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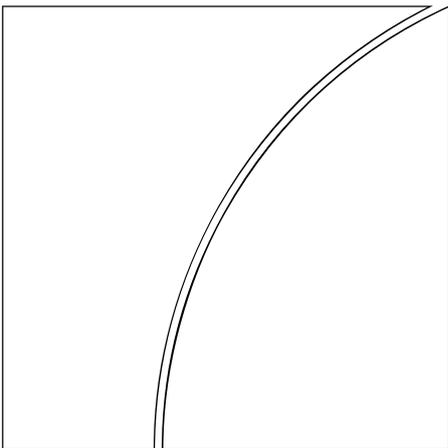
BIS Papers

No 6

The financial crisis in Japan
during the 1990s: how the
Bank of Japan responded
and the lessons learnt

Hiroshi Nakaso
Monetary and Economic Department

October 2001



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ISSN 1609-0381

ISBN 92-9131-626-1

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The financial crisis in Japan during the 1990s: how the Bank of Japan responded and the lessons learnt

Introduction

In the 1990s, Japan experienced a financial crisis after the bursting of a bubble. Although outside the scope of this paper, the seeds of the crisis might have been sown during the financial deregulation in the 1980s before the formation of asset bubbles. When the gap between competitive pressures in the financial markets and a “convoy” style of banking supervision and regulation that, in effect, ensured the viability of the weakest banks became unsustainable, the crisis erupted. In this regard, it may be argued that the crisis was accentuated by the formation and bursting of the bubble. It was an unprecedented crisis in terms of severity. Though essentially a domestic problem, with the authorities’ primary concerns focused on its impact on the domestic financial system and economy, in an increasingly integrated global economy and finance there was a latent, potential risk that a mishandling of the crisis could trigger a cross-border financial crisis. Most of the seven years I spent at the Financial System Division of the Bank of Japan (1993 to 2000) were devoted to crisis management in an attempt to prevent the crisis from getting out of control. Throughout this period the Division remained totally committed to the policy objective of the central bank as stipulated in the Bank of Japan Law, namely, the maintenance of financial system stability.

Nonetheless, the efforts to overcome the crisis turned out to be a very lengthy process and also very costly. This is the main point of the criticism blaming policymakers for “*the lost decade*” in which the financial intermediary function was severely undermined, contributing to an extended recession. The purpose of this paper is to focus on the policies of the financial authorities from the time the bubble burst until early 2000, when a more systematic approach to deal with troubled banks became available. It aims to shed light on the policy responses of the authorities with a particular focus on the central bank’s crisis management to address financial instability. Therefore, macroeconomic developments or monetary policy, which also had a significant influence in shaping the financial crisis of 1990s are outside the scope of this paper.¹ Similarly, policy responses after 2000 are not covered in this paper. They may have to be examined separately in the light of what happened subsequently.

The paper² first traces in Section 1 the chronology of events and the policy responses by the authorities and describes the evolutionary way in which the safety net in Japan was reinforced. Section 2 tries to identify factors that explain why it has taken so long to bring the crisis under control. Section 3 focuses on the central bank’s lender of last resort function because this was one of the key policy tools in addressing the crisis. By categorising various types of emergency fund provision by the central bank, the paper explores whether the responsibility of the central bank might have been overstretched during the earlier part of the crisis. Section 4 refers to some comparative aspects in an attempt to identify key features of Japan’s experience that stand out relative to other countries that have undergone banking crises. Section 5 asks whether any information or indices could effectively warn the authorities of build-up of risks in the financial system. Section 6 outlines the new safety net that became effective in April 2001 and highlights the key features incorporated in the new framework following lessons learned in the crisis management during the 1990s. Finally, Section 7 sets out some of the future challenges for the central bank and the Japanese banking industry.

I would like to thank Joseph Bisignano, Claudio Borio, Renato Filosa, Allen Frankel, Yasuhiro Hayasaki, Iwao Kuroda, Göran Lind, Philip Lowe, Minoru Masubuchi, Yoshinori Nakata, Tokiko Shimizu, Masaaki Shirakawa, Keiko Sumida, Philip Turner, Tooru Umemori and William White for their thoughtful comments. I have benefited a great deal from discussions with Svein Andresen, Takashi Anzai, Michio Ayuse, Göran Collert, Jenny Corbett, Morichika Hattori, Eriko Kawai, Yoshihiro Kawai, Shigeki Kushida, Takahiro Mitani, Masato Miyazaki, Masayuki Mizuno, E J Mutoh, Yoshiharu Obata, Koichi Ogata, Kazunari Ohashi, Yutaka Okada, Yuri Okina, Setsuya Sato, Tomoyuki Shimoda, Robert Stenram, Arthur Stockwin and Izumi Yamashita. I am also grateful to Gert Schnabel, Nigel Hulbert and in particular Janet Plancherel in compiling the paper. Thanks are also due to my former colleagues of the Financial System Division of the Bank of Japan for supporting me in writing the paper.

¹ For the mechanism that created the bubble and monetary policy, see Okina, Shirakawa and Shiratsuka, Institute for Monetary and Economic Studies, Bank of Japan, (2001).

² The data source for this paper including tables and charts is, unless otherwise stated, the Bank of Japan.

I am conscious of the limitations of the paper in that it is based on my personal experience as a chief manager of the central bank who led the team on the front line dealing with the crisis. Thus, the views expressed in the paper are my own and do not necessarily reflect the official views of the BIS or the Bank of Japan. I am also conscious that the problem that Japan has faced is not over yet. Indeed, further developments in Japan's financial system may yield more implications and lessons. Still, despite some idiosyncratic aspects, it is my belief that the financial crisis we faced was in many ways not a unique Japanese experience. There are many universal aspects and lessons that can be relevant for other countries that might experience similar problems in the future. Moreover, given the persistent vulnerability of Japan's financial system as of 2001, the experience thus far would provide Japan's policymakers with guideposts for the way forward to finish off the problem that overshadowed Japan's financial system and economy for more than a decade. In this regard, the paper is intended to benefit both the domestic and the international community as a basis for further discussions concerning effective crisis prevention and management to address potential financial disturbances.

1. Policy responses of the financial authorities

Up to March 2000, 110 deposit-taking institutions were dissolved under the deposit insurance system. The total amount spent in dealing with the non-performing loans problem from April 1992 to March 2000 was ¥86 trillion (17% of GDP), which included charge-off and provisioning by banks, transfers by the Deposit Insurance Corporation to cover losses of the failed institutions and capital injections to banks. The financial crisis of the 1990s in Japan was indeed unprecedented in terms of seriousness. Yet in the early stages the authorities lacked the expertise and policy tools required to react to the outbreak of a major crisis. A deposit insurance system had been in place in Japan but proved inadequate due to its limited size and flexibility. The authorities had to deal with the unfolding events while expanding and improving the safety net stepwise. The crisis management technique of the Japanese authorities evolved over the years as a series of additional measures were taken to reinforce the institutional framework of the safety net. In this context, the crisis management in the 1990s may be divided into five broad stages: the early pre-crisis stage, the beginning of the crisis, the crisis of 1997, the crisis of 1998 and the systematic management after 1999. This section traces in a chronological way how the financial authorities responded in different stages of the crisis. A chronology of events is shown in Table 1.

1.1 The early stage, 1991 to mid-1994

Japan had experienced no major bank failures in the postwar period. Banks were heavily regulated by the Ministry of Finance (MoF) and closely watched over by the central bank, the Bank of Japan, under the so-called "convoy system". Under the system, banking supervision and regulation was conducted in such a way as not to undermine the viability of the weakest banks. It was implicitly understood that the banking sector was fail-safe because the MoF, as the guardian of the banking system, was expected to step in to find a remedy for any problem that could threaten the viability of a bank. In return for the protection by the financial authorities, banks were expected to function as financial intermediaries channelling surplus household savings to the industrial sector, a system designed to rebuild Japan after WWII. The financial institutions in this context were treated more as providers of public financial services than competitive private sector intermediaries where "survival of the fittest" was the underlying principle. Interest rates were regulated and thus there was limited competition among financial institutions to offer more favourable rates. New financial products generally required authorisation by the MoF, which was usually granted for all institutions at the same time. Hence, there was little incentive for a financial institution to develop new products or services to gain relative advantage and profitability. From the depositors' point of view, banks were indistinguishable, and both depositors and other stakeholders took it for granted that banks would never be allowed to fail under the convoy system. The system worked and contributed to the sustained economic growth which elevated the country to a major economic power. As long as the economy kept steady growth, the financial system maintained stability.

Financial deregulation in Japan started in the early 1970s and the measures were implemented on a step by step basis³ in order to avoid any negative impact on the financial intermediaries. It is arguable whether this stepwise deregulation contributed to the build-up of risks in the financial system without their being properly addressed. Meanwhile, as a safety net for the financial system, the deposit insurance system was first established in 1971. In 1986, in line with the financial deregulation, the Deposit Insurance Law was revised. Under the legislation, the Deposit Insurance Corporation (DIC) was provided with two policy options. One was a “payoff” in which a failed bank would be closed down for liquidation and a depositor with the failed bank would be protected up to ¥10 million (per depositor). Beyond this threshold, a depositor might recover a portion of the deposit in the liquidation proceeding depending on the remaining value of the bank. The other measure was called financial assistance. In a typical case of financial assistance by the DIC, the business (ie the sound assets and liabilities) of a failed bank would be transferred to an assuming bank. As Figure 1 shows, the shareholders’ capital of the failed financial institution would be first drawn on to cover the losses. Since the failed institution would by definition have a negative net value, this would not be enough to cover all the losses. The remaining losses would be covered by the financial assistance provided by the DIC, which would take the form of a transfer of funds to the assuming bank. The key feature of the financial assistance option was understood to be its flexibility in dealing with a failed bank, without entering into bankruptcy proceedings as in the case of a payoff. Financial assistance by the DIC was thought to have a less negative impact on financial system stability.

Although the intention of the 1986 legislation was to prepare for a possible bank failure in a more deregulated financial environment, it was widely accepted that the new measure would only become necessary in the rare case where a small institution went down. Moreover, the operability of the deposit insurance system was untested. As of end of March 1987, shortly after the legislation was enacted, the DIC had an insurance fund of ¥300 billion, far smaller than what would be required in the event of a failure of a major bank. A general lack of urgency was understandable as Japan had not experienced a major bank failure in the postwar period. Moreover, larger banks were generally perceived to be protected in the convoy system even if they were not explicitly guaranteed. As a result, the DIC kept a relatively low profile with a modest office and a few staff in a corner of the Bank of Japan premises. It was only in the later years that a lack of flexibility in the deposit insurance system was felt so acutely in dealing with the problems of financial instability.

Japan began experiencing sporadic failures⁴ of financial institutions after 1991 once the bubble burst. These were confined to relatively small institutions and were generally regarded as isolated events with limited systemic implications. Although stock prices had been declining since the beginning of 1990,⁵ there was a general optimism that once the aftermath of the bubble economy had been cleaned up, the economy would be back on track towards a more balanced and sustained growth. In fact, the economy had continued to show a positive growth rate, albeit at a slower pace. This led to an expectation that asset prices, and thus collateral value would sooner or later pick up again and eliminate the threat to the financial system. This general expectation allowed the authorities to adopt a wait-and-see policy.

The Financial System Division, a division within the Financial and Payment System Department of the Bank of Japan⁶ with responsibility for maintaining financial system stability, recognised that its primary mission was to identify a build-up of risks in the financial system. The Division started, shortly after its establishment in 1990, to scrutinise the soundness of the financial system and, at the same time, began to study the experiences of banking crises in other countries (eg the S&L crisis in the United States in the 1980s and the secondary banking crisis in the United Kingdom in the 1970s).

³ For example, liberalisation of interest rates on deposits started in 1979. Interest rate ceilings were gradually lifted and the liberalisation was completed in 1994.

⁴ In this paper hereafter, the term “failure” is used to describe a situation where a financial institution was treated under insolvency laws, safety net arrangements or other regulatory framework as a result of insolvency or failure or likelihood of failure to pay its outstanding debts as they matured.

⁵ The Bank of Japan started to tighten monetary policy by raising the Official Discount Rate (ODR) in May 1989 from 2.5% to 3.25%. Subsequently the ODR was raised four times reaching 6.0% in August 1990.

⁶ The Financial and Payment System Department was established in 1990 as a new department in the Bank of Japan with responsibility for formulating policies to maintain financial system stability.

1.2 The beginning of the crisis, mid-1994 to 1996

Most of 1993 and the first half of 1994 passed by without a clear sign of economic recovery and without any serious measures being taken by the authorities. The pressure was mounting and the Bank of Japan judged it was time the authorities took more decisive actions on ailing financial institutions. However, in the absence of a comprehensive safety net, every resolution package of failed financial institutions had to be almost tailor-made.

1.2.1 The failures of Tokyo Kyowa and Anzen

In October 1994, the then Governor of the Bank of Japan, Yasushi Mieno, delivered a speech on the financial system. The speech was intended to be a milestone in the Bank's dealing with financial system stability. The Governor said: "It is not the business of the central bank to save all financial institutions from failure. On the contrary, failure of an institution that has reasons to fail is even necessary from the viewpoint of nurturing a sound financial system." The message reflected the view of the Bank that it was time to take substantive actions to deal with the ailing institutions.

On 9 December 1994, two urban credit cooperatives, Tokyo Kyowa and Anzen, failed. They were both ill-managed institutions, with a combined deposit size of ¥210 billion. The failures were the first cases that involved urban deposit-taking institutions. The resolution had to be almost hand-made by the relevant authorities: the Tokyo Metropolitan Office (primary supervisor of the credit cooperatives), the MoF and the Bank of Japan. It was agreed that a payoff should be avoided. The judgment was made against the background that if depositors were required to incur losses, it might trigger large-scale bank runs on many other financial institutions which were perceived to be unhealthy. The banking sector was by and large affected by asset deterioration, so that a problem with one institution could easily be associated with those of other institutions. The payoff method was untested and the authorities could not neglect its potential for triggering a systemic disruption. Therefore, the alternative option of protecting all depositors with the financial assistance by the DIC was judged appropriate.

However, there were a number of obstacles. First, there was no financial institution willing to assume the assets and deposits of the failed credit cooperatives. Second, in order to clean up the balance sheets or cover the losses of the failed institutions, the DIC had to provide substantial financial assistance. In theory, as Figure 1 suggests, if all losses were covered by the DIC's financial assistance, all liabilities including all deposits could be repaid. However, there was also a legal limit to the amount that the DIC could offer in a single case of financial assistance. The limit was called a "payoff cost limit". Payoff cost is the amount of money that the DIC would need, had it opted for a payoff. The cost is typically calculated by subtracting the remaining value of the failed bank from the amount of insured deposits with the failed bank.⁷ In the case of Tokyo Kyowa and Anzen, losses exceeded the "payoff cost limit" and additional sources of funds were necessary.

In order to overcome the above-mentioned obstacles, a resolution package containing the following was worked out and announced on 9 December 1994:

- (a) The Bank of Japan and private financial institutions established a new bank to assume the businesses of the two failed institutions. The new bank was afterwards named the Tokyo Kyoudou Bank (TKB).
- (b) In order to establish the capital base for the new bank, the Bank of Japan subscribed ¥20 billion of capital and the private financial institutions subscribed another ¥20 billion, making the capital of the new bank a combined amount of ¥40 billion.
- (c) The DIC would provide the TKB with financial assistance within the payoff cost limit. Private financial institutions would provide the TKB with a low-interest loan to support the profitability of the new bank.

In this way, all the depositors including the large depositors were protected and they were able to withdraw their deposits from the new bank. Meanwhile, the shareholders' capital was drawn on to

⁷ In an imaginary case where the total loss (net of shareholders' capital) was 100 and the payoff cost was 60, it was only 60 that the DIC was able to cover in its financial assistance. The remaining 40 had to be collected in some other way in order to repay all liabilities of the failed bank.

cover the losses. At the same time, the management of the failed institutions was removed. These efforts were made to minimise the moral hazard on the part of shareholders and the management.

The capital injection to the TKB and the low-interest rate loans by the private financial institutions were, in effect, substitutes for the insufficient financial assistance by the DIC. Although the participation of the private financial institutions in providing capital and loans was voluntary, after a request from the authorities, it must have been difficult, at that time, for a financial institution to decline such a request. This was the first time that this kind of collective contribution by private financial institutions was organised by the authorities. A unique aspect of this case was that virtually all Japanese financial institutions, not only those that had interests in the failed credit cooperatives, were requested to join. The approach was later referred to as the *hougachou* approach. The term *Hougachou* comes from a typical way of raising money from the local community in a traditional festival in Japan. This approach was a kind of private sector solution organised by the authorities outside the institutional framework of the safety net. It worked as long as the private institutions were convinced that their participation was compatible with their own interests. In the case of Tokyo Kyowa and Anzen, the private financial institutions were persuaded because, by means of a collective contribution, they thought they could prevent a contagious collapse of financial institutions including themselves.

For the Bank of Japan, the provision of the ¥20 billion of capital was based on Article 25 of the Bank of Japan Law. The article was the legal basis for the Bank's lender of last resort function. The article provided the Bank with a capacity to extend liquidity support as well as risk capital. This was the first case in almost 30 years that the Bank had taken actions based on Article 25, but a major difference from the previous cases in the 1960s was that this time the Bank provided risk capital rather than liquidity, which was the traditional form of lender of last resort assistance.

1.2.2 Limits of the collective contribution by the private sector

After the Tokyo Kyowa and Anzen case, the Bank of Japan encountered heavy criticism from the media that it was wrong to bail out the ill-managed credit cooperatives using the central bank's funds. Moreover, it was alleged that the Bank's action was contradictory to the Governor's speech a few months before. The Bank insisted that the central bank's funds were being used to maintain financial system stability and not to bail out the failed institutions. The Bank also argued that the institutions had indeed been defacto liquidated (failed) to the extent that the management was removed and shareholders' capital was wiped out, and this was consistent with the Governor's speech. In fact, the failed credit cooperatives, after their transfer of assets and deposits to the TKB, were subsequently formally liquidated. While hot debates continued, the next wave of bank failures was approaching. In July 1995, Cosmo Credit Cooperative, an urban deposit-taking institution in Tokyo, was announced a failure. This was followed by the failures in August of Kizu Credit Cooperative and Hyogo Bank in western Japan. For Cosmo and Hyogo, resolution plans, which were essentially the *hougachou* approach, were formulated. In the Cosmo case, an extensive number of private financial institutions contributed to cover losses beyond the amount financed by the DIC's financial assistance. The assets and deposits of Cosmo were to be transferred to TKB. In the interim period, between the failure announcement in July 1995 and the actual business transfer in March 1996, the Bank of Japan provided liquidity to Cosmo pursuant to Article 25 of the Bank of Japan Law. This allowed Cosmo to continue in business, including deposit repayments. In the Hyogo case, a new assuming bank, Midori Bank, with ¥80 billion of share capital, was established by the private financial institutions and local industrial enterprises. The Bank of Japan provided ¥110 billion of subordinated loans pursuant to Article 25 of the Bank of Japan Law to reinforce Midori Bank's capital base. The Bank also provided Article 25 liquidity support to Hyogo Bank until its business was transferred to Midori Bank in January 1996. In both the Cosmo and Hyogo cases, the liquidity support by the central bank was fully repaid using the funds provided by the DIC in the form of financial assistance.

As for Kizu Credit Cooperative, the *hougachou* approach faced a major obstacle since the losses were expected to exceed ¥1,000 billion. The sum was so large that it led the authorities to conclude it would no longer be possible to collect the necessary amount of money from the private financial institutions. These had already become frustrated about being asked to contribute every time a financial institution failed. Increasingly they were fearful that the prospect of an endless series of financial contributions would erode their profitability and impair their market reputations. A mechanism that managed to work in the first few cases of failure to complement the deposit insurance system now seemed unsustainable. It was strongly felt that in order to deal with bank failures in a more flexible way, a revision in the deposit insurance system was necessary. The payoff cost limit was perceived as a

particular obstacle. The Financial System Research Council, an advisory body to the Finance Minister, had started its discussions in June 1995 on possible amendments to the Deposit Insurance Law including the lifting of the payoff cost limit. The resolution package for Kizu was designed on the assumption that future legislation would remove this constraint.

1.2.3 The *jusen* problem

Meanwhile, Japan's financial system continued to tremble. In September 1995, Daiwa Bank, an internationally active city bank, announced that it had incurred a loss of approximately \$1.1 billion as a result of the fraudulent conduct of an employee at its New York branch. On 3 November, the bank was ordered by the US regulators to close all operations in the US markets. The incident clearly impaired the reputation of Japanese internationally active banks and weakened confidence in Japan's financial system. What had begun as a domestic banking problem was now developing into a crisis of international dimensions. This was also the first case in which the importance of timely communication to overseas authorities was clearly recognised. In every subsequent case that had international implications, the Japanese authorities communicated to the relevant authorities in accordance with the Basel Concordat.⁸

Jusen trouble, which first hit the headlines in 1993, again became a major issue in 1995-96. *Jusen* or housing loan corporations were non-bank financial institutions that were founded by banks and other financial institutions in the 1970s to complement the housing loans offered by banks. In the 1980s, the *jusen* companies shifted their lending towards real estate developers but this strategy proved to be a spectacular blunder because they had little expertise in commercial lending. The aggregate losses of the seven *jusen* companies were found to be ¥6,410 billion by the MoF inspection in the summer of 1995. The losses were far beyond the amounts that founder banks could possibly cover. The government stepped in and, after a fierce debate in the Diet, a package was approved that allowed the use of taxpayers' money. In the package, the losses of the *jusen* companies were allocated to the founder banks (¥3,500 billion), lender banks (¥1,700 billion) and agricultural financial institutions (¥530 billion). The residual ¥680 billion (\$6.7 billion) was to be covered by the taxpayers' money.⁹

The *jusen* problem was the first case in which taxpayers' money was used directly to deal with financial instability in Japan. The government's actions led to strong public resentment. This might have been at least partly due to the fact that the *jusen* companies were non-depository institutions that had little to do with the daily life of most Japanese taxpayers. The public resentment was so strong that it became almost a political taboo to refer to any further use of public funds to address the banking problem. The taboo was not broken until the autumn crisis of 1997 in which the nation experienced successive failures of financial institutions including a couple of major ones. The public money injected in the *jusen* fiasco amounted to ¥685 billion, which appears small relative to ¥60,000 billion of public money that was later introduced to clean up the banking mess. How different the outcome could have been if the issue of the use of public funds had been first discussed in the context of depository institutions rather than *jusen* companies remains an unanswered question.

The Bank of Japan was also involved in the *jusen* problem. The Bank provided funds on two occasions. First, it provided ¥100 billion towards the capital of the Housing Loan Administration Corporation (HLAC), which was a newly established body to assume bad loans of the *jusen* companies. The second was its provision of another ¥100 billion to the New Financial Stabilisation Fund (NFSF).¹⁰ The NFSF had two sub-accounts. The first account was financed by the Bank of Japan (¥100 billion) with the intention to support banks' capital position. The second account had a size of ¥900 billion and was financed by private financial institutions. The fund was to be invested mainly in Japanese government bonds (JGBs) to generate returns that would be transferred back to the government to reduce taxpayers' initial burden of ¥680 billion. Neither of the two cases

⁸ The Basel Concordat of 1983 required that "parent authorities should inform host authorities when problems arise in a parent bank which are likely to affect the parent bank's foreign establishment".

⁹ An additional ¥5 billion of public funds were used to reinforce the capital base of the DIC. Therefore, the total of public funds used to address the *jusen* problem was ¥685 billion.

