 429			0	-8 092 771	-8 238 474	9.3 %
31.12.1993	No. of shares 31.12.93	150 124	228 829		0	-8 461 861	-8 614 209	9.3 %
22.07.1994	Sale from GBIF to SBIF	-46 671	46 671	13.00	0	-8 888 624	-9 048 655	10.2 %
31.12.1994	No. of shares 31.12.94	103 452	275 500		0	-9 278 307	-9 445 354	10.2 %
15.05.1995	Dividend received			0.90	341 057	-9 275 005	-9 789 190	9.2 %
01.10.1995	Sales of shares to SBIF	-5 500	5 500	14.90	0	-9 591 138	-10 122 850	9.2 %
15.12.1995	Public offering shares	-97 952		14.20	1 390 924	-8 375 242	-10 307 581	9.2 %
15.12.1995	Costs assoc. with public offering				-43 381	-8 418 623	-10 307 581	9.2 %
31.12.1995	No. of shares 31.12.95	0	281 000		0	-8 451 165	-10 347 425	9.2 %
15.05.1996	Dividends received			1.10	309 100	-8 423 799	-10 692 374	8.1 %
31.12.1996	No. of shares 31.12.96	0	281 000		0	-8 844 967	-11 226 964	8.1 %
15.05.1997	Dividends received			1.55	435 550	-8 666 365	-11 553 110	8.1 %
31.12.1997	No. of shares 31.12.97	0	281 000		0	-9 104 436	-12 137 101	8.1 %
15.05.1998	Dividends received			1.20	337 200	-9 034 607	-12 493 533	10.8 %
31.12.1998	No. of shares 31.12.98	0	281 000		0	-9 638 293	-13 328 342	10.8 %
31.03.1999	Public offering shares		-90 000	30.60	2 754 000	-7 131 353	-13 669 990	9.7 %
31.03.1999	Costs assoc. with public offering				-65 000	-7 196 353	-13 669 990	9.7 %
15.05.1999	Dividends received			1.50	286 500	-6 992 217	-13 826 445	9.7 %
31.12.1999	No. of shares 31.12.99	0	191 000		0	-7 410 981	-14 654 512	9.7 %
15.05.2000	Dividends received			3.00	573 000	-7 097 304	-15 167 297	11.1 %
31.12.2000	Sale to MeritaNordbanken		-191 000	49.00	9 359 000	1 775 410	-16 206 517	7.1 %
31.12.2000	Costs assoc. with sale				-10 279	1 765 131	-16 206 517	
31.12.2001	Present value					**1 890 278**	**-17 355 559**	

The estimated present value in thousands of NOK on this date was thereby:

	Total Present value	**Only outgoing payments**
Present value of payments until 31.12.1995	-8 451 165	
281 000 shares à kr. 13.85	3 891 850	
Total	**-4 559 315**	**-10 347 425**

It is seen that the total present value for Christiania Bank on this date was clearly negative.

Fokus Bank

The calculations of present value for Fokus Bank are presented in Table 6. The Government Bank Investment Fund had no ownership interests in the bank and only shares held by the Government Bank Insurance Fund are shown in the table.

At the end of 1995, all the shares in Fokus Bank had been sold. As settlement of a disputed case, the Government Bank Insurance Fund received 130 000 shares from the Commercial Banks' Guarantee Fund in 1997. The shares were sold and provided revenues of NOK 7.2 million. When calculating the present value as at 31 December 1995, this amount has been discounted and added to the present value. The present value on this date is therefore (in thousands of NOK):

	Total Present value	**Only outgoing payments**
Present value at 31.12.95 of previous cashflows	1 853	
Present value of shares from CBGF	6 318	
Total	**8 171**	**-1 801 335**