¹⁰ Each of the two cases of the central bank's provision of funds had a different legal basis. The provision of funds to the HLAC was based on the *Jusen* Law. The provision of funds to the NFSF was pursuant to Article 25 of the Bank of Japan Law.

represented liquidity support. In both cases the Bank provided risk capital. The Bank acted as it did in response to a request from the government, and against the background that a mishandling of the *jusen* problem could ultimately threaten the stability of the already fragile Japanese financial system.

1.2.4 Amendment to the Deposit Insurance Law in 1996

In June 1996, the first major legislative measures were taken to improve the safety net. They included the amendment of the Deposit Insurance Law. The key features of the amendment included:

- (a) The payoff cost limit was removed temporarily until March 2001. This meant that the DIC was able to make financial assistance, covering all of the original losses (regardless of the payoff cost limit) incurred by a failed financial institution. Such financial assistance in excess of the payoff cost limit (Special Financial Assistance) would be supplied via a new account (Special Account) established within the DIC in addition to the existing account (Ordinary Account).
- (b) The insurance premium was raised from 0.012% to 0.084% (on insured deposits) to reinforce the DIC's financial resources. As a result, the annual expected insurance revenue would be increased to ¥460 billion.
- (c) The Tokyo Kyodou Bank was reorganised into the Resolution and Collection Bank (RCB). It was given the wider role of a general assuming bank for failed credit cooperatives, when no private assuming bank could be found. It was also given the capacity to purchase non-performing loans (NPLs) from failed financial institutions. By removing NPLs of a failed institution prior to the business transfer, it was expected to be easier to find an assuming bank in the private sector.
- (d) A new Chief Executive Director was appointed by the Finance Minister. (Until then the Deputy Governor of the Bank of Japan served as the Chief Executive Director of the DIC.¹¹)

The reformed deposit insurance system provided the authorities with improved flexibility to deal with the failed financial institutions. With the lifting of the payoff cost limit, in particular, the authorities were now able to work out resolution packages without depending on the *hougachou* approach. However, at this point, the main focus continued to be on credit cooperatives, which were thought to be the most damaged part of the financial system. Failures of larger banks were still unforeseen. The size of the DIC's fund assumed failures of smaller institutions at the frequency experienced in the previous few years. Capital injections were outside the capacity of the DIC and its access to public funds was limited. These remaining problems of the improved safety net only surfaced with the outbreak of a major financial disruption in 1997.

1.3 The financial crisis of 1997

By early 1997, it had become obvious that the NPL problem threatened the viability of some of the major banks. This reflected the grave reality that major banks, the core part of Japan's financial system, had come under pressure. Nippon Credit Bank and Hokkaido Takushoku Bank appeared to be particularly vulnerable. The vulnerability of these banks stemmed from solvency problems. The deposit insurance fund was far too small to deal with a potential failure of a major bank. Yet an institutional framework that enabled capital injections into weak but viable banks was absent. Therefore, the authorities tried to structure a bailout package that could be described as a private sector solution with public support outside the safety net framework.

1.3.1 Bailout of Nippon Credit Bank

Nippon Credit Bank (NCB) was an internationally active bank with an asset size of ¥15 trillion (\$129 billion) as of September 1996. It was the smallest of the three long-term credit banks in Japan. It was heavily exposed to real estate related industry and was suffering from a large amount of NPLs. Since early 1997, NCB had been experiencing severe funding problems that were exacerbated by the

¹¹ Simultaneously, in June 1996, the DIC moved out of the Bank of Japan's premises to a larger office.

downgrading by the rating agencies. The authorities opted for a bailout. The MoF organised a consortium of private institutions to inject capital into the ailing NCB. The consortium was composed of existing large shareholders (mainly insurance companies) and the other two long-term credit banks (Industrial Bank of Japan and Long Term Credit Bank of Japan). The approach in essence was a variation of a private solution. Nevertheless, it was different from the previous *hougachou* approach in the sense that the parties involved in the NCB case were confined to those related institutions that had vested interests in NCB.

However, it soon became apparent that contributions from the related parties would not be sufficient to provide a robust capital base for the new NCB. Again, the central bank's involvement was called for. By this time, the Bank of Japan had realised the need for the creation of an institutional framework that injected capital into weak but viable banks. But, in the absence of such a general framework, the Bank of Japan had to react to the imminent crisis of NCB by mobilising its own funds pooled with the New Financial Stabilisation Fund (NFSF), which had been established six months before as a result of the resolution of the *jusen* problem.

On 1 April 1997, NCB announced its restructuring plan. As a part of the plan, a total of ¥290.6 billion of new capital was injected in July 1997 by the consortium of related financial institutions and the Bank of Japan. Of the ¥290.6 billion capital injection, ¥210.6 billion was from private sources and ¥80 billion from the Bank of Japan via NFSF. All of the ¥80 billion injection by the central bank was in the form of preferred stocks. NCB survived the imminent crisis but the continuing asset deterioration outweighed the positive effects of the capital injection. Profitability did not improve dramatically and the share price continued to decline until December 1998, 17 months after the capital injection, when NCB failed and was nationalised.

Meanwhile, the other troubled major bank, Hokkaido Takushoku Bank (HTB) had succeeded in finding a merger partner. HTB was a city bank with an asset size of ¥9.5 trillion (\$82 billion) headquartered in the city of Sapporo on Hokkaido Island. It had a dominant market share in Hokkaido but its loans for resort development turned sour after the bubble burst. HTB announced on 1 April 1997 that it planned to merge with Hokkaido Bank, a regional bank. The merger plan was negotiated between the top management of the two banks. However, the two banks had been competing so fiercely over many years that a merger was the last thing that the clients and the employees of the two banks could possibly imagine. In fact, it was this historical rivalry and the cultural gap between the two banks that led to the fatal break-up of the merger plan and the eventual collapse of HTB (see below).

1.3.2 The financial crisis of autumn 1997

By the summer of 1997, the Financial System Division of the Bank of Japan was anticipating that more banks could face serious difficulties and had embarked on contingency action plans. Although the Bank had recognised it was going to be involved in major operations dealing with troubled banks, what had not been fully foreseen were the contagion effects of bank failures on the entire financial system and its subsequent effects on the macroeconomy. The unexpected collapse of securities houses amplified the financial disruption in the autumn of 1997. Bank failures were, at least to some extent, predictable as their assets had deteriorated over time. In contrast, the crisis of the securities houses broke out in an abrupt way, leaving very limited time for the authorities to react.

The crisis began in October 1997 when the authorities stepped in to take action against troubled banks in the Kansai area (western Japan). This was followed by successive failures in November of Sanyo Securities, Hokkaido Takushoku Bank, Yamaichi Securities and Tokuyo City Bank. Major financial institutions collapsed almost on a weekly basis in the month of November 1997. The Bank of Japan played its role in the crisis management as the lender of last resort on an unprecedented scale.

1.3.2.1 The failure of Sanyo Securities

Sanyo was a medium-sized securities house with clients' assets of ¥2.7 trillion (\$25 billion). As a securities house, it was supervised by the Ministry of Finance (MoF) and was outside the coverage of the deposit insurance system. The MoF decided to close down the institution. On 3 November 1997, Sanyo filed with the Tokyo District Court an application for the commencement of reorganisation proceedings under the Corporate Reorganisation Law. The Court immediately issued an order of preservation measures and the business of Sanyo was suspended. This was an approach under insolvency law. It was thought to be the most clear-cut way of dealing with a failed financial institution with the least possibility of creating moral hazard. The Bank of Japan assessed that the case had less systemic implication because securities houses, unlike banks, do not provide payment and settlement

services. The Bank judged it would intervene if, and only if, the case developed into a disruption involving banks and thus threatened financial system stability.

The impact on the interbank market quickly emerged as a major issue. Sanyo was a money-taker (borrower) in the interbank call market. The securities house was ordered to suspend its business by the court and it inevitably defaulted on the repayment of the unsecured call money. The amount of the default was relatively small (¥8.3 billion) compared with the overall turnover of the interbank market and the market stayed calm for a few days. Nevertheless, as the market participants digested the fact that this was the first default in the history of the interbank market, this sent shock waves through the market. Increased sensitivities to credit risks overshadowed the market. Lender banks preferred placing their money with the Bank of Japan to lending in the interbank market for fear of being caught by another default. Foreign banks squeezed their credit limits to Japanese banks in general, whose reputation had already been deteriorating. As a result, the interbank market showed clear signs of contraction. The upward pressure on interbank interest rates also began to be felt. It was now obvious that liquidity in the interbank market was drying up and its intermediary function was being undermined. In late November the Bank of Japan stepped in. The Bank injected massive liquidity into the market via purchases of eligible bills, repos and bilateral lending to banks against eligible collateral. At the same time the Bank absorbed liquidity from foreign banks by drawing bills for sale. Such two-way operation by the Bank was in effect an exercise of the function of market-maker of last resort. The interbank market managed to continue functioning but the outstanding credit supply by the Bank through money market operations reached as much as ¥22 trillion (\$190 billion) in December 1997.

The central point is that a small default paralysed the entire interbank market. This was evidence that, when the overall financial system is fragile, a default by one financial institution, whether a bank or a non-bank, could develop into a major disruption.

1.3.2.2 The failure of Hokkaido Takushoku Bank

The merger talks between the Hokkaido Takushoku Bank (HTB) and Hokkaido Bank (HB) soon came to a gridlock. Apart from the cultural gap, HB was deeply concerned about the potential size of HTB's NPLs and the risk of loan losses that might arise after the merger. The rift grew larger by the day until the merger plan was in effect abandoned in September 1997. HTB then started to experience an acceleration in deposit withdrawals. It was subsequently judged that HTB had little chance of survival on its own and that activation of the deposit insurance system was the only remaining choice. Given HTB's dominant role in the local economy of Hokkaido, it was thought essential to allow HTB to continue to provide its financial services after the failure announcement until HTB's sound assets and liabilities could be transferred to a sound assuming bank. The Bank of Japan was prepared to provide liquidity support to HTB during the interim period until the business transfer. However, an assuming bank, which is key to a successful operation under the deposit insurance system, was still missing. The authorities looked for an assuming bank; it was a race against time.

Funding difficulties for HTB intensified and by Friday 14 November, all eligible bills for interbank funding had been exhausted. Moreover, the bank failed to satisfy its reserve requirement with the Bank of Japan. It was at this point that HTB gave up the prospect of continuing business on its own. The authorities succeeded in finding an assuming bank over the weekend. Hokuyo Bank, a regional bank in Hokkaido with assets of only ¥1.8 trillion agreed to become the assuming bank for the business of HTB in Hokkaido. Bilateral talks between senior officials of the Bank of Japan and the top management of Hokuyo Bank played a vital role in the timely formulation of the package.

On 17 November, the failure of HTB was announced. The Bank of Japan began providing liquidity support pursuant to Article 25 of the Bank of Japan Law to finance massive deposit outflows. The uncollateralised liquidity support to HTB reached its peak of ¥2.6 trillion in early February 1998.

1.3.2.3 The failure of Yamaichi Securities

Three weeks after the Sanyo case, Yamaichi Securities collapsed. This time, instead of closing down the institution under insolvency laws, an approach that might be called an orderly wind-down was chosen. The central bank's liquidity provision played a vital role in keeping Yamaichi in operation in the winding-down process.

Yamaichi was one of the four largest securities houses in Japan with clients' assets of ¥22 trillion (\$203 billion). It was a financial conglomerate that had banking subsidiaries in the United Kingdom, Germany, the Netherlands and Switzerland. The securities house was supervised by the MoF. The

Bank of Japan also had direct access to Yamaichi's prudential information as it had conducted regular on-site examinations. As a securities house, Yamaichi was outside the scope of the deposit insurance system. The direct cause of the collapse was the revelation of Yamaichi's off-the-book liabilities amounting to more than ¥200 billion (\$1.8 billion). Although there had been some rumours that questioned the financial health of Yamaichi, its crisis emerged in a very abrupt way. The possibility of a private sector solution was explored. Fuji Bank, the main bank to Yamaichi, was expected to play a role. However, Fuji Bank was unable to commit itself to providing full support to Yamaichi. The potential losses at the securities house were unknown and, above all, the bank itself was suffering from a loss of confidence with pressure in both domestic and overseas markets mounting.

On 24 November 1997, about a week after the revelation of the off-the-book liabilities, it was announced that Yamaichi had suspended its engagement in new contracts as a step towards closing down and dissolving the firm under the Securities and Exchange Law.

The major difference compared with the Sanyo case was that, while Sanyo was ordered to suspend its business immediately under the insolvency regime, Yamaichi was allowed to continue its operations to settle existing contracts. The decision to wind-down Yamaichi in an orderly manner was taken against the background that Japan's financial system had become even more fragile since the collapse of Sanyo. The uncertainties surrounding the financial markets were exacerbated by the instability in the stock markets and Asian currency markets as well as by the successive failures of financial institutions. The authorities recognised that default by Yamaichi would have a devastating effect on both domestic and overseas markets given the size and complexity of the firm. Although Yamaichi was a securities house, its problems were recognised to be a potential source of systemic crisis in the increasingly fragile Japanese financial system.

The big issue that arose immediately was who should provide the liquidity to let Yamaichi continue its business. The firm was no longer able to fund in the markets on its own as confidence in it had been completely lost. The Bank of Japan was requested by the MoF to perform the role of lender of last resort. It was a difficult decision. Although the Bank of Japan Law provides the central bank with the capacity to lend to non-bank financial institutions to address financial instability, liquidity support to a securities house, which under normal circumstances would pose little systemic risk, was considered to be extraordinary. It was the systemic concerns that led to the Bank's eventual decision to take the extraordinary measures.

The problem for the Bank of Japan was that the prospect of recovery of its loans to Yamaichi was far from certain. As of the day of the failure announcement on 24 November 1997, Yamaichi was still solvent with off-the-book liabilities of ¥200 billion against capital of ¥440 billion. But the possibility that the financial condition of the firm could deteriorate and eventually become insolvent was not ruled out. If it had been a bank, a full recovery of loans was ensured under the institutional framework of the deposit insurance system. However, Yamaichi was outside the coverage of the deposit insurance system and there was no way to use the deposit insurance fund to cover potential credit losses that the central bank might incur. The Bank tried to negotiate with the MoF an arrangement that would cover the losses that it might incur should the securities house become insolvent. Fiscal measures could have been the most straightforward way but this needed Diet approval. It was impossible for the MoF to commit itself to take such measures due to time constraints.

In the final hours before the failure announcement, a basic understanding was reached between the MoF and the Bank of Japan to use funds with the Compensation Fund for Deposited Securities (safety net arrangement designed to protect retail investors) should Yamaichi become insolvent. The idea was to shoulder the securities industry with the cost of dissolving Yamaichi. To facilitate this basic understanding, the MoF expressed its intention in the Finance Minister's statement, which was issued on the day of Yamaichi's failure announcement, to legislate for the Compensation Fund for Deposited Securities, enlarging the Fund's base and strengthening its functions.

Once this agreement was reached, the Bank of Japan at its Policy Board meeting decided to extend liquidity support to Yamaichi pursuant to Article 25 of the Bank of Japan Law and issued a statement by the Governor on 24 November expressing its intentions. The statement noted that the liquidity should be used to ensure the smooth return of customer assets, orderly settlement of outstanding contracts and withdrawal from overseas activities. It was intended that the liabilities of Yamaichi's overseas subsidiaries would also be met using the Bank's liquidity support in order to stem a contagious disruption in overseas financial markets. On the first business day after the announcement of Yamaichi's failure, as much as ¥800 billion (\$7.4 billion) of liquidity support was extended. The amount outstanding reached ¥1,200 billion (\$11.1 billion) at its peak in December 1997. The operation

in practice meant that the central bank was replacing existing creditors with its own credit to the securities house. In view of the international business in which Yamaichi was engaged, the Bank of Japan communicated to the relevant overseas authorities its intention to ensure full performance of Yamaichi's existing contracts. As a result, a direct spillover effect from Yamaichi's collapse was successfully avoided.

However, as had been feared, Yamaichi's financial condition deteriorated rapidly and it was declared bankrupt by the Tokyo District Court in June 1999, 19 months after the failure announcement. The net losses of the firm were estimated at ¥160 billion (\$1.5 billion), which was much larger than had been previously anticipated. The MoF had kept its commitment by enlarging the Compensation Fund for Deposited Securities into a more comprehensive safety net for retail investors called the Investors Protection Fund. It was designed to collect contributions from the securities industry to run the safety net and to repay the loans from the Bank of Japan. However, although the framework was in place, there was not enough money. The securities industry argued that Yamaichi's losses were simply too large to be covered by the contributions from securities houses and that the industry did not bear formal responsibility to compensate for the losses of Yamaichi. Finance Minister Kiichi Miyazawa expressed in 1999 his willingness to solve the issue in a responsible manner, but without an explicit plan. Now, the Bank of Japan, as the largest single creditor in the bankruptcy proceedings, faced credit risk. The issue of who, and in what way, is going to bear the final costs was still unsettled as of May 2001.

1.3.2.4 The market turmoil

On 26 November 1997, the failure of Tokuyo City Bank was announced. Tokuyo was a regional bank in the northeastern city of Sendai. This was the fourth collapse in the month of November and its psychological impact was significant. The general uncertainties building up among retail depositors erupted. Rumours and speculations spread that certain other banks were on the brink of collapse. The targets of the speculations were mainly regional banks and depositors formed long queues at these banks to withdraw their money. It was as though the financial system was starting to melt down. The Finance Minister and the Governor of the Bank of Japan issued an extraordinary joint statement later the same day in which they reiterated their commitment to the stability of the financial system. The statement also confirmed that all deposits including interbank deposits were protected and that the central bank would provide sufficient funds to ensure smooth withdrawal of deposits. This was probably the day that Japan's financial system was closest to a systemic collapse.

Meanwhile, the Asian crisis that erupted in July in Thailand and its neighbouring countries spread to Korea in the autumn. The fragility of the Japanese financial system increased under both internal and external pressure. The financial crisis was now plain for all to see. The outbreak of the autumn crisis paved the way to serious discussions by the politicians and the authorities on the possible use of public funds to address the unprecedented financial disruption.

1.3.2.5 The introduction of public funds and the first capital injection

Intensive discussions led to legislation in February 1998¹² that explicitly introduced public funds to address the financial crisis. A total of ¥30 trillion (\$230 billion) of public funds including those for capital injection were made available. The use of public funds was intended to be a temporary measure until March 2001 to restore financial system stability. Out of the ¥30 trillion, ¥17 trillion was assigned to the Special Account of the DIC to cover the losses of failed financial institutions and ¥13 trillion was allocated for capital injection into banks.

Of the ¥17 trillion for loss coverage, ¥7 trillion was given in the form of special government bonds that could be cashed by the DIC upon request. The remaining ¥10 trillion was in the form of government guaranteed credit lines either from private financial institutions or the Bank of Japan. The ¥13 trillion of public funds for capital injection were of a similar nature, with ¥3 trillion in the form of special government bonds and ¥10 trillion in the form of government guaranteed credit lines.

The newly created Financial Crisis Management Committee handled the issues related to capital injection. The committee was composed of five members with three members from the private sector,

¹² The Law Regarding Emergency Measures for Financial Stability.

the Finance Minister and the Governor of the Bank of Japan. Mrs. Sazanami, an academic, was appointed chairwoman. The committee was responsible for selecting/identifying the banks that needed capital injection and to decide the amount to be infused. However, the committee did not have supervisory power, and thus direct access to supervisory information related to individual banks was limited. Moreover, banks were generally reluctant to be singled out as a weak bank requiring capital injection. Thus, all major banks collectively applied for capital injection in order to avoid the risk of being singled out as a weak bank.¹³ As a result, all major banks received a capital injection on 30 March 1998 totalling ¥1.8 trillion. However, this did not generate a very positive response in the markets. The amount of ¥1.8 trillion was regarded as far too small. Moreover, more than 80% of the new capital was Tier 2 capital (subordinated loans and bonds) which were also perceived to be inadequate to address the NPL problem. The whole endeavour appeared to be a remnant of the convoy approach.

1.4 The financial crisis of 1998

The capital injection in March 1998 did have the effect of calming the market turmoil temporarily. The financial markets appeared to stay calm until May, although they were certainly not convinced that the problems with banks had been definitely dealt with. The financial system then trembled again, this time with the emergence of a crisis at Long Term Credit Bank of Japan, another internationally active bank.

1.4.1 The failure of Long Term Credit Bank of Japan

This case was the largest bank failure that the authorities encountered. The basic philosophy for dealing with the troubled bank was to wind it down in an orderly way, as with Yamaichi. But the major difference compared with the Yamaichi case, in which the firm was wound down for liquidation, was that Long Term Credit Bank of Japan (LTCB) was wound down for purchase by new investors. This was against the background that the bank provided a variety of financial services. The loss of these services was thought likely to place many borrowers and other clients of the bank in difficulties. In addition, the bank's large derivatives portfolio posed systemic concerns. However, mechanisms that enabled this kind of winding-down for such a large bank were non-existent at the time when problems with LTCB surfaced in mid-1998. Still another framework had to be introduced to handle the failure of a bank of this size and complexity.

LTCB was one of three long-term credit banks and possessed assets of ¥26 trillion (\$240 billion). This was a size almost equivalent to that of the Lloyds TSB Group today. It had been actively engaged in derivatives and had an outstanding ¥50 trillion (\$463 billion) of contracts measured on a notional principal basis. In June 1998, just when the problems with LTCB were starting to surface, the supervisory power of the MoF was taken over by the newly created Financial Supervisory Agency (FSA).

Initially the authorities sought a bailout merger of LTCB with Sumitomo Trust Bank. The efforts turned out to be unsuccessful because Sumitomo Trust was doubtful about the size of potential NPLs with LTCB. The rating agencies and stock market were sending signals that they would react against Sumitomo Trust if the merger took place. Sumitomo Trust thus backed away and the prospect for a private solution was lost.

The authorities recognised that LTCB had to be dealt with through the safety net arrangements. As a bank it was covered by the deposit insurance system. However, it was found that in order to attain an orderly wind-down, an amendment of the framework was necessary. The Diet discussion in the summer of 1998 produced a significant piece of legislation: the Law Concerning Emergency Measures for the Reconstruction of the Functions of the Financial System (Financial Reconstruction Law) which enabled the temporary nationalisation of troubled banks. Under this law, LTCB was nationalised in October 1998. The idea was to replace the management and pursue a thorough cleaning-up of the balance sheet. Bad loans were removed and losses were covered first by the existing shareholders,

¹³ This led to discussions in the summer of 1998, in an effort to amend the capital injection framework, on whether capital should be injected into weak banks on a compulsory basis, without waiting for their voluntary applications. In the end, however, the idea of compulsory injection was abandoned.

and the residual by the Deposit Insurance Corporation. New capital was injected to restore its capital position using public money. Subsequently, bids for LTCB were called for. In February 2000, the bank was purchased by New LTCB Partners, founded by Ripplewood, a US investment fund, and other overseas investors. In the interim period, LTCB continued its business. The necessary liquidity was provided by the Deposit Insurance Corporation, financed in turn by the Bank of Japan. Such loans to the DIC reached ¥3.7 trillion (\$34 billion) at their peak in November 1998. All of the loans were recovered under the arrangement of the law.

One of the concerns of the Bank of Japan in dealing with the LTCB problem was the latter's derivatives portfolio. Substantial portions of LTCB's derivatives portfolio were interest rate and currency swaps. The counterparties were major foreign and domestic players. This meant there were direct links with domestic and overseas financial markets. It was feared that, if LTCB collapsed in a disorderly way, it would constitute an event of default as set forth in the ISDA master agreement. Given such an event, the counterparties of LTCB would close out outstanding contracts. Although this is a rational way for a counterparty to reduce credit risk, the resulting open position would have to be covered by creating new contracts. If such hedging operations by the counterparties of LTCB were exercised in a collective way in a short period of time, this was thought likely to exert a substantial impact on financial and currency markets. The LTCB case was estimated to generate upward pressure on yen interest rates and downward pressure on yen exchange rates. Moreover, it was feared that LTCB's default in derivatives markets could trigger cross defaults and amplify disruption in other markets.

The newly introduced framework under the Financial Reconstruction Law was designed to eliminate such risks. Under the framework, a big bank like LTCB could be nationalised. All obligations of the nationalised bank including derivatives contracts would be honoured using liquidity support from the Deposit Insurance Corporation. Before the nationalisation of LTCB in October 1998, the authorities explained to ISDA and the Federation of Bankers' Associations the features of the new framework. It was thought that, if the counterparties of LTCB were made aware that the existing contracts would be honoured, they would see little reason to close out the contracts. The authorities also took every care in the use of terminology. For example, the precise English translation for the government intervention in LTCB under the Financial Reconstruction Law was "special public administration", but this word was deliberately avoided because it could be associated with the wording in the ISDA master agreement that constituted an event of default. Instead of "special public administration", the authorities used the words "temporary nationalisation" that more accurately reflected the nature of the public intervention. On 22 October 1998, ISDA released a press statement confirming that it understood and welcomed the intention of the authorities. The Federation of Bankers' Associations issued a similar statement. LTCB was nationalised on 23 October and, to the relief of the authorities, there were no major direct spillover effects in other financial markets.

LTCB was the case that proved that the capacity and skill in funding operations was the dominant factor that determined how long a bank could survive a stress situation. Legislation of the new framework took four months after the problems with LTCB first surfaced in June 1998. During the interim period until nationalisation in October, LTCB was exposed to enormous market pressure that caused serious funding difficulties. Confidence in the bank deteriorated day by day. Nevertheless, it was imperative that LTCB survived until the new framework allowing the bank to be nationalised was ready. LTCB's funding operations were placed under intensive monitoring by the Bank of Japan. The Bank instructed LTCB, where necessary, to take appropriate measures such as sales of assets to alleviate funding difficulties. The Bank of Japan also estimated how much longer LTCB could survive and revised the estimate on a daily basis incorporating the latest developments. Meanwhile, the Bank of Japan refrained from providing direct liquidity support to LTCB. The credibility of LTCB was so impaired that central bank intervention would almost certainly have been perceived as a confirmation of the desperate state of LTCB and would most likely have killed the bank rather than supported it. LTCB miraculously survived the summer but it could barely have managed another day of funding on its own when it was finally nationalised on 23 October 1998.

1.4.2 Outline of the new laws

The LTCB crisis led to two pieces of important legislation. One was the Financial Reconstruction Law as described in Section 1.4.1. The other was the Financial Function Early Strengthening Law. An outline of the laws is shown in Figure 2.

The Financial Reconstruction Law was intended to deal with the failed financial institutions. Under the law, a failed bank could either be placed under Financial Reorganisation Administration (FRA) or temporarily nationalised. It was generally conceived that financial institutions that had more systemic implications would be nationalised, as was the case with LTCB. For both institutions under FRA and nationalised banks, business operations were to be continued without interruption and full performance of liabilities was assured. To that end, liquidity would be provided directly by the Bank of Japan in the form of Article 38 loans¹⁴ in the case of institutions under FRA, while liquidity support to a nationalised bank would be provided by the DIC. The DIC was to borrow from the Bank of Japan to finance such liquidity support.

The Financial Function Early Strengthening Law was the other new law that replaced the legislation of February 1998 governing capital injections into viable banks using public money. To operate the entire safety net under the new laws, ranging from dealing with bank failures to capital injection, the Financial Reconstruction Commission (FRC) was established. It was an independent administrative commission established as an organ of the Prime Minister's Office. The FRC was composed of five members including a cabinet minister who served as the Chairman. Unlike the Sazanami Committee in the previous legal framework for capital injection, the FRC was vested with the authority to inspect and supervise financial institutions as the parent organ of the Financial Supervisory Agency (FSA).

With respect to the financial resources for the new framework, available public funds were doubled from ¥30 trillion to ¥60 trillion. Out of the ¥60 trillion, ¥17 trillion was assigned for loss coverage of failed institutions, ¥18 trillion for financial institutions under FRA or nationalised banks and ¥25 trillion for capital injection purposes.¹⁵ The ¥60 trillion of public funds were intended to be a temporary and emergency measure available only until March 2001, during which period confidence in Japan's financial system was expected to be restored. By showing a sufficiently large volume of available public funds, the government wished to demonstrate its clear and irrevocable commitment to cope with the NPLs problem. In fact the two pieces of legislation provided the authorities with significant flexibility and financial resources that had been almost unimaginable a few years before. The primitive deposit insurance system that existed before the mid-1990s had evolved into a comprehensive safety net. In early 1996, the DIC had a staff of only 16 and as little as ¥390 billion of funds. In 1999, as Table 2 shows, the DIC along with the Resolution and Collection Corporation¹⁶ had more than 2,000 staff members and ¥60 trillion of public funds available. A small institution with a modest office in a corner of the Bank of Japan's premises developed in three years into a significantly larger and detached organisation.

1.5 Systematic management of the crisis, late 1998-2000

With the new comprehensive safety net framework in place, the authorities became able to deal with a failed bank without necessarily finding an assuming bank beforehand. For viable but undercapitalised banks, large-scale capital injections also became possible. The authorities quickly embarked on a systematic clean-up operation fully utilising the new framework.

1.5.1 Nationalisation of Nippon Credit Bank (NCB)

Despite the restructuring including capital injections by the Bank of Japan and private financial institutions totalling ¥290 billion in July 1997, there had been no dramatic improvement in NCB's business conditions. The bank survived the immediate danger but kept a low profile and seldom caught media's attention.

¹⁴ In the new Bank of Japan Law enacted in 1998, Article 38 replaced Article 25 in the previous law as the legal basis for the central bank's role of providing funds for financial stability.

¹⁵ Out of the total ¥60 trillion, ¥7 trillion was in the form of special government bonds that could be cashed upon request by the DIC. This ¥7 trillion was part of ¥17 trillion set aside for loss coverage. Therefore, the loss coverage part of the previous framework (introduced in February 1998) remained intact. Meanwhile the ¥3 trillion government bonds that had been assigned for capital injection in the previous framework were abolished. Hence all of the ¥25 trillion for capital injection was in the form of government-guaranteed credit lines.

¹⁶ The Resolution and Collection Bank (RCB) was reorganised into the Resolution and Collection Corporation under the legislation of October 1998, with wider powers such as the purchase of assets from sound banks.

The turning point came when the newly created FSA stepped in to NCB in July 1998 to conduct an on-site inspection with tougher standards. The FSA concluded that the bank would be insolvent if the results of the inspection were properly reflected in the financial statements. On 13 December 1998, NCB was nationalised pursuant to the Financial Reconstruction Law.

As a natural outcome of NCB's insolvency, the Stock Price Evaluation Committee under the FRC concluded that the value of NCB shares was nil. This implied that the Bank of Japan's ¥80 billion preferred shareholdings in NCB along with ¥210 billion by the private financial institutions were wiped out. This was a painful moment for the Bank of Japan. The involvement of the Bank in the NCB bailout was motivated by the desire to maintain financial system stability. However, the Bank was subsequently criticised for misjudging the financial health of NCB and for the misuse of the central bank's funds.

1.5.2 Capital injection into major banks in March 1999

The new capital injection framework under the Financial Function Early Strengthening Law made ¥25 trillion of public funds available. The primary objective of the capital injection was to restore confidence in Japanese banks and thus in the financial system as a whole. There were various reasons for the lack of confidence in banks. For example, unrealised capital losses from securities holdings were not deducted from capital in calculating the capital ratio. Although this practice was justifiable as long as a bank adopted "original cost accounting standards", the figures were publicly disclosed and market players could easily calculate the "effective capital ratio" by subtracting the unrealised losses from the capital position of a bank. Furthermore, charge-offs and provisioning of Japanese banks were regarded as generally insufficient.

Against this background, the FRC decided to take both unrealised capital losses and potential loan losses into account in calculating the required amount of capital injection into 15 major banks. As shown in Table 3, the unrealised capital losses for the 15 major banks stood at ¥2.7 trillion. The amount of NPLs to be disposed of as of the end of March 1999 stood at ¥9.0 trillion. This figure was based on the new guideline established by the FRC. Specifically, under the guideline, loans to borrowers who are judged "close to bankruptcy", which are almost equivalent to the so-called grade III loans, had to be written down by around 70%. Meanwhile, the substandard portion of loans to a "marked" borrower, which includes past due and restructured loans, was to be written down by around 15%. Other loans to a "marked" borrower should be written down by appropriate provisioning rates based on historical losses. (Thus, grade II loans are also to be appropriately disposed of). The capital injection by the government was intended to cover these potential losses (totalling ¥11.7 trillion). The banks managed to raise ¥2.1 trillion of capital on their own from private sources. The aggregate amount of public capital injected was ¥7.5 trillion (\$65 billion). Out of this, ¥6.2 trillion was in the form of Tier 1 capital (preferred stocks). Given the net core operating profit of ¥2.5 trillion, the total scale of capital injection, amounting to ¥9.5 trillion including ¥7.5 trillion of public funds, was sufficient to cover both the unrealised capital losses from securities holdings and the potential losses arising from the stricter guidelines for write-offs and provisioning. This was considered to leave banks with sufficiently high capital ratios even after deducting unrealised losses from capital accounts, a process which the original cost accounting standards did not require to be reflected in their financial statements.

To ensure that the government's investment would be recovered, the FRC also required the banks to submit plans for improving profitability. The "management improvement plan" was submitted to the FRC by each bank in receiving capital and was subsequently made public. The FRC intended to check, on a regular basis, whether banks' actions continued to be consistent with the plans. Furthermore, for some banks, the timing for the government to acquire the right to convert preferred stock into common stock was set for a relatively short time after the injection. This suggested that the government could intervene directly in the management of these banks, should their performance prove to be less than satisfactory.

With regard to the underwriting terms of the preferred stock, three factors were assessed: a) the performance of the bank (for example profitability, funding capacity), b) the nature of the instrument (for example the dates when conversion rights are exercisable and the minimum exercise price), and c) the management improvement plan. These factors were put into an evaluation model to calculate the appropriate cost of capital. With regard to the management improvement plan, positive factors such as restructuring, cost reduction and corporate reorganisation were reflected in the rate of return in a way that made the capital cost cheaper for those banks with more comprehensive measures. This was intended to give an incentive to banks to positively restructure their business.

The capital injection was a significant step to address the undercapitalisation of Japanese banks. It was backed up by the FRC, which had supervisory powers. Also, the amount injected was more than four times as large as the previous injection in March 1998 (¥1.8 trillion), with an overwhelming portion in preferred stocks. The Bank of Japan, while welcoming the capital injection, held the view that this was not the ultimate measure to achieve the final goal of overcoming the banking problem. The Bank thought two more steps had to be taken. First, banks must remove bad loans from their balance sheets to improve their cash flow. This was an important step towards restoring their financial intermediary function, which in turn would contribute to an economic recovery. Second, further consolidation was thought to be necessary. By promoting consolidation in an effective way, it was thought the banking system would gain efficiency and profitability over the longer term. The Bank referred explicitly to the significance of the further steps on various occasions including the Governor's speeches.

With regard to the removal of bad loans from banks' balance sheets, an important element was to provide the market with an adequate infrastructure. Measures were taken in this area, too. They included the creation of the RCC - the Resolution and Collection Corporation - as a result of a merger between the Resolution and Collection Bank (RCB) and the Housing Loan Administration Corporation (HLAC). A feature of the new legal framework was that the RCC was given the capacity to purchase bad loans not only from failed banks, but also from solvent operating banks, helping them remove their bad loans from their balance sheets. In addition, a legal framework for the securitisation of bad loans using special purpose companies (SPCs) was made available. An important prerequisite in this regard is that transactions are executed at market price or fair value; ie, a price that can be obtained by an objective method that effectively reflects the true value of real estate and related loans. This was considered to be a key feature for restoring business confidence in the real estate market.

With regard to the consolidation of banks, there were positive signs. Some banks announced explicit plans for mergers and alliances.¹⁷ The Bank of Japan, while welcoming the announcements, reiterated that consolidation in itself was not the ultimate objective. It encouraged the banks to identify the business areas of relative advantage from a deregulated wider choice of financial business and seek further profitability and efficiency through consolidation.

1.5.3 More systematic approach

After the capital injection into major banks in March 1999, the Japan premium began to decline. Between April and October 1999, five regional banks¹⁸ were resolved under the Financial Reconstruction Law. In all five cases the banks were placed under the management of the Financial Reorganisation Administrators. The Bank of Japan provided liquidity support pursuant to Article 38 of the Bank of Japan Law to facilitate the orderly resolution. Under the Financial Reorganisation Administrators, the banks continued their operation while transferring their bad loans to the RCC and cleaning up the balance sheets.

It was around this point that the authorities recognised that bank failures were now able to be handled in a much more systematic way under the new safety net framework. At the same time, however, the Bank of Japan became aware of the side effects of the comprehensive safety net. It was costly in the sense that it required an enormous amount of public funds and that it generated moral hazard on the part of depositors and other creditors who benefited from the blanket guarantee. Against such a background, the Bank held the view that the comprehensive framework, although badly needed at that time, should only exist temporarily until the systemic risk is removed and that it should be replaced by a more efficient safety net at the earliest possible opportunity. In the spring of 1999, a working group of the Financial Council started working on designing the new safety net (see Section 6 for details).

¹⁷ A wave of mega-consolidation occurred in 1999. In August 1999, the Industrial Bank of Japan, the Daiichi Kangyo Bank and the Fuji Bank announced their intention of consolidation under a bank holding company. This was followed by the announcement of a consolidation plan in October by the Tokai Bank and the Asahi Bank. The combination was unbound later and the Sanwa Bank replaced the Asahi Bank as the consolidation partner with the Tokai Bank. Meanwhile, the Sumitomo Bank and Sakura Bank announced their merger plan in October 1999.

¹⁸ They were all Tier 2 regional banks: Kokumin Bank, Koufuku Bank, Tokyo Sowa Bank, Namihaya Bank, and Niigata Chuo Bank.

2. Why has it taken so long?

One of the peculiar aspects of Japan's banking crisis is the length of time that has been required to bring the problem under control. The magnitude of the bubble and thus the resulting size of non-performing loans were so enormous that they were far beyond anyone's expectation at the time. It was not until March 1998, almost eight years after the bubble burst, that serious measures including the use of public funds began to be taken in an attempt to prevent a further deterioration in confidence in the financial system. This section explores reasons why it has taken so long to contain the crisis.

2.1 A paradigm shift

During the 1980s, financial deregulation progressed but the concept of the "convoy system" remained almost intact. Although the convoy style of banking regulation and supervision was not entirely a Japanese peculiarity, it was unique in the sense that it survived the waves of deregulation until it met fatal deficiencies. In the convoy system it was expected that weaker banks would still be protected. This, together with the fact that there were no major bank failures in the postwar period, created a strong belief - even the firm conviction - that big banks would never fail. The conviction was tenacious. In the first half of the 1990s, despite some minor bank failures, it was still widely held by the general public. This contrasts with some of the outside views that expressed concerns about the health of Japan's financial system. For example, the BIS Annual Report 1992-93 referred to the health of Japan's financial system together with the experiences of the Nordic countries and the United States. The BIS report raised concerns that the actual scale of NPLs held by Japanese banks could be larger and the reserves of the deposit insurance fund (then around ¥700 billion) were comparatively limited to cope with the potential financial distress. As a series of large bank failures occurred in Japan in the latter half of the 1990s, the myth began to crumble and eventually disappeared by the end of the 1990s.

Bank managers were forced to recognise that they could no longer expect unconditional rescue and protection by authorities when banks faced serious problems. For bank employees, this meant that the traditional lifetime employment could also be destroyed, potentially in a violent way. For the authorities too, the 1990s was a decade in which they had to change their perspective and approach in dealing with a troubled bank. As they experienced one case after another, they realised that the option of failure would generally be preferable to a bailout unless there was a clear economic rationale for the latter. Meanwhile, depositors were forced to abandon the myth that banks would not be allowed to fail. This was a full reversion of fundamental concepts that underlay the previous banking regime under the convoy system. The fact that the convoy system had served the purpose of successfully channelling household savings into the industrial sector, thus supporting the nation's sustained economic growth, made a rapid shift to the new system more difficult. In other words, the myth that big banks would never fail was so firmly embedded in the economy and society that it took a long time to demolish it.

2.2 The central bank's dilemma

Financial institutions across the board in Japan were heavily exposed to the real estate-related industries. They faced the common risk of declining real estate prices. The risk materialised and it was later revealed that the NPLs had soared to 6-8% of GDP. This was a staggering figure compared with a corresponding figure of 2.5% in the previous banking crisis in the late 1920s (although the definition of NPLs is not the same). Despite the potential size of the NPLs, it was widely believed by the general public until the mid-1990s that the problem was with smaller financial institutions and thus not necessarily systemic. There had been sporadic bank failures since 1991, but they were small financial institutions and regarded as isolated events. Moreover, there were some good reasons to be optimistic. Real GDP maintained positive growth through 1992-94 and also showed a temporary pickup in 1995-96. Even the amendment of the Deposit Insurance Law in 1996, although a significant improvement, focused mainly on the vulnerability of smaller, cooperative types of financial institutions. With hindsight, smaller vulnerable institutions were the first to be hit and it was only a matter of time before larger banks exhausted the buffer to absorb mounting pressure arising from NPLs. Evidence suggests that the Japanese authorities were aware, at least to some extent, of the potential danger, but a general lack of a sense of urgency and support for the use of public funds prevented the authorities from taking decisive actions at this point. It was only during the autumn crisis of 1997 that the problem was finally recognised by the nation as a whole to be a systemic threat.

Among the authorities, the Bank of Japan had detected by early 1993 that potential risks in the financial system could be larger than had been widely believed. Concentration of credit risks in the real estate related industry had clearly been a concern. The possibility of a sustained economic recovery had become remote and land prices kept sliding. An argument may well be made that the Bank of Japan should have warned about the risks building up in the financial system and called for an improvement in the safety net. While acknowledging the truth in such an argument, it was difficult in practice for the Bank (or other authorities) to take further actions at that time. At a micro level, even if a bank examiner of the Bank suspected an over-concentration of credit risk of a bank in the real estate sector, it could have been practically difficult for the central bank to intervene as long as the loans were performing and the bank did not suffer losses. On a macro level, the Bank faced a dilemma of actually triggering a financial crisis by openly calling for an improved safety net. A fundamental prerequisite for introducing a comprehensive safety net framework including more flexible ways of handling failed banks and the possible use of public funds was to obtain the consent of the general public. However, to do so required a full explanation of the danger embedded in the financial system and risked inducing financial instability by unduly frightening market participants and individuals. The central bank did not have a clear strategy on how to advocate and implement measures to address its concerns about financial instability. This dilemma of the central bank must have been more or less shared by other agencies. In the end, the authorities chose to avoid the possibility of triggering a crisis and continued with a piecemeal approach in addressing the NPLs problem.

2.3 Structural problems that allowed a delay in recognition of the seriousness of the NPLs problem

Questions arise why such a piecemeal approach was possible in the first place. If problems with individual banks were correctly perceived by depositors, investors or the general public more broadly, the authorities must have had no choice but to take decisive measures. It now seems that a lack of adequate provisioning and public disclosure obscured the actual status of the NPLs problem in the financial system and delayed the introduction of much needed comprehensive actions. Seen from a broader perspective, this might have reflected a general lack of corporate governance in the banking sector.

2.3.1 Insufficient provisioning

In Japan, stringent MoF rules existed on specific provisioning. Not only tax-deductible but also non-tax-deductible provisioning had to satisfy extremely demanding criteria such as a high probability of default. In addition, banks' provisioning required reporting to the MoF. Thus, the banks were generally under-provisioned even in the initial stages after the bubble burst. Some marginal flexibility in banks' provisioning rules was approved in the mid-1990s but did not change the overall situation. It is therefore conceivable, that in the mid-1990s, banks' financial statements did not adequately capture even the past events that had already begun to be recognised, let alone expected losses, obscuring the general deterioration in asset quality of the banking sector.

Relaxation of tax and regulatory requirements was a time-consuming process and it was only after 1997 that significant measures were taken with regard to banks' provisioning. In 1997 the reporting requirement to the MoF was abolished, to be replaced by a new provisioning policy based on banks' self-assessment of the loan portfolio. This approach allowed for more flexible provisioning depending on the actual quality of the borrowers as well as default experience in the past. Further explicit guidelines for provisioning were set forth in the FSA's inspection manual, which was introduced in 1999. For example, against loans to "borrowers close to bankruptcy", provisions that would cover expected losses over a certain subsequent period of time (a period of three years is judged to be reasonable) are required to be set aside. Similarly, provisions that would cover expected losses over the average remaining maturity or the next three years are required against the substandard portion of loans to "marked borrowers". In accordance with the FSA's new standard, guidelines for external auditors were revised in a consistent way. This ensured that inspection results by the supervisor would be properly reflected in banks' financial statements.

This resulted in huge charge-offs and provisioning during FY 1997-98. Accumulative under-provisioning of banks during and after the bubble economy had to be adjusted in a very short period of time. Although the new provisioning guidelines were a step in the right direction, this coincided with the escalation of the financial disruption. Massive charge-offs and provisioning squeezed banks'

profitability, imposing severe constraints on banks' capacity to supply credits. This in turn may have exacerbated the slowdown in economic activity.

Looking forward, the new guidelines for provisioning, introduced in 1999, are enlightening in the sense that they intend to capture expected losses over a longer time horizon. It remains to be seen, however, how banks actually measure expected losses and reflect them in their provisioning strategies in practice.

2.3.2 Inadequate public disclosure

Public disclosure on NPLs was virtually non-existent before 1992. The initial disclosure requirement introduced that year was based on tax law standards and covered a limited range of loans to legally bankrupt borrowers and loans past due 180 days or more. Moreover, borrowers' creditworthiness was not necessarily reflected. For example, if a borrower close to bankruptcy had two loans of which one was performing and the other was past due more than 180 days, the disclosure standard required only the latter to be included in the disclosed figures. Consequently, a substantial portion of NPLs remained outside the scope of public disclosure.

The disclosure requirement was subsequently reinforced, but only on a stepwise basis. Figure 3 shows a time series of the disclosed NPLs of Japanese banks. The increases in FY 1995 and FY 1997 largely reflect an expansion in the definition of NPLs. As the figure for total NPLs was revised upwards every time an amendment was added to the standards, it invited speculation that aggregate NPLs could be still larger. It seems hard to deny that the piecemeal revision of the disclosure standard undermined the credibility of publicly disclosed figures of NPLs.

In 1999, after the financial disruptions of 1997-98, a comprehensive disclosure requirement was introduced. The Banking Law sets forth the specific scope for disclosure. The new standards were disconnected from the tax law standards, to be replaced by a bank's self-assessment of the loan portfolio. With regard to the scope, it focused, in principle, on the credit status of a borrower. For example, if a borrower was close to bankruptcy, all loans to the borrower, regardless of the performance of individual loans, were required to be categorised as NPLs for disclosure. The current disclosure requirement of NPLs in Japan is probably among the most far-reaching in the world.¹⁹ But the insufficient disclosure requirement during the critical period up to the late 1990s seems to have contributed to obscuring the actual status of NPLs in the banking sector.

2.4 Deterioration in banks' real capital positions

As explained earlier in the context of banks' provisioning policy, Japanese banks were significantly under-provisioned until the late 1990s. This implies that the overall buffer against credit risk (provisions and capital combined) was insufficient relative to the size of potential problem loans. It also implies that their effective capital ratio could have been lower if potential losses in their loan portfolio had been adequately reflected in the financial statements. This can be examined, for example, by applying the provision rates, which were used in calibrating the amount of capital injection in March 1999, to the outstanding amount of classified loans of a bank in a retroactive way. The provision rates were 70% for loans to borrowers close to bankruptcy and 15% for the substandard portion of loans to marked borrowers. The rates were perceived to be sufficient to reflect potential losses at the time of capital injection in March 1999. Therefore, a retroactive application of the ratios to the problem loans would demonstrate real capital ratios of banks as opposed to capital ratios that appeared in the financial statements.