Table 6: Fokus Bank

Payment date	In NOK 1000	No. GBIF	NOK per share	Cashflow	Cum. present value	Only outgoing payments	Discount rate
20.12.1991	Fully paid share capital	19 000	25.00	-475 000	-475 000		14.1 %
23.11.1992	Fully paid share capital	24 000	25.00	-600 000	-1 136 906		14.3 %
31.12.1992	No. of shares 31.12.92 Fully paid share capital	43 000		0	-1 152 837		14.3 %
27.04.1993	(Samvirkebk.)	1 818	11.00	-20 000	-1 223 302		9.3 %
20.12.1993	Fully paid share capital	18 182	11.00	-200 000	-1 495 631	-1 495 631	9.3 %
31.12.1993	No. of shares 31.12.93	63 000		0	-1 499 623	-1 499 623	9.3 %
31.12.1994	No. of shares 31.12.94	63 000		0	-1 638 339	-1 638 339	10.2 %
15.10.1995	Public offering	-63 000	29.00	1 827 000	58 801	-1 768 199	9.20 %
15.10.1995	Costs assoc. with sale			-56 982	1 819	-1 768 199	9.20 %
31.12.1995	No. of shares 31.12.95	0		0	1 853	-1 801 335	9.20 %
31.12.1996	No. of shares 31.12.96	0		0	2 024	-1 967 533	4.05 %
30.06.1997	Shares from CBGF	130		0	2 064	-2 006 652	4.14 %
30.06.1997	Sales of shares	-130	55.59	7 209	9 273	-2 006 652	4.14 %
31.12.1997	No. of shares 31.12.97	0		0	9 465	-2 048 110	4.14 %
31.12.1998					9 857	-2 132 902	6.81 %
31.12.1999					10 528	-2 278 153	5.67 %
31.12.2000					11 127	-2 407 688	7.09 %
31.12.2001					**11 916**	**-2 578 393**	5.93 %

It is seen that the total present value is positive, but the amount is no higher than about NOK 12 million.

Oslobanken

The Government Bank Investment Fund participated in a share issue, and with a smaller amount in a subordinated loan to the bank in 1992. The Government Bank Insurance Fund contributed share capital when it was decided to wind up the bank in 1993. Table 7 shows the calculations of the present value.

The bottom line in Table 7 shows that the present value of the capital injections of the two funds combined amounted to a negative NOK 250.9 million at the end of 2001. This negative value was slightly lower than the direct payments, reflecting repayment with interest of the Government Bank Investment Fund's subordinated loan. This payment took place in 1996. When calculating the present value at the end of 1995, this subsequent repayment has been taken into account. The present value in thousands of NOK as at 31 December 1995 is then:

	Total Present value	**Only outgoing payments**
Present value at 31.12.95 of previous cashflows	-184 152	
Present value of repaid subordinated debt	1 816	
Total	**-183 035**	**-184 852**

Table 7: Oslobanken

Payment date	In NOK 1000	Cashflow			Cum. present value	Only outgoing payments	Discount rate
		GBIF	SBIF	Total			
23.11.1992	Participation in offering		-62 500	-62 500	-62 500		14.3 %
23.11.1992	Subordinated loan		-1 250	-1 250	-63 750		14.3 %
27.04.1993	Fully paid share capital.	-88 330		-88 330	-155 803	-155 803	9.3 %
31.12.1993					-165 456	-165 456	5.3 %
31.12.1994					-174 142	-174 142	6.2 %
31.12.1995					-184 852	-184 852	5.2 %
02.07.1996	Interest subordinated loan		603	603	-189 033	-189 636	4.1 %
02.07.1996	Redemption subord. loan		1 250	1 250	-187 783	-189 636	4.1 %
31.12.1996					-191 538	-193 428	4.1 %
31.12.1997					-199 295	-201 262	4.1 %
31.12.1998					-207 546	-209 594	6.8 %
31.12.1999					-221 680	-223 867	5.7 %
31.12.2000					-234 285	-236 596	7.1 %
31.12.2001					**-250 895**	**-253 371**	