The banks might have recognised, at least to some extent, the deterioration in their capital positions and the need to raise new capital. Since 1990, the Japanese banks have been downgraded frequently by the rating agencies and the banks' stock prices were generally declining. Therefore, issuance of new stocks in the capital market was virtually impossible. In response to the perceived difficulties surrounding their capital positions, banks shifted their assets from loans to instruments with lower risk weights such as Japanese government bonds in an effort to maintain their capital ratios. Evidence

¹⁹ These loans are referred to as "risk management loans". The figures are disclosed by individual banks. The FSA publishes semiannually the aggregated amount of risk management loans.

shows that after 1994 banks seemed to have implicitly aimed at 9% as the minimum ratio that should be achieved at all times. It is not clear why 9% was generally regarded the minimum ratio. Perhaps the required minimum ratio of 8% plus a 100 basis point buffer was perceived to be the lowest ratio that would suffice to underpin the reputation of a bank.

As new stock issues in the capital markets were virtually impossible for banks, the only conceivable policy response to dramatically improve banks' capital positions was the injection of capital using public funds. But the fact that the overall capital ratio of major banks (as reflected in financial statements) exceeded 9% prevented the argument for capital injection from developing into a realistic policy option. In addition, banks themselves did not publicly admit that they were undercapitalised until a very late stage.²⁰ There was a general tendency for a bank to hesitate to apply for capital injection by the government, because in doing so it feared being singled out and labelled as a weak bank.

Furthermore, there was a strong public resentment about the use of taxpayers' money. In particular, the *jusen* problem in 1996, in which ¥ 685 billion of taxpayers' money was spent, fuelled such resentment. After the *jusen* resolution, any reference to the use of public funds had become almost a political taboo, although the need for capital injection to the banking sector had come to be felt ever more acutely. The taboo was broken by the outbreak of a major financial disruption in the autumn of 1997. The disruption eventually paved the way to a series of policy responses including two rounds of capital injections using public money, the first in March 1998 and the second a year later in March 1999. The overall capital ratio of Japanese banks rose to around 11% after the injection and the gap between the effective capital ratios and those that appeared in the financial statements might have then been narrowed.

In retrospect, it seems difficult to deny that obscured capital ratios of Japanese banks, their general reluctance to admit the need for recapitalisation, and the *jusen* problem contributed to delaying the timing of the capital injection.

2.5 Negative impact on the economy

Quantitative analysis of the impact of the financial crisis on Japan's economy has been fairly limited to date. The crisis of 1997-98 increased the precautionary demand for money but did not lead to wider economic activities.²¹ The deterioration in confidence in the financial system must have adversely affected consumers' confidence and thus their propensity to spend. The capacity of banks to extend new loans was constrained by the deterioration in their capital positions. The tightened credit conditions discouraged business fixed investment by the corporate sector. Medium and small-sized corporations were hit most severely as their alternative sources of funding were generally limited. The resultant economic contraction further undermined the asset quality of banks, thus entrapping the financial system and the real economy in a vicious circle that dragged the economy into a recession. This mechanism may have been significantly underestimated at the time. As a consequence, the recession became deeper and longer than had been widely anticipated and the cost and time for overcoming the financial crisis grew that much larger and longer.

The banking sector is the dominant supplier of credit to the corporate sector in Japan. Banks in Japan were almost unanimously exposed to the common risk arising from falling land prices, because a large part of their loans were secured with real estate collateral. Therefore, unless NPLs on banks' balance sheets are thoroughly cleaned up, their negative impact on the economy will not be fully alleviated. There may be several reasons for the slow process of cleaning up banks' balance sheets. First and foremost, a violent swing in land prices was the fundamental background that left banks with huge amounts of NPLs. Urban real estate prices quadrupled between September 1985 and September 1990. Subsequently they plunged by 80% to pre-bubble levels by 1999, creating new waves of NPLs year after year. The disposal of these huge amounts of NPLs naturally turned out to be painful and time-consuming for banks. Second, financial techniques like securitisation of real estate-related NPLs

²⁰ At a press conference held after the G7 meeting held in Washington DC in October 1998, Governor Hayami of the Bank of Japan referred to the pressing need for the major Japanese banks to address their undercapitalisation. His comments infuriated Japanese bankers. They claimed that the Governor's remarks were exaggerated. Only five months later, however, the major banks received a capital injection by the government totalling ¥7.5 trillion.

²¹ Hayakawa and Maeda, Research and Statistic Department, Bank of Japan (2000).

only became fully available in the late stages of the crisis. For example, the infrastructure including the legal framework for Special Purpose Companies (SPCs) was installed in 1998. In contrast, in the United States, full utilisation of securitisation and other financial techniques to liquidate NPLs in the early 1990s contributed to a relatively quick recovery of real estate prices as well as to cleaning up banks' balance sheets, and thus an early restoration of banks' soundness. Third, Japanese banks had limited incentives to remove their NPLs from their balance sheets because the carrying cost, or the opportunity cost, of holding NPLs was marginal as the Bank of Japan maintained a loose monetary policy and interest rates remained at extremely low levels. In addition, liquidation of NPLs was almost certain to magnify losses, because sales of bad loans were only possible at deeply discounted prices. Such a prospect of further losses must have discouraged Japanese banks from disposing of bad loans on a large scale.

2.6 The market's response

Market players and other entities reacted more violently than the authorities had expected once the crisis broke out. For example, the short-term money markets almost ceased functioning in the weeks following the default of Sanyo Securities in November 1997. The market players became so risk-averse that they preferred placing their money in accounts with the Bank of Japan to transacting in the markets. During this period retail depositors tended to withdraw deposits and preferred to hold the money in cash. Within the financial sector, there was a general shift from deposits with smaller institutions to postal savings or deposits with some of the larger banks which were perceived to be safer. The rating agencies downgraded Japanese banks constantly and more frequently in the economic downturn. As Figure 4 indicates, Japanese banks across the board had suffered almost one-way downgrading since 1990. This accentuated the fragility of individual banks as well as the vulnerability of the financial system. The media, meanwhile, tended to look for a next failure "scoop" amidst the crisis, in some cases adding to the shakiness of the financial system. Similar market reactions were observed during the Asian currency crisis.²² All this points to the reality that more bad things tend to happen in bad times; an aspect of the crisis for which the authorities might not have been fully prepared. It was also a bitter reminder that, once confidence in the financial system is impaired, it takes a very long time to restore it.

3. Lender of last resort function of the central bank

The framework to safeguard the financial system may be categorised into crisis prevention and crisis management. Crisis prevention includes microprudential supervision and regulation as well as macroprudential monitoring and surveillance. In Japan, the FSA is the supervisor that has responsibilities for microprudential supervision and regulation. The FSA took over the responsibilities from the MoF in 1998.²³ Prompt Corrective Action (PCA) constitutes an important policy tool in the area of microprudential supervision. The Bank of Japan, as the nation's central bank, has responsibilities to maintain financial system stability. It is considered that its role resides more in macroprudential monitoring and surveillance although the Bank has direct access to microprudential information on individual financial institutions through its conduct of on-site examinations and off-site monitoring.

Management of a financial crisis is a joint operation involving multiple public agencies that have different responsibilities. Unlike monetary policy, which is exclusively in the hands of the central bank, a successful crisis management can only be achieved on the basis of joint responsibilities. The central bank alone cannot achieve the goal of maintaining financial system stability, nor can it be attained without the central bank's contribution. In Japan, the framework for crisis management or the safety net can be decomposed into four broad areas each covered by a separate public agency. The FSA

²² Morris and Shin (1998).

²³ The Financial Supervisory Agency was established in June 1998. In July 2000, it was reorganised into the Financial Services Agency as a part of the restructuring of government agencies. In the reorganisation, policy planning functions were added to the new Financial Services Agency.

(formerly the MoF) acts as the supervisor that has the power to issue orders based on relevant laws. The DIC employs deposit insurance funds. The MoF takes budgetary measures where necessary. The Bank of Japan exercises the lender of last resort (LoLR) function. However, this is a conceptual distinction and in managing an actual crisis the scope for the role of the central bank is dependent on how the entire safety net is structured. If the safety net is designed to retain flexibility to use deposit insurance for wider purposes or to resort to early use of public funds in a crisis situation, the role of the central bank may become relatively smaller. Conversely, if the safety net has strict constraints or lacks the flexible use of deposit insurance funds and public funds, the central bank's burden may become that much heavier. The latter was probably the case for Japan in the early stages of the crisis. In this section, various types of LoLR function exercised by the Bank of Japan in the crisis period are examined with a view to tracing how the nature of the funds provided by the central bank changed over time in relation to the evolving structure of the safety net. It also focuses on some of the key features related to the LoLR function, the principles governing it and the information necessary for its exercise.

3.1 Purpose of the LoLR function

From the early stages of the crisis, it was recognised that the central bank's involvement had a different role from that of the DIC. The DIC aimed at protecting depositors by covering the losses incurred by a failed bank. The purpose of the provision of the central bank's funds was to maintain the financial functions of problem-banks and thus to serve the ultimate policy goal of preserving financial system stability. Financial functions imply lending, deposit-taking and above all provision of payment and settlement services. Even if a bank failed, it was thought essential to maintain these functions without interruption while the failed bank was processed in an orderly way. This was the key common policy concept that underlined all cases of the actual exercise of the LoLR function. In terms of the institutional framework, the Bank of Japan Law provides the central bank with capacity to extend emergency loans or other forms of funds to financial institutions for the purpose of maintaining financial stability. These provisions are different from loans used for monetary adjustments and have a separate legal basis (Article 38 under the current law and Article 25 under the previous law). The article retains substantial flexibility in the sense that it allows the Bank to provide these funds to financial institutions including non-banks and without necessarily requiring collateral when the Bank judges that financial stability is under threat.

3.2 Classification of the LoLR function

Table 4 displays all of the cases in which the Bank of Japan exercised its lender of last resort function. The nature of the funds provided by the Bank differed from one case to another. Indeed, in some cases the Bank intervened in ways that were at variance with the traditional received theory of the LoLR function or with practices or experiences in other countries. The Bank also employed tools for monetary adjustments to maintain the functioning of the markets. From the Bank of Japan's experience in the 1990s, the LoLR function may be classified into the following five broad types:

- Type 1 Emergency liquidity assistance to a failed deposit-taking institution.
- Type 2 Provision of liquidity to interbank markets.
- Type 3 Emergency liquidity assistance to a failed non-bank financial institution.
- Type 4 Provision of risk capital to a financial institution.
- Type 5 Emergency liquidity assistance to a temporarily illiquid financial institution.

The order of the five types represents the frequency and scale with which each of these fund provisions was employed during the 1990s. Type 1 loans were most frequently used, sometimes on a large scale, while Type 5 loans were never activated during the 1990s. The order can be rearranged if seen from a different angle. For example, if distance from conventional central banking is taken as a norm, provision of liquidity to interbank markets (Type 2) and emergency liquidity assistance to a temporary illiquid financial institution (Type 5) would outrank the others in terms of closeness to traditional business conducted by a central bank. They may be followed by emergency liquidity assistance to a failed deposit-taking institution (Type 1), emergency liquidity assistance to a failed non-bank financial institution (Type 3), and provision of risk capital to a financial institution (Type 4), at the furthest end of spectrum. Each type is described in the following subsections.

3.2.1 Type 1: Emergency liquidity assistance to a failed deposit-taking institution

This was the most frequently used type of LoLR aiming at providing funds to a failed deposit-taking institution to continue its operation from the day of the announcement of the failure until the final resolution by the DIC. Normally, it required about 6-12 months after the failure announcement until the final resolution, when the sound assets and liabilities of the failed bank were transferred to an assuming bank and the losses were covered by the DIC. Therefore, this liquidity support was a bridge financing until the DIC covered all the losses of the failed institution. The loans were extended upon approval by the Policy Board of the Bank of Japan pursuant to Article 38 (Article 25 in the former law) of the Bank of Japan Law. The interest rate on these loans at the time used to be 0.75%, which was one of the rates used for monetary adjustments and 25 basis points higher than the Official Discount Rate (0.5% at the time). But in April 1999 the rate was disconnected from the Official Discount Rate and raised to 1.00%. The shift was intended to reflect the different nature of these loans from those used for monetary adjustments as well as the fact that they were normally unsecured. Empirically, when a bank was announced a failure, 10~20% of total deposits were withdrawn within the first week, and up to around 30% within the first month (Table 5).²⁴ By looking at these rates it was possible to roughly estimate the amount of liquidity necessary to support a failed financial institution over a given period of time. The loans were repaid with the funds provided by the financial assistance by the DIC, which ensured all depositors and creditors, including the Bank of Japan, were fully protected within the comprehensive deposit insurance framework. To date, there has been no experience of losses in this type of loans (Table 6).

3.2.2 Type 2: Provision of liquidity to interbank markets

The default of Sanyo Securities in early November 1997 sent shock waves through the interbank market. The market players' belief that the interbank market was the safest place to invest proved unfounded. The market players became extremely risk-sensitive and large domestic investors preferred investing in safe assets such as short-term government securities and bills drawn by the Bank of Japan to taking counterparty risks in the interbank market. During this period, Japanese banks experienced serious funding difficulties in both domestic and overseas markets due to their general loss of credibility. Foreign banks that were the counterparties to Japanese banks in currency swap contracts, thus the suppliers of non-yen funds, refrained from recycling their yen funds (obtained from currency swap contracts) to the domestic interbank markets for fear of taking credit risks. Market liquidity was drying up and the risk of market malfunctioning was imminent. The Bank of Japan injected liquidity into the markets through purchase of eligible bills, repos and bilateral lending to banks against eligible collateral. The total central bank outstanding credit reached ¥22 trillion in December 1997. Meanwhile, the Bank absorbed excess yen liquidity building up among foreign banks by drawing bills for sale.

As Figure 5 indicates, this two-way operation of the Bank continued until 1998 and proved to be effective in several respects. First, it alleviated the upward pressure on yen interbank interest rates. Second, by becoming the counterparty to foreign banks, the Bank recycled yen funds through its market operations to those Japanese banks which otherwise would have faced severe funding difficulties. The absorption by the Bank of Japan of yen held by foreign banks contributed to containing downward pressure on the yen exchange rate. Although the tools employed in the two-way operation were essentially for monetary adjustments, they contributed to maintaining the functioning of the interbank market in autumn 1997 when Japanese banks were suffering from a deterioration in their credibility.

3.2.3 Type 3: Emergency liquidity assistance to a failed non-bank financial institution

The emergency liquidity support provided to Yamaichi Securities in 1997 falls into this category. The support was an extraordinary measure approved by the Policy Board of the Bank of Japan pursuant to Article 25 of the Bank of Japan Law. The decision was a difficult one at the time since the securities house was barely solvent and the possibility of its becoming insolvent was judged to be not too

²⁴ The outflows of deposits were witnessed despite the repeated announcement by the authorities that all deposits would be protected.

unrealistic. Moreover, unlike deposit-taking institutions, securities houses were outside the scope of the DIC and this meant that a mechanism that ensured full repayment of Type 1 loans was lacking in this case. Despite the uncertainties, the Bank went ahead with the liquidity support to address systemic concerns in both domestic and overseas financial markets. The domestic financial system had already become fragile and the collapse of a major securities house could have rocked the entire financial system. The securities house was an international financial conglomerate with banking arms in several countries. A disorderly collapse was therefore judged to present an immediate threat to the global financial markets. The Bank of Japan provided liquidity support to Yamaichi to ensure smooth performance of all outstanding contracts including those at overseas subsidiaries. This successfully avoided international financial disruption but left a very difficult issue of how the Bank's loans could be repaid, as described in Section 1. The securities house was declared bankrupt by the Tokyo District Court in June 1999 and it is still unknown by whom and in what way the cost of the central bank's loans, with an outstanding amount of ¥325 billion (as of September 2000), is eventually going to be borne.

The case of Yamaichi raised an important issue for the central bank. Should it deal with the distress of a non-bank financial institution which was judged to have systemic implications, and if so, in what way? The issue was more relevant if the non-bank financial institution was a conglomerate with some banking arms. In the Japanese context, there were two such cases during the crisis of autumn 1997. In the failure of Sanyo Securities, which preceded the Yamaichi collapse by three weeks, the Bank of Japan held back from intervening. The underlying thinking was that the Bank should step in only if and when the problem developed into a crisis involving banks. The shutdown of the businesses of Sanyo Securities caused a default in the interbank money market. The default, albeit relatively small in amount, sent shock waves and paralysed the interbank markets in the weeks that followed. The Bank was obliged to conduct market operations using tools described in the subsection on Type 2 intervention. To summarise, in Sanyo's case, the central bank did not intervene initially because the failure of a non-bank institution was considered to have less systemic implications than that of a bank. But the central bank had to intervene on a large scale as the failure developed into a disruption encompassing the interbank markets. In the case of Yamaichi Securities, the Bank of Japan stepped in directly from the beginning, because the failure of Yamaichi, although it was a non-bank, was thought to have systemic implications. It successfully avoided market disruption but left a serious problem as to who should bear the final costs.

Two questions arise concerning the approach to the Yamaichi case. They are:

- (a) Was a private sector solution sought before deciding to depend on the central bank's support?
- (b) Could not a more detailed and specific loss-sharing rule have been envisaged between the MoF and the Bank of Japan before launching the resolution package?

With regard to the first question, Fuji Bank, the main banker to Yamaichi, was approached to offer some support. However, Fuji Bank was already suffering from its own loss of credibility in the financial markets and was fearful of incurring losses by being involved in the Yamaichi resolution package. Generally, under circumstances where the cost of resolution is unknown, but could potentially be very large, as was the case with Yamaichi, it would be very difficult to seek a private sector solution. As a result, Fuji Bank played only an administrative role²⁵ without incurring risks.

As for the second question, admittedly, it would have been ideal if a specific-loss sharing rule had been worked out between the government and the central bank. However, in the Yamaichi case, the run-up to the launch of the resolution package after its off-the-book liabilities surfaced was only seven days. It was practically impossible to do anything other than incorporate a general commitment by the Finance Minister into the statement issued on the day of the failure announcement. Going beyond this, for example, having the MoF commit to take budgetary measures, requiring Diet approval, would have been technically impossible. It would generally be very difficult to promptly arrange a specific loss-share rule between the central bank and the government in a crisis situation under extreme time constraints, unless there is a clear predetermined rule or an institutional framework.

²⁵ Fuji Bank became an intermediary vehicle to channel the Bank of Japan's loans to Yamaichi Securities and handled administrative issues relating to the loans.

3.2.4 Type 4: Provision of risk capital to a financial institution

This type of funds provision was concentrated in the earlier stage of the crisis. The establishment of Tokyo Kyodou Bank (TKB) in 1995 to become an assuming bank for the failed credit cooperatives in Tokyo required ¥20 billion of risk capital from the Bank of Japan. In 1996, the Bank provided ¥110 billion of subordinated loans to Midori Bank, which was established as a rescue bank for failed Hyogo Bank, to enhance its capital position. In 1997, the Bank injected ¥80 billion capital into Nippon Credit Bank (NCB) as a part of its comprehensive restructuring plan. These provisions of funds were based on Article 25 of the Bank of Japan Law. The article allowed the Bank to take necessary measures, including the provision of risk capital, to maintain financial system stability.

The common background to the above-mentioned three cases is that the sources of systemic concerns were solvency rather than liquidity problem with a bank and that an institutional framework to address such solvency issues was non-existent at the time the problems surfaced. Neither the DIC nor the government had a framework for injecting capital to banks with solvency problems. When the risks were imminent and alternative policy tools were limited, the central bank was looked to as the only institution that could provide the risk capital in a prompt and timely manner. However, such operations turned out to be costly. As shown in Table 6, the Bank lost 82% of the capital provided to the TKB. Furthermore, the Bank lost all of the ¥80 billion capital that it injected into NCB. As a result, the overall loss ratio turned out to be as high as 46%.

The losses were reported in the financial statement of the Bank of Japan. It was feared that this could undermine confidence in the central bank, or the national currency more broadly. For the central bank to incur losses implies, as is obvious from its balance sheet, impairment of the assets against which banknotes are issued.

The case of TKB can be attributed to an incomplete safety net at the time of its foundation. TKB had to assume some NPLs from the failed institutions because the safety net framework at that time lacked a mechanism that could effectively remove all bad loans before the business transfer to TKB. The NPLs that remained on the balance sheet of the TKB later turned sour and eroded the TKB's capital. The loss for the central bank materialised when the shares of the TKB held by the Bank were sold at fair value to the DIC in 1999.

In the case of NCB, the amount of potential bad loans was underestimated. If the capital injection to NCB in 1997 had been judged the only option at that time, the amount of capital injection would have had to be considerably larger in order for the bank to be effectively bailed out.

It may now be assessed that Type 4 provision of funds was the role that the central bank was determined to play in the absence of any alternative institutional framework to provide risk capital in the crisis situation. The Bank judged it was a part of its responsibilities to address financial instability. The central bank succeeded in containing imminent risk but the price turned out to be high. The Bank was heavily criticised by the media and in the Diet discussions for the misuse of the central bank's funds. This led to an internal discussion in the Bank on the scope of its LoLR functions. In the Annual Review for 1999, the Bank explicitly stated that the provision of risk capital goes fundamentally beyond the role of the central bank and should be dealt with under other frameworks. Since the introduction of a capital injection framework in the safety net in 1998, the DIC has replaced the Bank of Japan as the provider of risk capital to problem banks. In the new safety net that became effective April 2001, a demarcation now exists where the central bank takes care of liquidity and the DIC (and the government) handles provision of risk capital in systemic cases involving a deposit-taking institution. But in a hypothetical case where a non-bank financial institution threatens financial system stability, the issue of who should provide risk capital or liquidity remains to be determined.

3.2.5 Type 5: Emergency liquidity assistance to a temporarily illiquid institution (where solvency is questioned)

This type of lending would conceptually be the purest type of LoLR function. However, in the crisis management during the 1990s, as regards the loans based on Article 38 (ie loans with the specific aim of maintaining financial system stability), there was in fact no lending of this sort. This may reflect the fact that Type 5 loans are crisis prevention measures rather than crisis management tools. The only case in which the possibility of an extension of this type of loan was considered involved Long Term Credit Bank (LTCB) when it was experiencing serious funding difficulties while possible solutions were discussed in the Diet in the summer of 1998. The Bank of Japan, however, decided not to step in. This judgment was made against the background that the prospect of recovery of the loans was uncertain

(the merger plan with Sumitomo Trust was not confirmed) and that the reputation of LTCB had deteriorated to the extent that intervention by the Bank would only serve to confirm its desperate state. In other words, it was feared that the negative announcement effect of the exercise of LoLR would kill off, rather than support, the troubled bank.

In later studies by the Bank of Japan on the LoLR function, the possibility of using this type of loan as a crisis prevention measure as opposed to crisis management has been further explored. A paper by the staff of the Bank of Japan argues that LoLR assistance may be extended in two ways; ex ante and ex post assistance. Ex ante LoLR assistance aims at correcting irrational market pessimism by showing the central bank's belief that the institution concerned is solvent and viable.²⁶ Ex post LoLR assistance is extended to help keep the operations of the troubled institution in order to maintain financial system stability. Type 1 loans are typical examples of such ex post LoLR assistance.