Sparebanken NOR (now part of DnB NOR)

The Government Bank Investment Fund participated in issues of of convertible subordinated loan capital in 1992. This loan capital was converted to primary capital certificates (PCC) in Sparebanken NOR in 1993. Other types of support were not given to the bank. The calculations of present values are shown in Table 8.
The value of NOK 166 per PCC is calculated as follows:

Achieved per PCC by sale 15.04.96	176.00
Costs, 3.30%	5.80
Value 15.04.96	170.20
Discounted pr. 31.12.95, ca.	166.00

The present value at the end of 1995 is then:

	Total Present value	**Only outgoing payments**
Present value at 31.12.95 of previous cashflows	-973 970	
10 000 PCC à NOK 166	1 660 000	
Total	**686 030**	**-1 443 702**

Other banks

These relate to the investments of the Government Bank Investment Fund in the small to medium sized banks Sparebanken Vest, Sparebanken Møre, Samvirkebanken, and Bergens Skilllingsbank. The combined total present value for these banks as at 31 December 2001 was NOK 81.6 million. As at 31 December 1995 the present value is NOK 53.1 million. Details of the calculations are shown in Moen (2003).

Table 8: Sparebanken NOR

Payment date	In NOK 1000	No. SBIF	NOK per PCC	Cashflow	Cum. present value	Only outgoing payments	Discount rate
30.06.1992	Convertible subord. loan			-1 000 000	-1 000 000	-1 000 000	14.3 %
30.06.1992	Interest subord. loan			73 189	-926 811	-1 000 000	14.3 %
30.06.1993	Loan converted to primary capital certificates	10 000	100.00	0	-1 059 345	-1 143 000	9.3 %
01.01.1994		10 000		0	-1 107 927	-1 195 419	10.2 %
30.06.1994	Dividends received		18.00	180 000	-982 026	-1 253 790	10.2 %
30.06.1995	Dividends received		15.00	150 000	-931 702	-1 381 050	9.2 %
31.12.1995					-973 970	-1 443 702	9.2 %
15.04.1996	Primary capital certificates sold	-10 000	176.00	1 760 000	760 815	-1 481 078	8.1 %
15.04.1996	Costs assoc. with sale			-58 000	702 815	-1 481 078	8.1 %
31.12.1996					742 665	-1 565 056	4.1 %
31.12.1997					772 743	-1 628 441	4.1 %
31.12.1998					804 735	-1 695 858	6.8 %
31.12.1999					859 537	-1 811 346	5.7 %
31.12.2000					908 410	-1 914 339	7.1 %
31.12.2001					**972 817**	**-2 050 065**	5.9 %

The last line in the table shows a total present value of almost NOK 1 billion at the end of 2001.

Support loans to the Savings Banks' Guarantee Fund and the Commercial Banks' Guarantee Fund

These relate to loans from the Government Bank Insurance Fund to the two guarantee funds for financing their support to member banks. This type of support was provided in 1991 and 1992 at the same interest rate that the central government received on its sight deposit account in Norges Bank. The interest was capitalised annually in the account and repayment took place gradually as the two guarantee funds received contributions from member banks. The loans were fully repaid with interest during 1994.

Tabel 9 shows payment transactions (cash flows) and estimated present values when one-year NIBOR is used when discounting. The payments to the various banks have been combined here. The repayment dates are approximate.