Ex ante LoLR assistance relies on announcement effects to correct market perceptions of a troubled financial firm. Such announcement effects exerted by the central bank can be particularly effective in the stage of a crisis when the solvency of a firm begins to be questioned. In such an environment, the firm would generally face liquidity problems. However, liquidity and solvency problems cannot be clearly separated. As the market's view on the firm's viability grows pessimistic, the market would see the firm no longer as a going concern and would start to revalue the asset quality of the firm. The firm's perceived value could shift significantly downwards from what appears in the financial statements, because the market would rather begin to assess the firm's liquidation value. This could further intensify the firm's liquidity problems. Such interaction between the deterioration of the firm's perceived value and the liquidity squeeze could eventually, in a self-fulfilling way, force the firm into a suspension of business and insolvency. The central bank's intervention might send clear signs to the market with respect to the continued solvency and viability of the firm in order to correct the pessimistic view of the market on the firm. Experience in Japan shows that the potential losses grow progressively larger²⁷ if firm measures are not taken to address a problem bank at an early stage. Therefore, such an intervention by the central bank could prove to be the least costly and the most effective way to deter systemic risk.

3.2.6 Collateral and provisioning policy with regard to LoLR assistance

Type 1 and Type 3 loans were liquidity support in the form of bilateral lending and they were generally unsecured. This assumes that an institution must have exhausted all eligible collateral for funding in the markets before relying on the central bank's emergency lending facility. But in the case of the liquidity support to Yamaichi Securities, the Bank of Japan took collateral against its loans to the extent that it did not hinder Yamaichi's operations. Collateral included Yamaichi's financial assets as well as non-financial assets including its premises. The administration of the non-financial assets turned out to be a complex duty for the staff of the Bank. Meanwhile, in order to preserve the soundness of the balance sheet of the central bank, specific provisions were set aside against the outstanding amount of the loans. For Type 1 loans, 10% of the outstanding loans was set aside. For Type 3 loans, the corresponding ratio was 25%. The lower ratio for the Type 1 loans reflected the clearer prospect of recovery of the loans with the DIC's financial assistance.

3.3 Other institutional frameworks involving the central bank

Other unique aspects of the central bank involvement in dealing with financial stability are the lending to the DIC and other safety net arrangements (Policyholders Protection Corporation and Investors Protection Fund). Unique as they might appear, this involvement reflected the notion of the general public that the central bank has general responsibilities to address financial instability.

²⁶ For a more detailed explanation of the effects of ex ante LoLR assistance, see the Ohashi, Hamanda, and Sumida, Financial System Division, Bank of Japan (2001).

²⁷ Once a bank faces serious managerial problems, the corporate value of borrowers from the bank tends to deteriorate. Particularly those borrowers which do not have alternative means of financing may go bankrupt as the bank becomes unable to support them. This results in writeoffs of loans and thus losses for the bank. This is the typical mechanism through which the losses for a problem bank become progressively larger as the bank loses its lending capacity.

3.3.1 *The lending to the DIC*

The DIC fundamentally relied on its premium revenue from the member financial institutions. But as the DIC's expenditure outpaced the revenue due to larger bank failures, it became more dependent on borrowing from outside sources. It was intended that the DIC would repay the borrowing with its future premium revenue. Under the safety net framework introduced in October 1998, ¥53 trillion was granted in the form of credit lines with government guarantees. Each account within the DIC had different borrowing limits.²⁸ The DIC was able to borrow either from private financial institutions or from the Bank of Japan. Such borrowing capacity of the DIC was granted under the Deposit Insurance Law.

The DIC soon became heavily dependent on borrowing from the Bank of Japan. Its borrowing requirement could be met flexibly by the Bank and the rates on the central bank's loans (Official Discount Rate) made the central bank an attractive and economical source of funding for the DIC. The outstanding amount of loans to the DIC expanded rapidly and reached ¥8 trillion towards the end of 1998. As Figure 6 shows, the aggregate of Article 38 loans and loans to the DIC reached ¥8.6 trillion in December 1998, which accounted for almost 10% of the Bank's total assets.

Given the long-term nature of such loans, a disproportionate increase was considered to threaten flexible monetary operations by the Bank. Against this background, the Bank argued that the loans to the DIC had to be of a temporary nature or "bridge financing" until they could be replaced by loans from other financial institutions.

Based on this argument, the terms and conditions of the Bank's lending to the DIC were revised in July 1999. A key feature was that the Bank's role as an initial temporary provider of finance became clearer. The Bank satisfied the initial borrowing requirement of the DIC by extending loans with ODR and maturities of less than one year in principle. When the loans matured, they would be required to be replaced with funding from private sources. The DIC would carry out auctions to replace the loans from the central bank with borrowing from private financial institutions. The auctions were open to institutional investors and foreign banks as well. Meanwhile, the Bank began to pursue the so-called "zero interest rate policy" in February 1999. In this very relaxed monetary environment, the investment in the DIC appeared very attractive with low risks as the loans were government-guaranteed. The auctions turned out to be very successful. Later in the year, additional measures were taken to facilitate the DIC's financing from private sources. In October 1999, the DIC started to issue government-guaranteed bonds. These were given the status of eligible collateral for borrowing from the Bank of Japan. Consequently, the Bank's loans to the DIC contracted sharply to ¥269 billion in March 2000. As Figure 7 shows, out of total debt of ¥16.8 trillion, ¥16.6 trillion was from private sources.

3.3.2 *The lending arrangements to the Investors Protection Fund and the Policyholders Protection Corporation*

In December 1998, the safety nets for retail equity investors and insurance policyholders were established (Investors Protection Fund and Policyholders Protection Corporation). Consistent with the deposit insurance system, temporary measures that provided additional protection until March 2001 were introduced. As a part of such temporary measures, both the Investors Protection Fund and the Policyholders Protection Corporation were given the capacity to borrow from the Bank of Japan on a government-guaranteed basis. In terms of legality, there were specific articles relating to the borrowing capacity in the Insurance Law and Securities Exchange Law. It was intended to be an emergency

²⁸ Borrowing limits for different accounts as of October 1998 were:

• Special Account	¥10 trillion
• Financial Reconstruction Account	¥18
• Capital Injection Account	¥25
Total	¥53 trillion

Apart from the three accounts mentioned above, there was the Ordinary Account, which had a borrowing limit of ¥2 trillion but without government guarantees. In the budget for FY 2000, this borrowing limit was doubled to ¥4 trillion and government guarantees were granted. Also, in the same budget, ¥6 trillion of government bonds that could be cashed upon request by the DIC were issued in addition to the ¥7 trillion of similar bonds that had already been issued. This made the total amount of available public funds ¥70 trillion, of which ¥57 trillion was in the form of credit lines with government guarantees.

liquidity backup facility. The Bank accepted the idea because it judged that failure of a securities house or an insurance company, which under normal circumstances would not involve systemic considerations, could trigger a major financial disruption if the core part of the financial system, the banking sector, was very fragile. However, there were no cases in which the lending facility of the Bank was activated. The lending arrangement functioned more as a device generating a positive announcement effect that the central bank was standing by to address any potential instability arising out of the securities or insurance industry.

In 2000, the financial resources of the Policyholders Protection Corporation were strengthened. It had ¥460 billion of available funds but it was estimated that this would be consumed by the resolution of Toho Seimei, which had failed in June 1999. Furthermore, there were growing concerns for the general health of the life insurance industry. As a consequence, the government proposed reinforcing the financial resources by requiring the industry to place an additional ¥100 billion, and by committing itself to take budgetary measures, if necessary, up to ¥400 billion. The government also decided to extend the temporary special protection of policyholders by two years until March 2003.

The lending arrangement to the DIC and other safety nets raises a question as to the scope of the role that should be performed by the central bank in contributing to financial system stability. There may not be a single answer to this question as it can only be determined in relation to the magnitude of threat to financial stability as well as to the structure and financial robustness of the safety nets. Japan's experience suggests that, if the risks to the financial system are judged to be substantial, and in the absence of other safety net arrangements, the scope of the central bank's role may have to be expanded beyond what would be expected under normal circumstances.

3.4 Principles governing the exercise of LoLR assistance

The Bank of Japan adopted the following four principles in the actual provision of LoLR assistance in dealing with the financial crisis in the 1990s.

- (a) There must be a strong likelihood that systemic risk will materialise.
- (b) There must be no alternative to the provision of central bank funds.
- (c) All parties involved are required to take clear responsibility to avoid moral hazard.
- (d) The financial soundness of the Bank of Japan should not be impaired.

Only when all four principles were judged to be satisfied did the Bank decide to take actions as lender of last resort. Although these principles are not specifically written in the Bank of Japan Law, they were established on the basis of the fundamental concept and nature of LoLR assistance. However, they were not established overnight but evolved over the years in a constant effort to enhance policy transparency and accountability. Early forms of the principles that crystallised internal discussion within the Bank thus far appeared as early as October 1994 in Governor Mieno's speech in which the first three principles were expressed in a more general way. These were refined and established as the three principles in Governor Matsushita's speech in March 1995. Later, the fourth principle on the financial soundness of the central bank was added. The idea of this principle was to avoid the provision of funds where there was a clear prospect of losses. While the first three principles are fairly straightforward, the fourth principle is difficult to implement in practice. The possible cost of providing the LoLR support must be weighed against the possible risk of financial disruption if the central bank does not intervene. Indeed, there may well be cases in which the central bank will still decide to extend emergency support for the sake of financial stability, even knowing that it may result in a loss with a certain probability.

In relation to the problem of moral hazard, a popular argument has been to maintain "constructive ambiguity" in pursuing the role of lender of last resort while containing moral hazard. However, the Bank of Japan's experience casts some doubts on whether ambiguity can really be always constructive, particularly when the stability of the financial system as a whole is at stake. The central bank would in any event be asked by the general public about the criteria on which it based the policy judgment. In this context, an approach in which the judgment whether or not to provide LoLR assistance is based on a set of predetermined principles seems to be better placed in terms of policy transparency and accountability. Moral hazard may be effectively contained to a minimal level by adopting the third principle. This principle generally requires the removal of the senior management of the failed firm and the use of existing shareholders' capital as the initial source to cover the losses.

3.5 Information necessary for the provision of LoLR assistance

Regardless of what form LoLR assistance takes, it will be accompanied by credit risk. Therefore, information on the credit risk of the individual financial institution must be obtained in a timely manner. Necessary information includes the asset quality, capital position and net value of the financial institution in question. The Bank of Japan conducts on-site examinations and off-site monitoring of individual financial institutions and thus has direct access to this information. Also, in a systemic case where the provision of LoLR assistance is an imminent possibility, inspection results from the FSA may be obtained. Such access to information on the soundness of individual financial institutions is considered to be an essential prerequisite for the responsible provision of LoLR assistance.

Also, the central bank must gain information that ensures a precise assessment of the health of the overall financial system. If the financial system is generally sound, the failure of a financial institution may be contained as an isolated event. However, when the overall financial system is vulnerable, contagious effects of a failure could shatter the entire system. Therefore, macroprudential judgment by the central bank could be vital in identifying and addressing systemic concerns.

In managing a crisis, choosing the right timing for announcing the failure of a financial institution is crucial. Most desirably, it would be after business hours or over the weekend, when details of the resolution package might be worked out and announced. The liquidity position of the financial institution is a key factor that determines such timing. Japan's experience showed that a financial institution whose solvency is questioned would face funding difficulties that grow over time. But as long as the institution is able to fund in the markets, it can continue its operations. After all, it is not necessarily the solvency but the liquidity position that determines how long an institution can withstand a stress situation. Thus, precise monitoring and forecasting of the liquidity position of a problem institution would be a vital element that determines the timing of the official intervention. Such a role may best be played by the central bank. Moreover, when LoLR assistance is eventually provided, the central bank would need to be informed of changes in the liquidity position of the institution in trouble almost as they occur, so as to provide just the right amount of liquidity support at a given time.

Monitoring the liquidity position of a financial institution under stress is also vital for the central bank to ensure timely delivery of sufficient banknotes to the branches of the institution experiencing runs. The financial crisis in Japan in the 1990s was characterised by a persistent risk that failure to meet demand for cash withdrawals could precipitate disruption. The Bank of Japan had established an internal arrangement that ensured smooth delivery of banknotes even to the remotest regions. The arrangement was designed to be flexible so that the operation could, if necessary, be carried out outside normal business hours. Indeed, the Financial System Division of the Bank of Japan, as the crisis management team, always reacted to the unfolding of a new event by immediately working out delivery routes for banknotes. Thus, although not so conspicuous, the operation to ensure timely delivery of banknotes has been an integral part of crisis management.

3.6 Summary

The experience of the Bank of Japan in exercising its LoLR function may point to the following conclusions.

First, the scope of the central bank's LoLR function depends largely on the magnitude of the threat to financial system stability and the structure of the safety nets. In the absence of an institutional framework to address financial instability, the role expected of a central bank to cope with imminent crisis may become that much larger.

Second, in view of the fact that the cost of resolution of a failed financial institution becomes progressively larger, greater focus should be placed on the use of LoLR assistance as a crisis prevention, rather than as a crisis management tool. The success of such preventive or ex ante LoLR assistance relies on announcement effects that might correct market pessimism due, for example, to information asymmetry with regard to the solvency of a financial institution. If such an operation proves successful, the cost naturally becomes nil.

Third, a set of predetermined explicit general principles governing the provision of LoLR assistance, while maintaining room for flexibility in actual policy implementation, would be desirable to enhance policy transparency and accountability.

Fourth, access to key micro- and macroprudential information is an important prerequisite for the successful provision of LoLR assistance. Precise monitoring and forecasting of the liquidity position of

the financial institution in question is also vital in determining the timing for official intervention including support by the central bank.

4. International comparison

A number of countries have experienced banking crises, with striking similarities but conspicuous differences. Analytical research has been undertaken on the comparative aspects of banking crises in various countries. For example, Hutchinson and McDill²⁹ argue that macroeconomic variables like real interest rates and stock prices could be leading indicators of a banking crisis and that financial deregulation and explicit deposit insurance systems could have increased the probability of banking crises. The paper notes that while these findings can be commonly observed in banking crises across countries including Japan, one aspect that distinguishes the Japanese case from others is the length of the banking crisis and the recession that followed. According to the paper, the average duration of banking crises was 3.9 years and the average length of recession was 3.3 years. This contrasts with the Japanese case, in which the corresponding figures were 7.0 years and 6.0 years respectively by the end of 1998. This section sheds light on some of the comparative aspects of the banking crises.

4.1 Size of non-performing loans

The size of NPLs relative to nominal GDP is shown on Figure 8. Although direct comparison of the ratios is irrelevant because definitions of NPLs differ among countries, it provides a size dimension of NPLs problems across countries. The ratio for Japan in 1999 stands at 7.8%, around two to three times as high as the ratios for the previous major banking crisis in Japan in the late 1920s and the United States in the early 1990s, when some commercial banks were in trouble. The ratio for Sweden was 13.2% at its peak, significantly higher than that of Japan. It must be noted, however, that the high ratio for Sweden partly reflects the fact that Sweden adopted a very stringent measurement of NPLs.³⁰

The ratio can be broken down into an asset/GDP ratio and NPL/asset ratio as displayed in Table 7. Among the three countries, Japan has the lowest NPL/asset ratio, but its asset/GDP ratio is substantially higher than that of the other countries. The high asset/GDP ratio for Japan implies concentration of the financial intermediary function in the banking sector. The high ratio for Japan may also suggest that, if banks' financial intermediary function was damaged, it could have a more serious impact on the economy in Japan than in the other countries.

As the ratios suggest, the banking sectors in both Sweden and Japan were severely damaged. A notable difference was that while a large portion of NPLs was concentrated in major banks in Sweden, in Japan NPLs were spread almost evenly across all types of financial institutions. Another difference seems to have been the underlying level of profitability. As Table 8 shows, banks in Japan reported ¥65.7 trillion of loan losses during the years from FY 1992 to FY 1999. This is 13.2 times as large as the average annual operating profit during the corresponding period. This implies that it would have taken more than 13 years for Japanese banks to dispose of bad loans if they had been solely dependent on operating profits. The corresponding figure for Sweden was 6.4 for the period 1991-97. The gap suggests that the underlying profitability of Japanese banks was weaker to overcome a crisis. This is also evident from Figure 9, which shows that the loan losses of Japanese banks have consistently surpassed operating profits since FY 1994. In Sweden, the corresponding period when banks' loan losses exceeded profits (before loan losses) was limited to three years from 1991 to 1993.

²⁹ "Are All Banking Crises Alike? The Japanese Experience in International Comparison", Department of Economics, University of California, Santa Cruz, 1999.

³⁰ For example, NPLs include all exposures overdue by 60 days or more (where 90 days is the norm in many other countries). Also, the valuation of collateral is extremely strict, valuing real estate collateral at market values even in a very weak market.

4.2 LoLR assistance

In Section 3, five types of LoLR assistance in Japan were identified. A similar categorisation of types of LoLR assistance by other central banks is also possible.

With regard to Type 1 assistance (emergency liquidity assistance to a failed bank), such cases as Continental Illinois may fall into this category. Continental Illinois faced extreme funding difficulties in May 1984. During the interim period until the FDIC stepped in and announced a capital injection in July, the Federal Reserve Bank of Chicago provided liquidity to the bank (peak outstanding \$6.8 billion).

Type 2 assistance (provision of liquidity to interbank markets) is not fully distinguishable from monetary operations. Nevertheless, there seem to have been instances in which this type of liquidity injection was aimed at addressing financial instability. The operation undertaken by some central banks after Black Monday in the autumn of 1987 may fall into this category.

There appears to be no case, as far as the major countries are concerned, in which a Type 3 loan (emergency liquidity assistance to a failed non-bank) was extended. Thus, the liquidity support to Yamaichi Securities by the Bank of Japan in November 1997 remains a rare precedent to date.

There are a limited number of cases in which central banks provided support that might fall into the category of Type 4 assistance (provision of risk capital to a financial institution). The Bank of England purchased Johnson Matthey Bank, which was found to be insolvent in 1984, and subsequently injected £100 million of risk capital (£25 million preferred stock, £50 million ordinary stock and £25 million subordinated loans) to revive the bank. Another case occurred in Finland, where the central bank acquired the majority of the shares of Sparbankernas Central-Aktiebolag (SCAB), a commercial bank, which had faced acute financial difficulties in 1991. Subsequently, the central bank provided additional capital in order to maintain SCAB's capital base. In June 1992, SCAB was taken over by a new state fund that was introduced to address the financial instability in a more comprehensive way. In this regard, the role of the central bank as the provider of capital was of an ad hoc and temporary nature, until a comprehensive institutional framework was established by the government.

Type 5 loans (emergency liquidity assistance to a temporarily illiquid financial institution) are considered to be typical LoLR assistance. Therefore, central banks with responsibilities for financial stability are generally equipped with the capacity to extend this type of emergency liquidity support.

As shown above, central banks dealt with banking crises each in their own way. However, there were also similarities in the nature of central bank support extended in various countries. Some central banks took other measures such as guaranteeing a bank's debts.³¹ In this regard, the Bank of Japan's policy responses were not unique in themselves. However, what distinguished the Bank of Japan from other instances are the scope and size of its involvement. The Bank of Japan provided all types of funds (Types 1 to 4) during the crisis. Apart from this LoLR assistance, the Bank also financed the Deposit Insurance Corporation (DIC). The outstanding amount of LoLR assistance based on Article 38 of the Bank of Japan Law reached ¥3,870 billion (\$35 billion) at its peak in December 1997. Lending to the DIC reached ¥8,000 billion (\$74 billion) in December 1998. Central banks very rarely incurred losses. But in Japan, ¥96 billion of the central bank's funds have become irrecoverable to date. These figures are unparalleled by any other central bank.³² The figures indicate that the Bank of Japan played a more extensive role in pursuing financial stability and the cost inevitably became larger.

4.3 Utilisation of public funds

The utilisation of public funds was crucial in containing crises in many countries. But the timing and scale of the mobilisation of funds differed across countries.

³¹ When the Bank of Finland acquired the share capital and took over the management of SCAB, it guaranteed all debts of the bank. Meanwhile in the United Kingdom in the early 1990s, when some smaller banks faced financial difficulties due to a decline in real estate prices, the Bank of England guaranteed borrowing by the smaller banks from larger commercial banks.

³² The largest single amount of liquidity support in the United States was extended by the Federal Reserve Bank of New York to Bank of New York in November 1985 when the bank's computer system broke down. The NY Fed extended \$22.6 billion of credit but recovered it all the following business day.

4.3.1 Timing

In the United States, there were separate deposit insurance systems for savings and loan associations (S&Ls) and commercial banks. The funds available from the FSLIC (Federal Savings and Loan Insurance Corporation) ran out as it dealt with the S&L crisis in the 1980s. This led to the enactment of the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA) in 1989 under which the Resolution Trust Corporation was established and \$200.8 billion of public funds were used to clean up the aftermath of the S&L crisis. However, at this point, the deposit insurance fund for commercial banks (Bank Insurance Fund) remained intact; thus, the public funds were used exclusively for the S&L crisis.

In Sweden, public funds were injected immediately after problems with large commercial banks (Nordbanken and Gotabank) surfaced in 1991-92. This coincided with a large fiscal and current account deficit and a sharp depreciation of the currency. It was evident that what Sweden faced was not merely a banking crisis but an overall economic crisis. This paved the way to the prompt commitment of the government to take fiscal measures to address financial instability.³³

This contrasts with Japan, where the use of public funds was, for an extended period, seen as out of the question. The country had been experiencing sporadic bank failures since 1991 but the widely held view among the general public was that the potential problems were confined to smaller financial institutions with limited systemic implications. Thus, it was considered that the use of public funds should be avoided. The *jusen* problem in 1996 reinforced the argument. It was not until the major financial disruption in autumn 1997 that it became obvious that the deposit insurance fund would run out and that the utilisation of public funds was necessary. Unlike Sweden, where the banking mess was almost immediately perceived to be a national crisis, it took a longer time in Japan from the first signs of financial instability until a full-scale crisis materialised. As described in Section 2, the lag in recognition of a full-scale crisis may explain the delay in introducing public funds in Japan. More broadly, the experiences of the United States, the Nordic countries and Japan suggest that the introduction of public funds only becomes possible when the crisis is visible to everyone's eyes.

4.3.2 Scale

As shown in Table 9, the gross absolute amount of public funds that was made available to address financial instability was the largest in Japan (¥70 trillion = \$648 billion). Also in terms of the ratio to nominal GDP, Japan's figure was the highest (14%), suggesting the size of the NPLs problem. It must be noted, however, that a simple comparison would be misleading because various forms of public funds such as loss coverage, investment and government-guaranteed credit lines are included in Japan's figures. The net public cost is not known until information on the overall performance of public funds becomes available; in particular, the price at which acquired assets can subsequently be sold. For example, in Sweden, SEK 65 billion of public funds, equivalent to 4% of GDP, were used in the form of capital injection and guarantees. However, the government's equity holding in Nordbanken and Gotabank turned out to be very profitable, more than offsetting the initial losses incurred. Moreover, the state-owned asset management corporation "Securum" successfully earned gains from the sales of assets. This also contributed to recovering the money used to support the banks.

In the case of Japan, it is possible, as in the Swedish case, that the net cost can be reduced if the capital injection to banks yields high returns in the future or the RCC earns gains from the sales of assets it holds. It must be added, however, that measures of net public funds are not the only measurement that can gauge the cost of crisis. The cost can also be measured in terms of loan losses. As shown in Table 10, during the period from FY 1992 to FY 1999, Japanese banks reported ¥65.7 trillion of loan losses. The DIC used ¥10.3 trillion in dealing with the failed institutions. Combined with the capital injection using public funds, the aggregate cost of disposal of NPLs after FY 1992 reached ¥85.9 trillion (17% of GDP). Furthermore, banks had paid a higher deposit insurance premium since 1996 and were sometimes asked to take part in a bailout package (eg bailout of NCB in April 1997), which required contributions. At any rate, these figures, whether for gross available public funds or the amount of loans written off by banks, are only a partial measurement of the banking crisis. The

³³ In September 1992, the Swedish government undertook to guarantee banks' liabilities. In December 1992, the Bill on Measures for Strengthening the Financial System was approved by Parliament.

true cost of the crisis, as was the case with the crises in other countries, was the economic contraction that followed, in which so many business opportunities must have been lost.

4.4 Who was protected and to what extent?

It is often argued that containing moral hazard is of primary importance in dealing with a bank failure. Although there is little fault to be found with the general proposition, it may be worthwhile to explore to what extent in practice the entities involved, particularly depositors and other creditors, have been subject to a haircut (incurring certain losses) in actual bank failures.

In the United States, the FDIC is required by law (Federal Deposit Insurance Corporation Improvement Act) to adopt the least costly method in dealing with a bank failure. Although there have been no major bank failures in the recent past, the so-called purchase and assumption (P&A) approach has been the most common method adopted by the FDIC in dealing with failed banks. In a P&A, the assets and liabilities of a failed bank are assumed by a purchaser-bank. Theoretically, uninsured depositors and creditors were subject to a haircut. Usually, however, in a P&A, bids were called for and the bank that paid the highest premium³⁴ became the assuming bank. In such a case, the premium would cover the losses that the uninsured depositors and other creditors would have incurred had a payoff method³⁵ been chosen. This, in essence, implies that the uninsured depositors and other creditors are protected at the expense of the assuming bank, while maintaining the least cost for the FDIC. In this way, uninsured depositors and creditors have in reality been able to recover their money in full. There were also cases in which a payoff method was chosen, in which uninsured depositors and other creditors incurred losses. But these cases seem to have been limited to small banks with little remaining franchise value. In fact, the largest bank to which a payoff method was applied was Independence Bank, which failed in 1992 and had deposits of \$530 million, far smaller than an average credit cooperative in Japan. Moreover in August 1993, the National Depositor Preference Law became effective. The law provided depositors with preferential treatment over other creditors. This implies that, in effect, depositors are fully protected in most cases.

In the Nordic banking crises, the governments injected capital into ailing banks to restore confidence and continue their operations. The governments of Sweden and Finland explicitly declared that they would guarantee all liabilities of banks. In this way, depositors and other creditors were fully protected. However, in both the United States and Nordic banking crises, the shareholders' capital was first drawn on to cover the losses of the failed banks. Shareholders were not protected in the resolutions of failed banks that required public intervention.

In Japan, it was also the general rule that shareholders' capital should be drawn on first before using deposit insurance funds. The senior management of the failed financial institutions was also penalised by being removed. In many cases, civil and/or criminal suits were brought against them. Meanwhile, the institutional framework ensured all depositors and other creditors were fully protected. In sum, there is little evidence that the Japanese approach was particularly unusual in addressing moral hazard problems. In Japan it was considered necessary to protect all depositors and other creditors in the interim period until financial stability was restored, because the cost of a systemic crisis was judged to be larger than the cost of moral hazard on the part of depositors and creditors.

4.5 Other forms of central bank involvement

Apart from the provision of LoLR assistance, central banks play a variety of roles in crisis management. If the LoLR function of central banks is to provide financial resources, central banks are also the providers of human resources, information and market expertise.

First, central banks may be a provider of human resources that bring insights and expertise to deal with financial distress. For example, in France, the Commission Bancaire plays a vital role in maintaining financial system stability including crisis management. The Governor of the Bank of

³⁴ Banks paid a premium because they found franchise value in the failed banks.

³⁵ In a payoff, a deposit is protected up to \$100,000. Depositors that have deposit amounts beyond this threshold and other creditors to the failed bank incur certain losses depending on the remaining value of the failed bank.

France acts as the Chairman of the Commission Bancaire and many of its staff members are on secondment from the central bank.

Second, the central banks are providers of information that may be crucial for successful crisis management. If a central bank has supervisory responsibilities, microprudential data on individual banks would be the primary information with which policy responses may be considered by the agencies that have responsibilities for crisis management. Even if a central bank does not have supervisory power, overall market conditions or the soundness of the entire financial system may be better assessed by central banks, as they are key players themselves in the financial markets. Such macroprudential information should be shared by the relevant authorities to support effective crisis management. Timely exchange of updated information between the authorities is also vital. In some countries, official arrangements are in place to ensure a smooth flow of information. For example, in the United Kingdom, the Treasury, the FSA (Financial Services Authority) and the Bank of England have agreed on an Memorandum of Understanding (MoU). In addition to facilitating information exchange, it clarifies responsibilities at a general level in relation to the handling of a crisis. The MoU serves as the basis for the establishment of a standing committee and promotion of information flows among the authorities.

Third, in some cases, central banks are expected to act as an honest broker to work out an arrangement among the parties concerned to prevent a problem with a financial firm from developing into a major disruption. This might include arranging a merger or organising a rescue operation by the private sector. Central bankers are asked to perform this role, because they are believed to have market expertise and the overall perspective to address a systemic problem. The role of an honest broker is to facilitate or function as a catalyst for a private sector solution, by coordinating the interests of the parties concerned. The incentive for a central bank to act as an honest broker is that a private sector solution is usually the least costly method with minimum negative effects on the financial system.

The Bank of Japan played all these roles during the crisis period. As a provider of human resources, the Bank sent as many as 50 personnel to related agencies and institutions including the FSA, the Deposit Insurance Corporation and the Resolution and Collection Bank. Both of the nationalised banks (Long Term Credit Bank of Japan and Nippon Credit Bank) were headed by former senior officials of the Bank of Japan. With regard to information flow, round-the-clock contacts with the relevant agencies were established during the crisis period. There were also more formal arrangements. For example, the Bank of Japan Law (Article 44) permits the Bank to submit information obtained from its on-site examination to the FSA upon request. Besides, the Bank of Japan was entitled to formally state its opinions to the Financial Reconstruction Commission with regard to ways of resolving failed financial institutions or of capital injection into banks.³⁶ In addition, the Bank of Japan was asked under the Deposit Insurance Law (Article 16 of the Annex to the Law) by the Finance Minister and the Financial Reconstruction Commission whether a case was systemic and thus deserved exceptional resolution measures to protect all depositors and creditors.

As regards the honest broker function, there were instances in which the central bank played such a role. For example, in November 1997, the Bank of Japan successfully played the role of matchmaker by encouraging Hokuyo Bank to become the assuming bank for the failing Hokkaido Takushoku Bank in the final hours before launching the resolution package.

However, with regard to private sector solutions more generally, the track record in Japan is not very encouraging. The *hougachou* approach (described in Section 1), which may be regarded as a form of private sector solution promoted by the authorities, was only successful in an initial few cases. The capital injection into Nippon Credit Bank in 1997 by a consortium of private investors and the central bank turned out to be unsustainable and all of the capital was wiped out when the bank was later nationalised in 1998. An attempted merger of Long Term Credit Bank (LTCB) with Sumitomo Trust Bank foundered as Sumitomo Trust backed away for fear of becoming entangled with the LTCB's bad loans. A common element underlying these unaccomplished private sector solutions was that the rescuers or prospective acquirers were unable to estimate the potential losses that were caused by the deterioration in the soundness of the overall financial system. Japan's experience may suggest

³⁶ Article 4 of the Law Concerning Emergency Measures for the Reconstruction of the Functions of the Financial System (Financial Reconstruction Law) and Article 4 of the Financial Function Early Strengthening Law.

that a private sector solution has less probability of success if the negative externality arising from systemic concerns is substantial. In contrast, the probability of success would be higher for an isolated event under a stable financial environment. It was also revealed in Japan that the authority runs a risk of being held at least morally responsible for, or even blamed for, the failure of a private sector solution in which it was involved as an honest broker.

As has been described in this section, the scope of a central bank's involvement in crisis management may vary in different circumstances and in different countries. In Japan, the central bank's role in crisis management extended well beyond that of the lender of last resort. This may reflect the extensiveness of Japan's NPLs problem as well as the commitment of the central bank to its responsibility for maintaining financial stability. Also, the historical memories of the various roles that it played in the banking crises of the more distant past³⁷ may have been a factor.

4.6 Credit crunch

The recession in Japan after the outbreak of the banking crisis lasted substantially longer than the average recession in other countries that experienced serious banking problems.

Elements that determine the depth of a recession subsequent to a banking crisis may include the magnitude and the length of the contraction in bank credit. A rapid contraction in bank credit is often referred to as a credit crunch. A credit crunch was commonly observed in many countries that experienced serious banking problems. Ratios of credit to GDP in selected countries are shown on Figure 10.

The contraction of credit seems to have been particularly sharp in the Nordic countries. For example, in Sweden, the financial intermediary function of banks was severely damaged by the banking crisis in the early 1990s. Loan losses increased sharply in 1991-93, far exceeding banks' profits. This resulted in a contraction in bank credit. Some corporate borrowers, particularly the smaller ones that did not find alternative sources of funding, were forced into bankruptcy. This adversely affected the real economy and GDP showed negative growth during 1991-93.

In the United States, the prospect of a credit crunch became a public issue after the difficulties faced by some commercial banks in the early 1990s. Increased charge-offs of bad loans resulted in a contraction of banks' balance sheets and banks' lending showed negative growth in 1991-92. However, the contraction was relatively short-lived as lending returned to positive growth in 1993. Economic recovery accompanied by increased borrowing requirements, coupled with an acceleration of banks' liquidation of bad loans, are said to have contributed to the relatively quick recovery in bank lending. With regard to the liquidation of bad loans, the introduction of new securitisation techniques particularly under the initiative of the RTC is said to have contributed significantly to attracting new investors and vitalising the secondary market for non-performing loans.

A contraction of credit took place in Japan following a similar mechanism but over a longer time horizon. Japanese banks had been under pressure to maintain their capital ratios after the burst of the bubble. Given low profitability and limited access to capital markets, banks responded by trying to squeeze their asset size. Increased loan losses (charge-offs and provisioning) in FY 1997 and FY 1998 exacerbated the crunch. Coupled with low demand for borrowing, bank loans showed virtually no growth in 1997 and then fell sharply after 1998 (Figure 11) pushing the economy into recession. Severe constraints on banks' capital were alleviated in March 1999 when substantial capital was injected into the banking sector using public funds. Nonetheless, bank lending continued to show negative year-on-year growth in 1999 and 2000.

³⁷ The Bank of Japan played a major role in maintaining financial stability during the Showa Depression in the late 1920s. It was also involved in addressing the financial disturbance triggered by the troubled securities houses in 1965.

5. Signs of financial instability

In Japan, the tools for crisis management were limited in the initial stages of the crisis. An improved safety net was introduced in response to the unfolding of events during the 1990s. In the process, it was acutely felt that the cost of resolving the financial crisis was becoming progressively larger as the necessary actions were not taken or delayed. It was learned, with hindsight, that in facing a potential crisis, the authorities ought to anticipate the worst and draw up contingency plans based on a worst case scenario. Indeed, nothing could be more dangerous than adhering to wishful thinking in a crisis situation. Such a prompt or precautionary reaction by the authorities might have reduced the cost of resolving the financial crisis.

A question that may be raised today in this connection is whether there were any signs or indices that could have effectively warned the authorities of the mounting risks. Naturally, one can be wise only after the event and it must in fact have been very difficult for the authorities at that time to precisely predict a financial crisis. However, although identifying a single indicator that effectively predicts any financial crisis may be neither realistic nor feasible, there are areas that deserve to be further explored in assessing the overall soundness of the financial system. Conceptually, there may be micro- and macroprudential information that can predict future financial instability. Microprudential information on individual financial institutions is collected by the supervisors. Supervisory data on banks' asset qualities are typical examples. But central banks have a legitimate interest in the microprudential information, because problems with a financial institution could lead to a systemic disruption. Some microprudential information may be collected and analysed by central banks. For example, liquidity positions of individual financial institutions may tell a lot about sequential changes in the creditworthiness of these institutions. Such information on liquidity positions may be collected by a central bank as a part of its market monitoring and surveillance. Macroprudential information would have more direct system-wide implications and thus would attract the attention of those central banks that have responsibilities for financial stability. Such information may be obtained by aggregating microprudential data or through other means of market monitoring and surveillance. At any rate, much still needs to be done to identify or develop micro- and macroprudential data that effectively capture potential problems embedded in the financial system. In this section, as examples of ongoing efforts, some preliminary work by the Bank of Japan in the area of market monitoring and surveillance is introduced. The section picks up two issues: changes in bank behaviour and some early work on "expected default probabilities".

5.1 Changes in bank behaviour

Japan's experience in the 1990s shows that a build-up of risks in the financial system is reflected, not only in risk-related indices, but also in changes in bank behaviour; in particular their lending behaviour. As demonstrated in Figure 12, Japanese banks were engaged in fierce competition in the bubble economy to gain increased shares in the lending market. The profitability and riskiness of each loan were often neglected and loans were extended at negative lending spreads. This aggressive lending attitude was reversed dramatically after the bubble burst. After early 1990, as stock prices started to fall, banks changed their lending strategies to ensure positive margins consistent with more conservative views on risk assessment. However, this rapid shift in lending behaviour then resulted in a sharp deceleration in the amount of new loans.

Changes in behaviour were also witnessed in banks' funding operations. This is analysed in a paper by the staff of the Bank of Japan (2000). According to the paper, as the crisis developed in 1997-98, some banks started to face funding difficulties. Particularly the larger banks, which had the following common structural problems, were vulnerable to funding difficulties once reputational risk materialised:

- (a) The amount of funds invested (core investment) substantially exceeded the amount of funds raised in the retail markets (core deposits). This resulted in a high dependence on funds raised in the wholesale markets.
- (b) The term structure of funds raised in the wholesale markets was predominantly overnight (almost 60% in 1998).
- (c) General reluctance to liquidate loan assets in order to preserve the relationship with their clients.

The banks changed their funding behaviour over time as their problems deepened. This paper traces the funding operations of three major banks³⁸ that eventually failed in the 1990s, using the data obtained by the Bank of Japan in its daily monitoring and surveillance of the markets. Evidence shows that these banks had undergone different stages of funding difficulties before their failures were announced. The extent of funding difficulties may be described in the following four stages, although they did not take place in a completely sequential way.

Stage 1 Risk-sensitive market participants and large depositors became more selective and reluctant to do business with the troubled banks. As a result, higher risk premiums were charged to these banks. This is shown in Figure 13, where the funding costs for these banks are expressed in terms of the spread over those of a sound bank. The symptoms seem to appear well in advance (approximately two to three years) of the failure. The funding costs became progressively larger as they approached the fateful days on which the failures were finally announced.

Stage 2 As information about the troubled banks spread to the market, providers of funds in the market also started to avoid placing long-term deposits with these banks. Thus, the average maturities of deposits with the troubled banks grew shorter over time. This seems to have taken place almost simultaneously with the rise in funding costs. Figure 14 shows how the average maturities of deposits with these banks grew shorter relative to that of a sound bank, as their fateful days approached.

Stage 3 As their problems became more widely known, even retail depositors began losing confidence in the banks and started withdrawing their deposits. This is reflected in the decline of the “deposit surplus ratio” which represents increased reliance on (particularly overnight) borrowing from the interbank money market. Unstable funding seems to have intensified one to one and a half years prior to the failures (Figure 15). At this stage, the banks started recalling loans or selling liquid assets in a desperate attempt to ease the funding pressures.

Stage 4 When the liquid assets for sale were exhausted and funding in the interbank market became unsustainable, the banks gave up their attempt to continue business on their own. Consequently, they were placed under the arrangements of the safety net and their failures were formally announced by the authorities.

The above description indicates that the funding capability of the troubled bank was a key element that determined the timing of the failure of the bank. It suggests that careful monitoring of the funding operations of a bank would provide the authorities with useful information with respect to the sustainability of the bank in question. Another finding is that retail deposits tend to be “stickier” than wholesale deposits. While wholesale deposits were quickly withdrawn, or the maturity became extremely short (typically overnight) at an earlier stage, retail deposits tended to be relatively stable until the reputation of the bank deteriorated to an unsustainable level. Although it must be further analysed why there were large-scale deposit outflows in spite of the repeated announcements by the authorities that the deposits would be fully protected, the experience of the Japanese banks in 1997-98 provides a strategically important hypothesis; a bank with a relatively large retail deposit base will benefit more from stable funding and thus be more resistant to a stress situation. This could become particularly important after April 2002 when only deposits under ¥10 million per depositor will be under permanent full protection. This portion of deposits may form the most stable source of funding for Japanese banks.

5.2 Expected default probabilities

While market monitoring and surveillance continue to be important tools used by the central bank to evaluate the soundness of the financial system, some quantitative analysis may also supplement the evaluation. One such analysis that may deserve further exploration is the calculation of expected default probabilities (EDP). This is a way to quantify the market assessment of a firm’s credit risk. The EDP data are derived from the Merton-type model using share prices of individual firms. The method

³⁸ Hokkaido Takushoku Bank, Long Term Credit Bank of Japan and Nippon Credit Bank.

uses the insight that the share price (as the market value of the firm's equity) can be interpreted as the price of a call option with a strike price equal to the book value of the firm's debt. In the EDP approach, a firm is regarded as having defaulted when the firm's debt exceeds the market value of the firm's assets. (Then, the market value of the firm's equity becomes nil below the strike price.) The EDP approach assumes that the market value of assets follows a random walk along the growth trend. An EDP figure represents the probability that a firm will default within a given horizon, typically one year.

While EDP is typically calculated for individual firms, it can also be aggregated to provide industry-wide insights. Figure 16 shows the average EDP for six major Japanese banks as calculated by a research team within the Financial Markets Department of the Bank of Japan.³⁹ It can be observed that the average EDP rose markedly as the financial crisis of autumn 1997 unfolded. The EDP data may provide a useful measure with which to assess the overall health of the financial system. If the EDP is measured on a continuous basis, it will also be possible to assess the effectiveness of policy measures by observing the changes in the aggregate EDP before and after the implementation of a policy change.

5.3 Summary

There is no doubt that monitoring changes in banks' lending and funding behaviour provides important clues concerning future financial instability. Similarly, quantitative analysis may also be useful to assess the overall health of the financial system. However, in order to gain a comprehensive view of the financial system, such measures would still not be sufficient. Other macro- and microprudential information is necessary. The macroeconomic climate must also be taken into consideration. After all, it would be necessary to make an overall judgment based on sets of macro- and microprudential information against macroeconomic backgrounds. Moreover, the indices that require particular attention may vary over time because no two financial crises could be identical in a changing and evolving world. In this context, a constant search for new methodologies and indices to support an overall judgment on the soundness of the financial system remains an important item on the research agenda.

6. The new safety net

Japan's safety net revealed a number of shortcomings during the crisis and underwent several overhauls before a comprehensive framework was established in 1998. As of December 2000, the safety net for depository institutions had ¥70 trillion of available public funds. Although the comprehensive framework was badly needed to address financial instability, it was a moral hazard-creating system in the sense that so much public money was used and all depositors and other creditors were protected unconditionally. Therefore, it was deemed necessary to replace the safety net with a new, less morally hazardous framework once the systemic threat subsided. The original target date to terminate full protection measures was March 2001. A working party of the Financial Council, an advisory body to the Finance Minister, started work on designing the new safety net in the spring of 1999. The working party was composed of academics, legal experts and officials of the financial authorities including the Bank of Japan. The key features of new framework were discussed in the working group from very practical viewpoints in an effort to incorporate the lessons learned from dealing with past bank failures.

The Financial Council produced a report in December 1999 recommending key features for the new safety net. Many of the new aspects were modelled on the deposit insurance system in the United States, but adapted to the Japanese legal environment while maintaining sufficient flexibility. The report assumed that the comprehensive protection measures would be terminated in March 2001 to be replaced by a new system in which large depositors (in excess of ¥10 million per depositor) and other general creditors would not be protected in principle. The idea to shift to a new system in April 2001 was contested by a political argument that part of the financial system, notably the credit cooperatives,

³⁹ For details, see Ieda, Institute for Monetary and Economic Studies, Bank of Japan (1999).

remained fragile. The political decision prevailed and the full protection period was extended by one year until March 2002. Nonetheless, other key features set forth in the Financial Council's report were legislated. The amended Deposit Insurance Law was approved by the Diet in May 2000 and became effective in April 2001. This section describes the outline of the new safety net⁴⁰ and highlights the key aspects in which the lessons learned from the crisis management during the 1990s are actually reflected.

6.1 Purchase and assumption (P&A)

There are several fundamental principles that underlie the new safety net framework based on the lessons learned from dealing with various types of bank failures. First, once a bank is found unviable, a prompt resolution is essential in order to minimise the resolution cost. Second, large depositors and creditors must be required to assume part of the resolution cost of the failed bank. This would not only contribute to reducing the cost for the DIC but also to containing moral hazard. Third, the financial function and the franchise value of the failed bank should be preserved, to the extent there is a significant remaining value. A resolution method that is commonly referred to as the Japanese version of P&A was designed to basically satisfy all of the three principles mentioned above. The P&A method will be the core approach to deal with a failed bank under the new safety net regime. A payoff⁴¹ remains an option but a P&A would be preferred as long as there is remaining franchise value in the failed bank, because in a payoff the failed bank is closed down for liquidation and the franchise value is lost completely. An example of a P&A with hypothetical numbers is shown in Figure 17 and actual proceedings in a P&A are displayed in Figure 18. Key characteristics of a P&A may be summarised as follows:

- (a) In a well-prepared P&A, insured deposits (in Figure 17, assumed to be 40) and the uninsured portion of insured deposits (ie deposits in excess of the insurance limit: in Figure 17, this is 14 after deduction of anticipated loss⁴²) are transferred to an assuming bank along with normal assets (54).⁴³ Note here that a haircut is applied to uninsured depositors upon the business transfer of sound assets and deposits to the assuming bank. The business transfer to the assuming bank is typically completed over a weekend. This means a bank is announced as a failure on a Friday evening and reopens as a new bank on Monday morning. In this way, the financial services of the failed bank are provided uninterrupted. In the previous safety net framework, 6-12 months were generally required after the failure announcement until the assumption by a rescuing bank. The dramatic shortening of the period was enabled, for example, by judicial intervention. If a bank is found insolvent, a subrogation authorisation will be given by the court, which substitutes for the shareholders' approval. Also certain proceedings such as those aimed at creditors protection can be omitted under the P&A. It must be noted, however, that as shown in Figure 18, a preparatory period of a few months would still be necessary for a successful P&A. During this period, on-site examination by the FSA and the DIC would be conducted to check the latest quality of the balance sheet of the failed bank. Due diligence by the candidate assuming banks is also exercised during this period.
- (b) If the preparation of a P&A for a failed bank is interrupted at a very premature stage, when no assuming bank has been found, a bridge bank will be established by the DIC. Normal assets and insured deposits along with the uninsured portion of insured deposits are transferred to the bridge bank. Thus, also in this case, the financial services of the failed bank are provided uninterrupted by the bridge bank. Note here too that uninsured

⁴⁰ For a full description of the new safety net, see "Report on the Framework of the Deposit Insurance System and Resolution of Failed Financial Institutions after the Termination of Special Measures" by the Financial Council (December 1999).

⁴¹ In a payoff, a failed bank is closed down for liquidation and a depositor with a failed bank would be protected up to the insured amount of ¥10 million (per depositor). Beyond this threshold, the depositor may recover a portion of the deposit in the liquidation proceeding, depending on the remaining value of the failed bank. See Section 1.1.

⁴² In the hypothetical case in Figure 17, the anticipated loss rate is assumed to be 30%. Therefore, deposits to be transferred to the assuming bank = uninsured deposits - (uninsured deposits x loss rate) = 20 - (20 x 0.3) = 14.