Table 9: Support loans to SBGF and CBGF

Support loan from GBIF to SBGF and CBGF, in NOK 1000					
Payment date	**Payment**	**Cashflow**	**Cum. present value**	**Year**	**Discount rate**
30.08.1991	Loan, paid out	-2 770 000	-2 770 000	1991	10.57 %
31.12.1991	Loan instalment	741 960	-2 123 438	1991	10.57 %
30.06.1992	Instalment payment	486 907	-1 745 629	1992	11.54 %
15.08.1992	Loan, paid out	-234 000	-2 003 822	1992	11.54 %
30.06.1993	Instalment payment	752 663	-1 451 847	1993	5.25 %
31.05.1994	Instalment payment	849 135	-672 521	1994	6.72 %
30.06.1994	Instalment payment	615 969	-60 157	1994	6.72 %
31.12.1994			-62 162	1994	6.15 %
31.12.1995			**-65 985**	1995	5.20 %
31.12.1996			-69 426	1996	4.05 %
31.12.1997			-72 238	1997	4.14 %
31.12.1998			-75 228	1998	6.81 %
31.12.1999			-80 351	1999	5.67 %
31.12.2000			-84 920	2000	7.09 %
31.12.2001			**-90 941**	2001	5.93 %

From 1994 the risk-free interest rate is used as the discount rate as the loans had then been repaid and there was no longer any risk associated with them.

Administrative costs in the Government Bank Insurance Fund and the Government Bank Investment Fund

The administrative costs for the two funds amounted to a negative NOK 101.0 million as at 31 December 2001. This amount does not include the direct costs of selling shares, etc. These are included in the calculations for each bank. At the end of 1995 the estimated present value of costs up to that time was a negative NOK 33.8 million.

3.2 Direct support from the central government to the Savings Banks Guarantee Fund

This relates to one single payment and the calculations of the present value are therefore simple. Only the risk-free interest rate has been used for calculating the present value, and at the end of 2001 it was a negative NOK 1 886.2 million. At the end of 1995 it was a negative NOK 1 368.6 million.

3.3 Support from Norges Bank

Deposits on special terms

Deposits on special terms were provided by Norges Bank at a lower interest rate than the market rate from December 1991 to December 1993. They were provided for six months at a time and initially the interest rate was 4 per cent, but was reduced to 2 per cent per annum in 1992. The interest rate subsidy is estimated as six-month NIBOR less the interest that was paid for the period in question. Calculations of the present value of this interest rate subsidy are shown in Table 10

While the lines for 1st, 2nd, 3rd and 4th special-term deposits show the deposits placed with banks on the respective dates, the lines for repayment show the same amount plus the agreed interest rate. The 2.16 per cent shown in the line for the repayment of the 2nd special-term deposits is a weighted average of the interest rate in this period.

This table shows explicitly how the risk-free interest rate from 1 December 1993 is used for discounting. The present value as at 31 December 2001 is a negative NOK 3 820.3 million, while the present value as at 31 December 1995 is a negative NOK 2 772.0 million.

Sparebanken Nord-Norge

Sparebanken Nord-Norge received support from Norges Bank in the period 1989 to 1994, partly in connection with mergers with other savings banks. The support was given in the form of loans which were partly written off and which also carried an interest rate that was lower than the market rate. A subsidy of

Table 10: Support from Norges Bank

Payment date		**Interest rate Per cent**	**In NOK 1000**	**Cum. present value**	**Disc. rate 6m NIBOR**	**Risk-free rate**
02.12.1991	First special term deposit		-15 091 601	-15 091 601	10.72 %	
01.06.1992	Repayment	4.00 %	15 392 606	-505 689	10.36 %	
01.06.1992	Second special term deposit		-15 091 766	-15 597 455	10.36 %	
01.12.1992	Repayment	2.16 %	15 255 506	-1 152 110	12.82 %	
01.12.1992	Third special term deposit		-15 031 794	-16 183 904	12.82 %	
01.06.1993	Repayment	2.00 %	15 181 700	-2 036 750	6.77 %	
01.06.1993	Fourth special term deposit		-15 229 611	-17 266 361	6.77 %	
01.12.1993	Repayment	2.00 %	15 382 324	-2 470 104		5.43 %
31.12.1993				-2 481 128		5.25 %
31.12.1994				-2 611 388		6.15 %
31.12.1995				-2 771 988		5.20 %
31.12.1996				-2 916 526		4.05 %
31.12.1997				-3 034 645		4.14 %
31.12.1998				-3 160 280		6.81 %
31.12.1999				-3 375 495		5.67 %
31.12.2000				-3 567 410		7.09 %
31.12.2001				-3 820 339		5.93 %

5.5 percent per annum was stipulated in the period to 26 August 1992 and 6 per cent per annum thereafter.