⁴³ Other liabilities and assets are placed into the bankruptcy estate for liquidation. The residual loss after requiring creditors of responsibilities would be covered by financial assistance by the DIC (12).

depositors undergo a haircut upon the business transfer to the bridge bank. If an assuming bank is found successfully, the entire business of the bridge bank will be transferred again to the rescuing bank. If unfortunately no assuming bank is found, the bridge bank will be dissolved. (Insured deposits are still fully protected.)

- (c) If a bank fails abruptly when virtually no preparation for a P&A has been made, civil reorganisation proceedings may be filed. As indicated in Figure 18, the court would issue a stay order but certain business of the bank would be permitted to continue in order to maintain its financial function. Within the reorganisation proceedings, insured deposits would be repaid while the search for an assuming bank continued. If an assuming bank is found, the court will give a subrogation authorisation as in the case of a P&A to facilitate prompt business transfer to the assuming bank.

6.2 Systemic risk exception

Another key feature of the new safety net is the so-called “systemic risk exception” approach. This method was introduced on the basis of understanding that, even after March 2002, when the full protection scheme will be terminated, there might still be systemic crisis. New shock waves might still threaten the stability of the entire financial system and thus jeopardise the economy. It was therefore considered necessary to maintain flexibility within the deposit insurance system to address such systemic events, by taking exceptional measures beyond what are in place for a P&A. These exceptional measures comprise three options: (a) capital enhancement, (b) financial assistance by the DIC in excess of the payoff cost and (c) temporary nationalisation. All of these measures were originally developed and used in the crisis management of the 1990s. As these exceptional measures allow full protection of depositors and creditors, strict proceedings are required to activate the device. Figure 19 describes the general procedures required in a systemic exception case. As the figure shows, the Conference for Financial Crisis assesses whether a case is systemic or not. The conference is chaired by the Prime Minister and its members include the Chief Cabinet Secretary, the Minister in charge of Financial Stability, the Finance Minister, the Commissioner of the FSA and the Governor of the Bank of Japan. When the Prime Minister acknowledges, in view of the discussion in the conference, that the failure of a bank may disrupt overall financial stability and adversely affect local and national economies, one of the three exceptional measures mentioned above can be implemented.

With regard to the financial resources needed for these exceptional measures, the annual insurance premium collected by the DIC from member financial institutions would be drawn on first. If this proves to be insufficient, a special surcharge may be added to the insurance premium. In the event that such a special surcharge still cannot meet the necessary amount of funds, public funds could be used. Public funds would be made available against the background of a belief that the financial system is an important infrastructure for the national economy. Thus, the maintenance of its stability benefits not only the depositors but also the economic activities of the nation as a whole. Should, in the interim, the DIC face a temporary liquidity shortage arising typically from a timing gap between expenditure and revenue, such a gap may be filled by bond issuance by the DIC or bridge financing by private financial institutions or the Bank of Japan.⁴⁴

6.3 The Bank of Japan’s involvement in the new safety net

The Bank of Japan’s role in a P&A is diminished as compared with its role under the previous deposit insurance system. Under the previous system, the transitional period for a failed financial institution after its failure announcement until the business transfer to an assuming bank generally lasted 6 to 12 months. During this interim period, the Bank of Japan provided liquidity pursuant to Article 38 of the Bank of Japan Law to keep the failed bank in operation. The loans were recovered from the DIC’s special financial assistance, which covered the losses of the failed bank in full upon the business transfer to the assuming bank.

⁴⁴ To enable such bridge financing by the DIC, the Crisis Management Account was established within the DIC in FY 2001. The account has ¥15 trillion of credit lines with government guarantees.

In a well-prepared P&A, however, such bridge financing will no longer be necessary, because the business transfer to an assuming bank will typically be completed over a weekend and the failed bank reopens as a new bank immediately after the failure announcement. There may be a case in which, for some reason or other, transition is delayed, say for a few days, and thus requires bridge financing. In such a case, under the new P&A framework, the DIC instead of the Bank of Japan will provide the necessary liquidity. This is because of the inevitable credit risk that the provider of the liquidity faces. In a P&A, uninsured depositors and other creditors are expected to share the losses of the failed financial institution. The liquidity provider, as a creditor to the failed institution, faces almost unavoidable loan losses. A liquidity support of this nature, with a clear prospect of loan losses, was regarded outside the scope of the central bank's capacity.

In a systemic case, the Bank plays a wider role. The Governor of the Bank of Japan is a member of the Conference that decides whether a case is systemic or not. The Bank may provide liquidity as the lender of last resort to the bank in difficulties in all three forms of the exceptional measures to address a systemic crisis. In the case of capital enhancement, the DIC injects capital to restore the capital position of the problem bank, while the central bank provides liquidity to support its continuation of business. Similar liquidity support by the Bank will be extended in cases where the DIC intervenes to cover all losses of the troubled bank or to nationalise the bank. All of the three exceptional measures are designed to be able to fully protect depositors and creditors of a problem bank when these are judged to be possible systemic consequences. Under such a regime, the Bank of Japan, as the provider of liquidity, does not incur explicit credit risks. The Bank of Japan's liquidity support would be extended pursuant to Article 38 of the Bank of Japan Law, which requires approval by the Policy Board of the Bank, upon request from the Prime Minister and the Finance Minister.⁴⁵

The new safety net became effective in April 2001. Some special temporary measures are maintained under the new framework. These measures are described in Figure 20. First, as described in the introduction to this section, exceptional measures to protect all liabilities of a failed institution were extended by one year until March 2002. The financial resources that ensure full protection (ie financial assistance by the DIC in excess of the payoff cost) will be preserved in the form of ¥13 trillion of cashable government bonds with the Special Operations Account of the DIC. In addition, the account was provided with ¥10 trillion of credit lines with government guarantees. Second, liquid deposits for transaction purposes are protected fully as a temporary treatment until March 2003, provided no high interest rates are offered on such deposits. A higher insurance premium will be charged on the liquid deposits to secure the DIC's financial resources. The preferential treatment of liquid deposits is intended to protect payment services of banks in a transitional period until the prompt resolution method (P&A) becomes fully operational. Third, failure resolutions under the Financial Reconstruction Law and the Financial Function Early Strengthening Law were terminated in March 2001. Part of the latter law was revised and retained as a legal basis for capital injection into credit unions and credit cooperatives until March 2002, in the light of the still relatively fragile condition of the cooperatives industry.

7. Future challenges

The experience of the 1990s was costly and sometimes very painful. However, lessons were learned and a number of new measures were taken to overcome the shortcomings identified in the 1990s. For example, lack of transparency of banks' balance sheets was one of the factors that delayed the introduction of a comprehensive safety net. Today, the bank supervisor and the central bank are equipped with tougher bank examination standards. The accounting treatment of bad loans (charge-offs and provisioning rules) have become consistent with these new tougher examination standards. In FY 2001, fair value accounting for most marketable financial instruments was introduced, requiring banks to report unrealised capital gains and losses in their financial statements. Furthermore, the

⁴⁵ Until January 2001, the request had been jointly made by the Finance Minister and the Financial Reconstruction Commission. As a result of a restructuring of the central governmental agencies in January 2001, Article 38 has undergone technical amendment. Under the amended article, the Prime Minister and the Finance Minister will request the activation of emergency financial support by the Bank of Japan. Implementation of such emergency support continues to require the approval of the Policy Board of the Bank of Japan.

disclosure standard for NPLs introduced in 1999 is probably among the world's most far-reaching. Under these arrangements, banks would be motivated to recognise and dispose of bad loans at an early stage before they developed into serious problems that could undermine their market reputation. The central bank, meanwhile, in fulfilling its responsibility to maintain financial stability, established explicit principles to exercise its power as lender of last resort. The Bank moved towards increased policy transparency and accountability and distanced itself somewhat from the traditional notion of "constructive ambiguity".

In the early stages of the crisis, the authorities suffered from a lack of effective policy tools within the safety net framework to address large-scale bank failures. Today, Japan's safety net for banks has been substantially improved by incorporating the lessons from the past. It is designed to minimise resolution costs in ordinary bank failures, while retaining flexibility to cope with a systemic event.

In the private financial sector, more than 100 institutions failed in the 1990s and were eliminated. The banking crisis, coupled with the Japanese Big Bang initiative launched in 1996, triggered consolidation in the financial sector. Consolidation was particularly conspicuous among cooperative financial institutions and large internationally active banks.⁴⁶ With regard to major banks, 21 banks that were operating in 1995 were consolidated into four groups by 2001.

All of these changes were almost unimaginable a few years before. Indeed, there has been a dramatic reshaping of the financial landscape in Japan. While these changes are undoubtedly steps in the right direction, a number of issues remain to be addressed to achieve the ultimate goal of transforming the banking sector into a more competitive and efficient financial industry, as well as to reinforce the mechanisms that safeguard financial stability. This final section focuses on some of the future challenges that need to be addressed to underpin financial stability in Japan.

7.1 Reinforcing the central bank's research capacity

There are incidents that argue in favour of the view that the central bank's research capacity on financial stability must be reinforced.

First, the Bank was among the earliest in the official sector to assess the scale of the potential risks in the financial system after the bursting of the bubble. The Bank suspected that additional comprehensive measures might become necessary if the downside risk materialised. However, the Bank was not totally confident, because the view was not necessarily backed by solid research and analysis. The assumption that asset prices would decline significantly further was thought overly pessimistic by many. It later proved not to be pessimistic at all. In fact, it was still too optimistic in view of what happened afterwards.

Second, the incidents in the autumn of 1997 demonstrated that there could be a variety of mechanisms in which a systemic crisis materialises. It was traditionally thought that banks are the major source of systemic crisis and that the crisis typically spreads through chains of settlement failures in the payment systems. However, in the autumn crisis of 1997 the Bank recognised that a failure of a large non-bank or market malfunction could also become a source of systemic crises. Based on this recognition, in the case of Yamaichi Securities' failure, the Bank intervened from the outset by extending emergency liquidity to the securities house. In addition to the bilateral liquidity support to Yamaichi, the Bank announced its intention to provide sufficient liquidity to the markets, to cope with the risk of an unexpected decline in market liquidity.⁴⁷

Third, the extent to which damaged financial intermediaries would affect the real economy and its negative feedback effects on the financial health may not have been fully explored. In 1997-98, when the banking sector was under immense stress, the Bank did not necessarily have a clear vision of how this was going to feed back on the real economy. After the autumn crisis of 1997, the economy plunged into a recession. Various mechanisms seem to have been in play. The exposed position of

⁴⁶ For more about financial consolidation in Japan, see the G10 Report on Consolidation in the Financial Sector, January 2001, Chapter 3, Section 5, "Effects of Consolidation in Japan".

⁴⁷ In the Statement by the Governor on Yamaichi's failure, issued on 24 November 1997, it was mentioned that "the Bank of Japan affirms its readiness to take necessary supportive steps including the provision of sufficient liquidity into markets, to cope with the risk of unexpected decline in market liquidity".

banks must have constrained the access of small and medium-sized corporate borrowers to bank loans. It may also have cooled down consumers' confidence, thereby affecting their propensity to spend.

These incidents point to three research areas to which the central bank should pay more attention: (a) assessment of the soundness of the financial system, (b) identifying mechanisms through which a systemic crisis materialises, (c) identifying transmission mechanisms of systemic financial risk to the real economy.

Assessment of the soundness of the financial system is essential for detecting a problem at an early stage. This enables the authorities to take prompt actions which, in turn, will minimise the cost of coping with financial turbulence. In this regard, microprudential information collected by the Bank through on-site examinations and off-site monitoring should be fully utilised. Such microprudential information should include not only the asset quality of individual banks but also their funding positions. Assessing this kind of information may enable a problem bank that is a potential threat to the financial system to be identified. Similarly, correlations between banks can be identified and credit flows to a specific sector or industry may be tracked down. Equally important would be the macroprudential information. Such information may be obtained by, for example, aggregating micro data or processing various kinds of market information. Applying new techniques of quantitative analysis may also provide useful insights, while market surveillance would continue to be an important means to sense the overall market sentiment. However, the patterns with which risks build up and materialise are likely to differ in every case. Therefore, the central bank must constantly update its analytical skills and retain the flexibility needed to form a comprehensive judgement.

Identifying and understanding the mechanisms that generate a systemic crisis is a prerequisite for the right policy responses. Research efforts in this area must be pursued on an ongoing basis in the light of changing market structure and functioning. Increasingly blurred distinctions between banks and other financial institutions, the introduction of new financial instruments (eg credit derivatives), and the evolving constellation of market participants promoted by financial consolidations would affect the mechanisms that could generate a systemic threat to the financial system. A significant joint effort by the broader central bank community has been undertaken to conduct research into the robustness of financial systems and market mechanisms under stress.⁴⁸ Continuation of such efforts is encouraged as global financial markets become increasingly integrated.

Identifying the transmission mechanisms from financial systemic risks to the real economy is essential for the conduct of monetary policy. The possible effects of financial instability on demand components such as consumption and investment would be an integral element that should be incorporated into monetary policy considerations. Indeed, providing insights on the interactive aspects between the financial system and economic activity is probably a unique role expected of central banks that have responsibilities for both monetary policy and financial stability.⁴⁹

7.2 Early intervention and LoLR function of the central bank

Japan's experience demonstrates that the cost of resolution of a failed financial institution becomes progressively larger the longer it takes to resolve the problem. This is clearly shown in the loss/capital ratio (size of net final loss compared with the capital of the failed institutions). Table 11 shows that the net loss amounted to between six and 36 times the capital size of the failed institution in the major events that took place in Japan in the 1990s. This reflects the fact, that once a bank failed, some of its borrowers became unable to continue borrowing from the bank and were forced to go bankrupt. This means these borrowers were no longer regarded as going concerns and began to be assessed in

⁴⁸ There have been two international research conferences on Risk Measurement and Systemic Risk organised by the BIS, the Bank of England, the Bank of Japan, the Federal Reserve Bank of New York, and the Board of Governors of the Federal Reserve System. The first conference was held on 16-17 November 1995 at the Board of Governors of the Federal Reserve System in Washington, DC. The second conference took place on 16-17 November 1998 at the Bank of Japan in Tokyo. A third conference is planned for March 2002.

⁴⁹ Some central banks regularly publish research analyses on issues related to financial stability. For example, the Bank of England publishes a Financial Stability Review semi annually. Similarly, Sveriges Riksbank publishes a Financial Stability Report semi annually.

terms of liquidation values. The step change in the resolution cost of a failed bank argues in favour of the view that problems with individual banks must be detected at an early stage and corrective measures taken promptly in order to minimise the cost. The Prompt Corrective Action (PCA) is a supervisory device designed to meet this objective. The idea of ex ante LoLR assistance, although still untested in an actual crisis situation, is consistent with the idea of early intervention in the sense that it contributes to minimising or eliminating the cost of dealing with a troubled financial institution.

Issues that need to be further explored in this area relate to other aspects of the central bank's role as lender of last resort in crisis management. The question of the extent to which the central bank should be involved in dealing with a troubled non-bank financial institution with systemic implications is one such issue. The Bank established a precedent in 1997 when it extended emergency liquidity support to Yamaichi Securities. This effectively bailed out all creditors to the Yamaichi Group as a whole. This was a clear extension of safety net benefits beyond what was conceived to be the traditional scope for the LoLR function, leaving a difficult question as to who should bear the final costs.

Another issue in crisis management is possible constraints on the LoLR function. Even if the central bank is committed to its responsibility as lender of last resort, it may not be able to provide unlimited liquidity support. The capital position of the central bank as the buffer to absorb potential losses could be a constraint on the size of liquidity support. It may be necessary for the central bank to recognise potential constraints and assess whether they could be practical impediments in addressing various types of financial instability.

The relationship between financial stability measures and monetary policy will also need further study. The issue has two aspects; crisis prevention and crisis management. With regard to crisis prevention, the question of what monetary policy can or should do when the central bank detects a build-up of financial imbalances remains to be discussed. In the area of crisis management, as discussed in previous sections, when the entire financial system is fragile, the central bank may infuse liquidity to the market using monetary policy instruments, as was the case in 1997-98 in Japan. It is conceptually possible that such stability measures deviate from the price stability objective in the short run. For example, the central bank may want to inject more liquidity into the market to maintain financial stability than would be justified in terms of inflation control. Whether this kind of potential conflict could really become a major policy obstacle and how it can be mitigated also remains an issue.

7.3 Robust payment and settlement systems

One of the biggest challenges for a central bank faced with the failure of a financial institution is to ensure smooth and uninterrupted operation of payment and settlement systems. Action would be required of the central bank if the business of a failed institution were suspended, for example, under the insolvency laws. This was the case with Sanyo Securities, which suspended its business under the Corporate Reorganisation Law in November 1997. The securities house was a participant in the BOJ-NET⁵⁰ and had an account with the Bank of Japan. The extraction of Sanyo Securities from the payment and settlement systems proved to be a complex operation. At that time, transactions in the BOJ-NET funds transfer system were settled through the designated-time settlement mode. This meant that participants in the BOJ-NET sent payment instructions selecting one of the four designated times (9 am, 1 pm, 3 pm, and 5 pm) for settlement; the payment instructions were netted out on a multilateral basis at each settlement time and the resulting net positions were credited and debited on their BOJ accounts. Therefore, the unsettled payment instructions involving Sanyo were unwound by deleting these instructions and recalculating the settlement obligations of the surviving participants in the BOJ-NET. The extraction from the domestic systems was completed overnight after the court order and before the start of the following business day in order not to jeopardise the operation of nation's payment and settlement systems. Although such an exit operation of a failed financial

⁵⁰ The BOJ-NET is operated by the Bank of Japan. It supports two broad but separate services: one for electronic transfer of funds (BOJ-NET funds transfer system), and one for electronic transfer of registered and book-entry Japanese government securities (BOJ-NET JGS transfer system). The BOJ-NET funds transfer system is an on-line system introduced in October 1988 for the electronic transfer of funds across current accounts at the Bank of Japan.

institution from the payment and settlement systems was not usually visible to many people, it was among the responsibilities of foremost importance required of the central bank.⁵¹

The BOJ-NET funds transfer system was restructured in January 2001. Designated-time settlement was abolished and the new real time gross settlement (RTGS) facility was introduced. It is aimed at reducing systemic risk by largely eliminating a domino-type contagion effect being transmitted through the payment system. It is also expected to reduce operational complexity involving a failed financial institution. In the case of an RTGS system, by definition, there would be no unsettled orders. Therefore, the key problem would be to prevent any new orders from flowing into the system once a failed financial institution has been ordered to suspend business. An exit operation would preferably be conducted overnight or over a weekend. However, if the failed financial institution were operating in multiple payment systems across different countries, and thus different time zones, the operation could entail additional operational complexity. The experience of dealing with failed financial institutions in Japan suggests that there are areas to be further explored in order to enhance the robustness of payment and settlement systems.

7.4 Enhancing the efficiency of the capital market

The financial intermediary function has been performed predominantly by the banking sector in Japan. Although the share of assets held by deposit taking institutions declined over the 1990s, it still accounts for more than 50% of assets held by all financial intermediaries, with lending remaining the largest portion of the banks' assets. The accumulated non-performing loans (NPLs) in the banking sector had to be disposed of using the annual profits and the reserve capital, which inevitably proved to be a lengthy process. In contrast, in the early 1990s in the United States, after experiencing turbulence in the banking sector, various new financial techniques, such as the securitisation of NPLs, were fully utilised, taking advantage of the well-developed capital market. These new techniques, supported by an economic upturn, contributed to removing NPLs from banks' balance sheets, as well as to an early rebound in real estate prices. The experiences in the two countries suggest that a well-developed capital market provides an alternative intermediary channel through which risks may be diffused to a wider investor base with different risk appetites.

An efficient capital market would also help corporate financing. In Japan, after the bubble burst, the lending capacity of the banking sector was severely damaged by the accumulation of NPLs and the resulting constraints on banks' capital. Particularly hard hit by this credit crunch were small and medium-sized businesses. The diminished availability of funding for the corporate sector may have been a factor that dragged the economy into a recession over an extended period. If the capital market had been well-developed and accessible to a wider corporate base, the effects of the credit crunch could have been mitigated, at least to some extent.

Seen from the above-mentioned perspectives, enhancing the efficient functioning of the capital market may bring potential benefits for financial stability in Japan. It must be noted, however, that the capital market may be more vulnerable to large external shocks. Under such circumstances, price adjustments tend to occur quickly, often accompanied by increased volatility. Therefore, an efficient capital market in tandem with a sound banking sector, may best serve the general objective of maintaining financial and economic stability.

The ongoing consolidation and the emergence of megabanks in Japan may spur further development of the capital market. A concentration of credit risk and market risk as a result of the consolidation may encourage banks to cut down the size of their risk assets using securitisation techniques. Some borrowers may be squeezed out given new credit limits imposed by merged banks and may search for alternative sources of funding in the capital market. Moreover, the megabanks may want to limit market risks arising from stock holdings by reducing cross-shareholdings. Although these are still largely possibilities, some signs of declining cross-shareholdings are already being observed.

⁵¹ Other cases that required similar exit operations by the Bank of Japan include BCCI (failed in July 1991) and Hanwa Bank (failed in November 1996). These banks were ordered to suspend business. In most other cases, where failed banks were allowed to continue business operations until their sound assets and liabilities were transferred to assuming banks, such exit operations were unnecessary.

7.5 Need for continued structural reforms in the banking sector

There is a clear need for the private sector, both financial and corporate, to proceed with structural reforms since Japan's problem in the post-bubble years has resulted in part from a balance sheet problem across these sectors. Structural reforms that remove the unwanted legacies of the past, once and for all, are necessary. In the banking sector, the consolidation in recent years is a move in the right direction. However, there are further steps to be taken. Although these are steps that the central bank as well as the supervisory authority has long advocated, and therefore not entirely new, banks should lose no more time in taking serious actions.

First, banks must proceed with the systematic disposal of NPLs. This includes direct charge-offs and sales of NPLs. By removing NPLs from their balance sheets, banks will become immune to further negative developments that affect loan values. Liquidation of NPLs would also contribute to improved cash flow and thus to restoring banks' financial intermediary function. For an overall cleaning-up of banks' balance sheets, their loan portfolio must be thoroughly reviewed. In identifying potential bad loans to be disposed of, banks will have to take necessary comprehensive steps to restructure some of their corporate borrowers instead of maintaining loans simply to keep them alive without clear prospects for resilient revival.

Second, individual banks must identify the areas of relative advantage and reallocate resources in accordance. This is an important step to establish a firm profit base over the medium term. Weak profitability is one of the reasons why it is taking so long for Japanese banks to dispose of NPLs. Improved profitability would contribute to increased resilience to overcome future difficulties. The management's insights and capability to draw on new business and risk management strategies would be crucial in this context.

Third, banks must establish sound and robust risk management systems. A lack of adequate risk management resulted in overconcentration and mispricing of credit risks in the bubble economy. Excessive reliance on stock holdings as a source for Tier 2 capital caused rapid erosion of banks' capital as equity prices plunged after the bubble burst. Banks' current efforts to introduce internal risk assessment systems with a view to the New Basel Capital Accord, and to reduce cross-shareholdings in the light of ongoing financial consolidation, may contribute to better risk management by banks.

Fourth and foremost, as a basic prerequisite for meeting the challenges stated above, banks need to enhance corporate governance. Penetration of market discipline in the way banks are run will contribute not only to better performance over the longer run but also to preventing them from becoming entangled in problems similar to those that beset them and undermined Japan's financial system through the 1990s.

These measures, however, would almost inevitably be accompanied by pains. For example, the adoption of a new business strategy could mean for some banks organisational restructuring, with redundancy and relocation of management and staff. The disposal of NPLs would continue to exert downward pressure on land prices. Corporate restructuring may well result in job losses. Liquidation of cross-shareholdings would have negative impacts on equity prices. Though discouraging, these are the short-term costs of structural reforms to remove inefficiency embedded in the economy. The experience in Japan thus far shows that it would only result in larger costs if such efforts were neglected. It must be recognised that this process is vital, however painful it might be, if Japan's banking sector is to reform itself into an efficient and competitive financial industry, and thus support Japan's economy more broadly. Policies should be guided to promote, and not to hinder, such efforts. Macroeconomic policies could offset, to some extent, such pains and costs of structural reforms.