"Paid interest rate" in Table 11 shows the interest rate that was paid on the semi-annual payment dates. This appears to have been set as the existing overnight lending rate less the above-mentioned subsidy. "Loan amount" shows the outstanding loan amount at any point in time, while "Subsidy" shows the estimated subsidy amount on the payment date. Inasmuch as these investments in the bank related to loan capital and not equity capital, one-year NIBOR was used as the discount rate until the loan was repaid. The risk-free interest rate was used thereafter.

The last line shows a present value of this support of a negative NOK 1 511.0 million as at 31 December 2001. In the line for 31 December 1995, we see a present value of a negative NOK 1 096.4 million.

Norion Bank

Norion Bank was placed under administration in the latter part of 1989. Norges Bank's claims amounted to NOK 183.5 million. A dividend was paid on several occasions, as shown in Table 12.

4 Calculations with a risk-free interest rate

In Table 13 present values are calculated using a risk-free interest rate as the discount factor. As noted, the risk-free interest rate is set as the interest rate on one-year Treasury notes.

When compared with Table 1 for end-2001, we see that the net present value is considerably higher when the lower risk-free rate is used.

Table 14 shows corresponding present values at end-1995 when the risk-free interest rate is used as the discount rate.

When compared with Table 2 for end-1995, we see that when the risk-free interest rate is used as the discount rate, the net present value is also higher (less negative) at end-1995.

Table 11: Sparebanken Nord-Norge

Payment date	**In NOK 1000**	**Interest paid**	**Loan amount**	**Subsidy**	**Cum. present value**	**Only outgoing payments**	**NIBOR/ risk-free**
08.10.1989	Loan which is written down		-500 000	-500 000	-500 000		12.3 %
01.12.1989	Subsidised loan	5.50	1 500 000		-508 622		12.3 %
01.03.1990	Repaid loan	5.50	1 350 000	-20 342	-543 665		11.6 %
01.09.1990	Repaid loan	5.00	1 200 000	-37 430	-611 996		11.6 %
01.03.1991	Repaid loan	5.00	1 050 000	-32 729	-678 927		10.6 %
01.09.1991	Repaid loan	4.00	900 000	-29 112	-743 314		10.6 %
01.03.1992	Repaid loan	4.50	750 000	-24 682	-806 186		11.5 %
26.08.1992	Subsidy rate increased to 6%		750 000	-20 116	-870 404		11.5 %
01.09.1992	Repaid loan	4.00	600 000	-740	-872 708		11.5 %
01.03.1993	Repaid loan	3.25	450 000	-17 852	-939 127		5.3 %
01.09.1993	Repaid loan	1.50	300 000	-13 611	-977 277		5.3 %
01.03.1994	Repaid loan	0.75	150 000	-8 926	-1 011 318		6.7 %
01.09.1994	Repaid loan		0	-4 537	-1 049 562		6.2 %
31.12.1994					-1 070 535	-1 070 535	6.2 %
31.12.1995	Repayment		40 000	40 000	**-1 096 373**	**-1 136 373**	5.2 %
31.12.1996					-1 153 544	-1 195 630	4.1 %
31.12.1997					-1 200 263	-1 244 053	4.1 %
31.12.1998					-1 249 954	-1 295 557	6.8 %
31.12.1999					-1 335 076	-1 383 784	5.7 %
31.12.2000					-1 410 987	-1 462 466	7.1 %
31.12.2001					**-1 511 027**	**-1 566 155**	5.9 %

Table 12: Norion Bank

Payment date	**In NOK 1000**	**Loss**	**Cum. present value**	**Year**	**Disc. rate**
30.10.1989	Norges Bank's claim	-183 522	-183 522	1989	15.4 %
28.12.1990	Dividend	82 585	-134 160	1990	14.3 %
15.12.1991	Dividend	22 940	-129 676	1991	14.1 %
21.12.1992	Dividend	16 517	-131 818	1992	10.3 %
28.02.1995	Dividend	7 341	-156 030	1995	5.2 %
31.12.1995			**-162 805**	1995	5.2 %
08.12.1999	Dividend	6 812	-191 981	1999	5.7 %
31.12.1999			-192 650	1999	5.7 %
31.12.2000			-203 604	2000	7.1 %
31.12.2001			**-218 039**	2001	5.9 %

The present value of Norges Bank's losses was a negative NOK 218.0 million as at 31 December 2001. It was a negative NOK 162.8 million as at 31 December 1995.

Table 13: Present value at 31.12.01, risk free interest rate

Present value 31.12.01			
In NOK 1000	**Outgoing payments**	**Incoming payments**	**Net**
DnB	-15 834 913	29 405 831	13 570 918
Kreditkassen	-12 530 942	18 234 488	5 703 546
Fokus Bank	-2 197 566	2 476 014	278 448
Oslobanken	-245 424	2 476	-242 948
Sparebanken NOR	-1 736 013	2 898 926	1 162 912
Other banks	-284 432	383 758	99 326
Support loans to SBGF and CBGF	-36 051	0	-36 051
Adm. costs GBIF and SBIF	-101 009	0	-101 009
Support direct from the state to SBGF	-1 886 240	0	-1 886 240
Special term deposits	-3 203 843	0	-3 203 843
Sparebanken Nord-Norge	-1 466 976	0	-1 466 976
Norion Bank	-179 421	0	-179 421
Total	**-39 702 830**	**53 401 493**	**13 698 663**

Table 14: Present value at 31.12.95, risk free interest rate

Present value 31.12.95			
In NOK 1000	**Outgoing payments**	**Incoming payments**	**Net**
DnB	-8 010 039	9 899 178	1 889 139
Kreditkassen	-9 002 672	5 762 205	-3 240 467
Fokus Bank	-1 593 818	1 795 730	201 912
Oslobanken	-179 054	1 816	-177 238
Sparebanken NOR	-1 269 520	2 102 813	833 293
Other banks	-207 907	275 692	67 785
Support loan to SBGF and CBGF	-26 158	0	-26 158
Adm. costs GBIF and SBIF	-33 813	0	-33 813
Support dir. from state to SBGF	-1 368 620	0	-1 368 620
Special term deposits	-2 324 666	0	-2 324 666
Sparebanken Nord-Norge	-1 064 410	0	-1 064 410
Norion Bank	-134 957	0	-134 957
Total	**-25 215 635**	**19 837 435**	**-5 378 200**

5 Conclusion

In conclusion, we would point out that calculations of present value include both equity capital contributions, which were more like investments, and pure support measures. When the total present value is positive, it is because the present value of the actual investments is sufficient to cover the negative present values of the support measures. The social benefits of enabling the banking system to maintain its activities are not included in the calculations.

References

Jennergren P. and Näslund B. (1998). Efter bankkrisen: Vad blev notan för skattebetalarna? Ekonomisk Debatt 1998/1

Moen H. (2003). Nåverdien av statens investeringer i og støtte til norske banker. Norges Bank Working Paper 2003/6

Glossary of abbreviations

Sparebankens sikringsfond	Savings Banks' Guarantee Fund (SBGF)
Forretingsbankens sikringsfond	Commercial Banks' Guarantee Fund (CBGF)
Statens banksikringsfond	Government Bank Insurance Fund (GBIF)
Statens bankinvesteringsfond	Government Bank Investment Fund (SBIF)

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