7.6 Minimising moral hazard

Needless to say, moral hazard must be contained. The argument may be relatively straightforward if trouble with a financial institution is a fairly isolated event. But Japan's experience in the 1990s demonstrated an inherent and unwelcome trade-off. Crisis management through government intervention always carries with it the risk of moral hazard. In effect, the Japanese authorities artificially created moral hazard for the sake of maintaining financial stability.

Moral hazard is often assessed as it relates to management, shareholders and creditors (including depositors) of a failed institution. Resolution of a failed institution under insolvency laws would create the least moral hazard since shareholders would lose their equity holdings as the net value of the failed institution would be negative and creditors would be subject to a haircut. However, in Japan, as

probably in the instances in other countries, the insolvency approach was thought to be hardly applicable, because it was feared to have systemic consequences for financial markets. Thus an approach outside the legal framework of insolvency laws was adopted in most cases (eg for the failed deposit-taking institutions, solutions under the Deposit Insurance Law were envisaged).

Efforts were made by the authorities to ensure moral hazard was minimised. With regard to the senior management, they were usually required to take responsibility for the mismanagement of the firm by being replaced. In some cases, lawsuits were brought against the management of the failed institutions. These included both criminal and civil actions, ranging from charges of managerial misconduct to claims for damages. Shareholders' capital was first drawn on to compensate for the loss of a failed institution before using funds with the safety net arrangements (eg the deposit insurance funds) to cover the residual loss. Thus, the shareholders of failed institutions were also penalised.

The most difficult issue related to moral hazard has to do with the way in which creditors to a failed institution can be required to bear responsibility. In all bank failures in Japan during the 1990s, and in most of the overseas cases where systemically important banks failed, creditors were generally fully protected. The rationale for full protection of creditors would be that the cost of a systemic crisis exceeds the cost of moral hazard. Indeed, experiences of banking crisis in many countries suggest that the true cost of a banking crisis is the economic contraction that follows and that the cost of resolution (eg measured in terms of public funds used) is only a partial measurement of a banking crisis. Although difficult to quantify, the impact on the financial system, and thus on the economy, could have been even more serious if the creditors of the failed institutions had been subject to a haircut in Japan during the height of the crisis. While admitting the general truth in such an argument, it leaves the question of whether creditors in every failure of financial institutions should be fully protected even when the financial system is experiencing system-wide difficulties. The failure of Sanyo Securities in 1997 may provide some clues to find answers to the question. One view that argues in favour of full protection of creditors would be that a default, albeit small, could paralyse the financial markets when the financial system as a whole is fragile. A powerful counterargument may be that as long as the origin of the financial stress is a non-systemic institution, possible disruption resulting from haircutting of the creditors may be short-lived and will be successfully contained by the central bank's operations, for example through injecting liquidity into the markets. The new safety net that was introduced in April 2001 allows both haircutting and resorting to special measures to protect all depositors and creditors, but only in a case that is judged to be systemic. In the actual operation of the safety net, however, careful consideration must be given to the problem of how to strike a balance between the need to avoid a systemic crisis by protecting all creditors and the need to minimise moral hazard particularly on the part of creditors.

7.7 Clear demarcation of the roles played by different agencies

Crisis management is a joint operation by multiple authorities with different responsibilities. Unless the form of a crisis is well predicted, the authorities will normally have limited time to react and organise a resolution package. In the Japanese context of the 1990s, a safety net that was capable of addressing a systemic case was absent in the early stages. Use of public funds for the problems in the banking sector was out of the question until 1997 against the existing political background. In the face of unfolding events with imminent risks for financial stability, the Bank of Japan had to step in, because it was the only agency that could react in a flexible way. This resulted in an overstretched responsibility for the central bank. The operation of injecting capital into weak banks using the central bank's funds (see Section 3) may be a typical example.

Progress has been made to split responsibilities to the different authorities. In the area of banking supervision, the Financial Supervisory Agency was created as an independent authority in 1998. With regard to the safety net arrangements, the DIC was substantially reinforced in terms of financial and human resources in a series of major reforms in 1996 and 1998. The new deposit insurance system which became effective in April 2001 relieves the central bank of the responsibility to provide risk capital to a troubled bank. In the new framework, the responsibility of the central bank as lender of last resort is confined to liquidity support to a bank in cases where it is recognised to entail systemic implications. However, it does not necessarily provide for all possible future problems. The expansion of business by non-bank financial institutions, more entries of foreign financial firms into the domestic markets, and the emergence of large financial conglomerates pose new challenges. Not all of these financial institutions are within the scope of the deposit insurance system. This may call for a better

understanding with regard to the roles that should be played by the respective agencies to address potential financial instability that could involve such firms.

7.8 Need for better international coordination

The financial crisis in Japan in the 1990s involved many internationally active financial institutions: Daiwa Bank was forced to withdraw from US operations in 1995; Hokkaido Takushoku Bank and Yamaichi Securities failed in the autumn of 1997; Long Term Credit Bank and Nippon Credit Bank were nationalised in 1998. The Japanese authorities recognised that the crises were not only domestic problems but also major threats to global financial markets. The authorities in due course became more forthcoming in providing the overseas authorities with information on their policy intentions and the specifics of measures intended to address the problems with these major institutions. However, there were instances where miscommunication hindered smooth crisis management operations. For example, in the case of the collapse of Yamaichi Securities, it took a while before some overseas authorities fully understood the intention of the Bank of Japan to provide liquidity to honour all existing contracts of the Yamaichi Group, including those of the subsidiaries in various jurisdictions. As described in Section 7.7, crisis management is a complex operation even in a single jurisdiction, because it cuts across various financial sectors and involves multiple authorities with different responsibilities. The fact that more financial institutions operate widely across national borders today may call for better international communication between authorities that have a common responsibility for financial stability.

Epilogue

When the bubble burst in the early 1990s, no one expected it was going to usher in such a prolonged period of weak growth in Japan. Having traced how it became a reality and the history of crisis management in the 1990s, I cannot help thinking of several “if”s: the “if”s that could have changed the shape of the crisis. The first is: if we had had an adequate financial infrastructure that effectively captured the potential magnitude of the problem, it might have encouraged policymakers to take more decisive actions at an earlier stage. Accounting and disclosure standards and the supervisory regime are probably among the most important elements of the financial infrastructure in this regard. More broadly, the insight and expertise of the central bank that foresees the unforeseen are also a part of the infrastructure that underpins financial stability. The second is: if policymakers had created a flexible safety net that allowed the use of public funds earlier, before, and not after, the series of successive failures of major financial institutions, the financial shake-up might not have been as devastating. It might not have been able to prevent the failures of these major institutions, but the time and the cost required to contain the crisis could have been less enormous. Evidence suggests that the central bank had a vision of what needed to be done perhaps a little earlier than others. But in the end, it did not make much difference because the Bank did not necessarily have the strategy to materialise the vision. The third is: if the management of Japanese banks had had the foresight and courage to embark on the restructuring at an earlier stage, not all banks might have been as desperately entangled in bad loans. Of course, these are all big “if”s that emerged out of wisdom only after the event, but still they are the questions that keep coming up in my mind.

The Bank of Japan has struggled to deal with the financial and economic problems that faced the nation. Since the mid-1990s, the central bank has ventured into uncharted waters in the areas of both monetary and prudential policies. Extensive LoLR support in the 1990s to financial institutions, including a non-bank, and introduction of the so-called zero interest policy in 1999, replaced by a quantitative targeting adopted in March 2001, are all unprecedented in the history of modern central banking. Despite all these efforts, however, Japan’s financial system is still burdened with the legacies of the past and the economy still fails to show a self-sustaining recovery. Strong will among policymakers, as well as among senior management at individual banks, is now more crucial than ever for taking decisive steps founded upon the lessons learned. It will only be when the efforts made by the private and public sectors begin to bear fruit that the “lost decade” will be renamed the “decade towards financial revival”. The fact that both the US and Nordic banking sectors revived and expanded after their respective crises is encouraging.

In looking back on the 1990s as a crisis manager, perhaps I can say, with modest pride, that we managed to accomplish the very basic tasks. Payment and settlement systems continued operations without a single day of interruption. A meltdown of the domestic financial system and direct contagion effects overseas were avoided. I remember every critical moment of the crisis as if it were only yesterday. I recall the faces of my colleagues in the central bank, those at the supervisory authorities and in the private financial sector, who worked devotedly and strenuously for the common aim of maintaining financial stability. In the course of the events that followed, different fates awaited them. Some remained and some left, sometimes in disappointment or disgrace. I feel indebted to those with whom I worked and who had to move on despite the job being unfinished. For those of us still involved, it is our responsibility to carry the banner forward and to achieve the ultimate goal of restoring confidence in the financial system and of establishing a resilient mechanism that supports sustained economic growth and, at the same time, can withstand future threats to financial stability.

I was determined to write this paper because I believe Japan's experience of the 1990s is too precious to be dispersed or forgotten in history. I hope that the paper proves to be useful as a sober observation of the past as well as a resource for meeting future challenges. But the paper should not be attributed to myself alone. In fact, it is an integration of intellectual exercises conducted collectively by members of the central bank who were involved in the crisis management operations. I am also grateful to the Monetary and Economic Department of the Bank for International Settlements and its staff for providing me with the opportunity to work on the paper and for additional inputs and perspectives. Finally, my thoughts go to Mr Tadayo Honma, who served as the Executive Director of the Bank of Japan in charge of prudential policy during the most critical days of the financial crisis. To our deepest sorrow, he died in September 2000. Without him, resolute policy actions by the Bank of Japan would have been impossible.

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Table 1
Chronology of events

Year	Month	Events	Laws, measures and policies
1990	Mar		MOF regulates the total amount of loans and loans to three industries (real estate, construction, finance companies)
1991	Jul	Resolution of Toho Sogo Bank (first financial assistance extended by DIC) announced	
1992	Aug		MOF releases "Policies for Financial Administration" to encourage liquidation of assets/collateral, etc
1993	Jan		Cooperative Credit Purchasing Company established
	Mar		Bankers' Federation announces revision of its disclosure standards (disclosure of the non-accrual amounts and past due loans) MOF announces that "capital ratio of financial institutions should be 8% or higher"
	May	Resolution of Kamaishi Shikin announced	<i>Jusen</i> companies implement restructuring plans (February to June 1993)
1994	Dec	Resolution of Tokyo Kyowa and Anzen credit cooperatives announced	
1995	Jan	Tokyo Kyodo Bank established	
	May		Financial System Research Council, Disclosure WG publishes report on expanding range of information to be disclosed about the soundness of assets of financial institutions (disclosure extended to loans on which interest payment has been waived, and loans to borrowers whose business restoration is supported by banks)
	Jun		MOF releases "Revitalisation of Financial Functions of the Financial System"
	Jul	Cosmo Credit Cooperative ordered to suspend operations	
	Aug	Kizu Credit Cooperative ordered to suspend operations Resolution of Hyogo Bank announced	
	Sep	Daiwa Bank announces loss at its NY branch	
	Dec		Financial System Research Council releases final report on measures for the maintenance of financial system stability Cabinet decides on concrete measures to address the <i>jusen</i> problem
1996	Mar	Resolution of Taiheiyou Bank announced	
	Jun		Three bills (Law to Implement Measures for Ensuring the Sound Management of Financial Institutions, Law to Provide Special Procedures for Reorganising Financial Institutions, and amended Deposit Insurance Law) and <i>Jusen</i> Law passed
	Jul		Housing Loan Administration Corporation established
	Sep		Tokyo Kyodou Bank reorganised into Resolution Collection Bank (as an assuming institution)
	Nov	Hanwa Bank ordered to suspend operations	Financial system reform (Japanese version of the Big Bang) announced

Year	Month	Events	Laws, measures and policies
1997	Apr	NCB announces plans to restructure Hokkaido Takushoku Bank announces plans to merge with Hokkaido Bank	
	Oct	Merger of Fukutoku Bank and Naniwa Bank announced Resolution of Kyoto Kyoei Bank announced	
	Nov	Sanyo Securities files application for rehabilitation Resolution of Hokkaido Takushoku Bank announced Yamaichi Securities announces suspension of operations Resolution of Tokuyo City Bank announced	
	Dec		A bill to amend the Deposit Insurance Law passed (special merger) Two bills concerning financial bank holding companies passed
1998	Feb		Two bills concerning financial system stabilisation (Amended Deposit Insurance Law and Emergency Measures for Financial Functions Stabilisation Law) passed
	Mar		Issue of preferred stocks and subordinated bonds based on Emergency Measures for Financial Stabilisation Law approved (21 banks: 1.8 trillion yen)
	Apr		Prompt Corrective Action (PCA) introduced
	May	Merger of Hanshin Bank and Midori Bank announced Osaka announces restructuring plans for credit cooperatives within the prefecture	Bankers' Federation revises unified disclosure guidelines for the preparation of disclosure reports (disclosure of loans past due 180 days or more and restructured assets added)
	June	LTCB and Sumitomo Trust Bank (STB) announce plans to merge	Financial Supervisory Agency (FSA) inaugurated Four bills (Financial Reform Law, SPC Law, Revision of 13 laws to comply with SPC Law, Obligation Netting Law) passed
	July	Financial Supervisory Agency and BOJ conduct intensive on-site inspections and examinations	Government and ruling parties release second report on "Comprehensive Plan for Financial Revitalisation (Total Plan)"
	Aug		Government and ruling party submit a bill concerning the "Total Plan" to the Diet
	Oct	LTCB placed under Special Public Administration	"Financial Reconstruction Law" and "Financial Functions Early Strengthening Law" become effective
	Dec	NCB placed under Special Public Administration	Financial Reconstruction Commission (FRC) inaugurated
1999	Mar		Capital injection pursuant to the Early Strengthening Law (15 banks: ¥7.45 trillion)
	Apr	Kokumin Bank placed under management of the Financial Reorganisation Administrator (FRA)	"Final Report" of the WG on Financial Inspection Manuals released
	May	Koufuku Bank placed under management of the FRA	
	June	Tokyo Sowa Bank placed under management of the FRA	
	Aug	Namihaya Bank placed under management of the FRA	
	Oct	Niigata Chuo Bank placed under management of the FRA	
	Dec		Financial System Council releases "Report on the Framework of the Deposit Insurance System and Resolution of Failed Financial Institutions after the Termination of Special Measures" Three ruling parties agree to postpone lifting of special measures concerning the Deposit Insurance System (end-March 2001 to end-March 2002)

Table 2
Evolution of the deposit insurance system

	March 1996	April 1999	
	Employees	16	DIC
		RCC	1,900
		Total	2,250
Functions	Payoff Financial assistance	Payoff	
		Financial assistance	
		Special financial assistance	
		Bridge bank	
		Temporary nationalisation	
		Capital injection	
Available funds	¥ 390 billion	¥60,000 billion	

DIC: Deposit Insurance Corporation
RCC: Resolution and Collection Corporation

Table 3
Capital injection to major Japanese banks¹ (March 1999)
(in ¥ billion)

Potential losses	Capital injection		Net core operating profit ²
Unrealised capital losses from securities holdings	Private funds	2,150	2,536
	Public funds	7,459	
-2,678	of which		
Potential loan losses	(preferred stocks)		
-9,044	(subordinated instruments)	(6,159)	
		(1,300)	
Total		9,609	2,536

Notes:

1. Major banks: Sakura, Dai-Ichi Kangyo, Fuji, Sumitomo, Sanwa, Tokai, Asahi, Daiwa, IBJ, Mitsubishi Trust, Sumitomo Trust, Mitsui Trust, Toyo Trust, Chuo Trust and Yokohama.
2. Net core operating profit equals net operating profit (before transfer to general loan-loss reserves and before write-offs for trust accounts) minus profits earned from bond-related transactions.

Table 4
Extension of funds pursuant to Article 38 of the Bank of Japan Law¹

Institution	Form	Purpose	Period	Type of funds
Tokyo Kyoudou Bank	Capital	Establishment of capital base (¥20 billion)	Jan 1995-Mar 1999	Type 4
Cosmo Credit Cooperative	Loan	Funds to continue business operations until final resolution	Aug 1995-Mar 1996	Type 1
Hyogo Bank	Loan	Funds to continue business operations until final resolution	Aug 1995-Jan 1996	Type 1
Kizu Credit Cooperative	Loan	Funds to continue business operations until final resolution	Aug 1995-Feb 1997	Type 1
Midori Bank	Subordinated loan	Strengthening of capital base (¥110 billion)	Jan 1996-Jan 2006	Type 4
Nippon Credit Bank	Capital (preferred stocks)	Re-establishment of capital base (¥80 billion)	Jul 1997-Dec 1998	Type 4
Hanwa Bank	Loan	Funds to continue business operations until final resolution	Nov 1996-Jan 1998	Type 1
Kyoto Kyoei Bank	Loan	Funds to continue business operations until final resolution	Oct 1997-Oct 1998	Type 1
Hokkaido Takushoku Bank	Loan	Funds to continue business operations until final resolution	Nov 1997-Nov 1998	Type 1
Yamaichi Securities	Loan	Funds for the orderly closure of business	Nov 1997-	Type 3
Tokuyo City Bank	Loan	Funds to continue business operations until final resolution	Nov 1997-Nov 1998	Type 1
Midori Bank	Loan	Funds to continue business operations until final resolution	May 1998-Apr 1999	Type 1
Kokumin Bank	Loan	Funds to continue business operations until final resolution	Apr 1999-Aug 2000	Type 1
Koufuku Bank	Loan	Funds to continue business operations until final resolution	May 1999-Feb 2001	Type 1
Tokyo Sowa Bank	Loan	Funds to continue business operations until final resolution	Jun 1999-Jun 2001	Type 1
Namihaya Bank	Loan	Funds to continue business operations until final resolution	Aug 1999-Feb 2001	Type 1
Niigata Chuo Bank	Loan	Funds to continue business operations until final resolution	Oct 1999-May 2001	Type 1

Notes:

1. Under the new Bank of Japan Law, which became effective in April 1998, Article 38 replaced Article 25 in the old Law as the legal basis for the central bank's emergency provision of funds for financial stability purposes.
2. Type 1 and Type 2 loans were provided as necessary.

Table 5
Outflow of deposits from the failed banks
(in ¥ billion)

	Day of announcement	Deposits outstanding on final business day	Outflow of deposits (accumulated basis)					
			First day		First week		First month	
Hokkaido Takushoku Bank	17 Nov 1997	5,603	210	(4%)	856	(15%)	1,571	(28%)
Tokuyo City Bank	26 Nov 1997	576	40	(7%)	110	(19%)	173	(30%)
Kokumin Bank	11 Apr 1999	538	44	(8%)	123	(23%)	173	(32%)
Kofuku Bank	22 May 1999	1,689	59	(3%)	191	(11%)	273	(16%)
Tokyo Sowa Bank	12 Jun 1999	1,994	60	(3%)	232	(12%)	466	(23%)
Namihaya Bank	7 Aug 1999	1,457	40	(3%)	102	(7%)	196	(13%)
Niigata Chuo Bank	2 Oct 1999	918	32	(3%)	84	(9%)	152	(17%)

Table 6
Loss experience from exercise of the LoLR function by the Bank of Japan

	Legal basis (A)	Period of experience (B)	Peak outstanding (C)	Loss (D)	Ratio (D)/(C)	Remarks
Type 1	Article 38 Bank of Japan Law	Aug 1995	2,858 billion (Feb 1998)		(0%)	
Type 2	Article 33 Bank of Japan Law	Nov 1997- Dec 1997	22 trillion (Dec 1997)		(0%)	These were tools for monetary adjustments, used to address the financial instability during the crisis period. A similar exercise was conducted in Jun-Oct 1998 during the LTCB crisis.
Type 3	Article 38 Bank of Japan Law	Nov 1997 Liquidity support to Yamaichi Securities	1,200 billion (Nov 1997)	na	(na)	Discussions continue as to possible means to cover the potential losses.
Type 4	Article 38 Bank of Japan Law	Establishment of Tokyo Kyodo Bank Jan 1995-Mar 1999	20 billion	16.4 billion	(82%)	
		Subordinated loans to Midori Bank Jan 1996-Jan 2006	110 billion		(0%)	
		Capital injection to NCB July 1997-Dec 1998	80 billion	80 billion	(100%)	
		Total	210 billion	96.4 billion	(45.9%)	

Table 7
NPL ratios

	NPLs/GDP	Assets/GDP	NPLs/assets
United States (1991)	2.9%	63.3%	4.5%
Sweden (1992)	13.2%	130.1%	10.1%
Japan (1999)	7.8%	217.4%	3.6%

Notes:

$NPLs/GDP = assets/GDP \times NPLs/assets$

NPL: For the United States, past due loans, loans in non-accrual status and restructured loans; for Sweden, gross problem loans; for Japan, risk management loans.

Assets: For the United States, assets held by commercial banks, savings banks and S&Ls; for Sweden, assets held by large banks; for Japan, assets held by all deposit-taking institutions.

Table 8
Loan losses and bank profits¹

	Accumulated loan losses (A)	Profit before loan losses (B)	(A) / (B)
Sweden ²	(1991-97) 204.0	31.7 ³	6.4
Japan ⁴	(FY 1992-99) 65,710	4,965 ⁵	13.2

Notes:

1. For Sweden, in SEK billion; for Japan, in ¥ billion.
2. Major banks.
3. Average annual profit, 1991-97.
4. All banks: city banks, long-term credit banks, trust banks and regional banks.
5. Average operating profit, FY 1992-FY 1999.

Source: Sveriges Riksbank, Bank of Japan.

Table 9
Use of public funds
 () ratio to nominal GDP

United States	<ul style="list-style-type: none"> • Expenditure on RTC¹ • Expenditure to liquidate FSLIC² • Interest payment for bonds issued by REFCORP³ 	\$ 81.9 billion	
		\$ 42.7 billion	
		\$ 76.2 billion	
	Total	\$ 200.8 billion	(3%)
Sweden	<ul style="list-style-type: none"> • Capital injection and loans⁴ 	SEK 65.0 billion	(4%)
Norway	<ul style="list-style-type: none"> • Capital injection and loans⁵ 	NOK 24.9 billion	(3%)
Finland	<ul style="list-style-type: none"> • Capital injection and loans⁶ 	FIM 33.5 billion	(7%)
Japan	<ul style="list-style-type: none"> • Credit lines • Cashable bonds⁷ 	¥ 57 trillion	
		¥ 13 trillion	
	Total	¥ 70 trillion	(14%)

Notes:

1. Resolution Trust Corporation.
2. Federal Savings and Loan Insurance Corporation.
3. Resolution Funding Corporation.
4. Total expenditure until July 1994.
5. Total expenditure until December 1993.
6. Total expenditure until December 1995.
7. Assigned for loss coverage.

Source: Okina (1998); Bank of Japan

Table 10
Cost of disposal of NPLs
 All Japanese banks, ¥ billion

	FY 92-94 ²	FY 95	96	97	98	99	Total
Loss ¹	10,744	13,369	7,764	13,258	13,631	6,944	65,710
Provisions	3,493	7,087	3,447	8,403	8,118	2,531	33,079
Write-offs	5,322	5,980	4,316	3,993	4,709	3,865	28,185
DIC financial assistance	-	473	117	81	1,930	4,009	6,610
DIC asset purchase	-	-	-	208	2,412	1,097	3,717
Capital injection	-	-	-	1,816	7,459	575	9,850
Total	10,744	13,842	7,881	15,363	25,432	12,625	85,887

Notes:

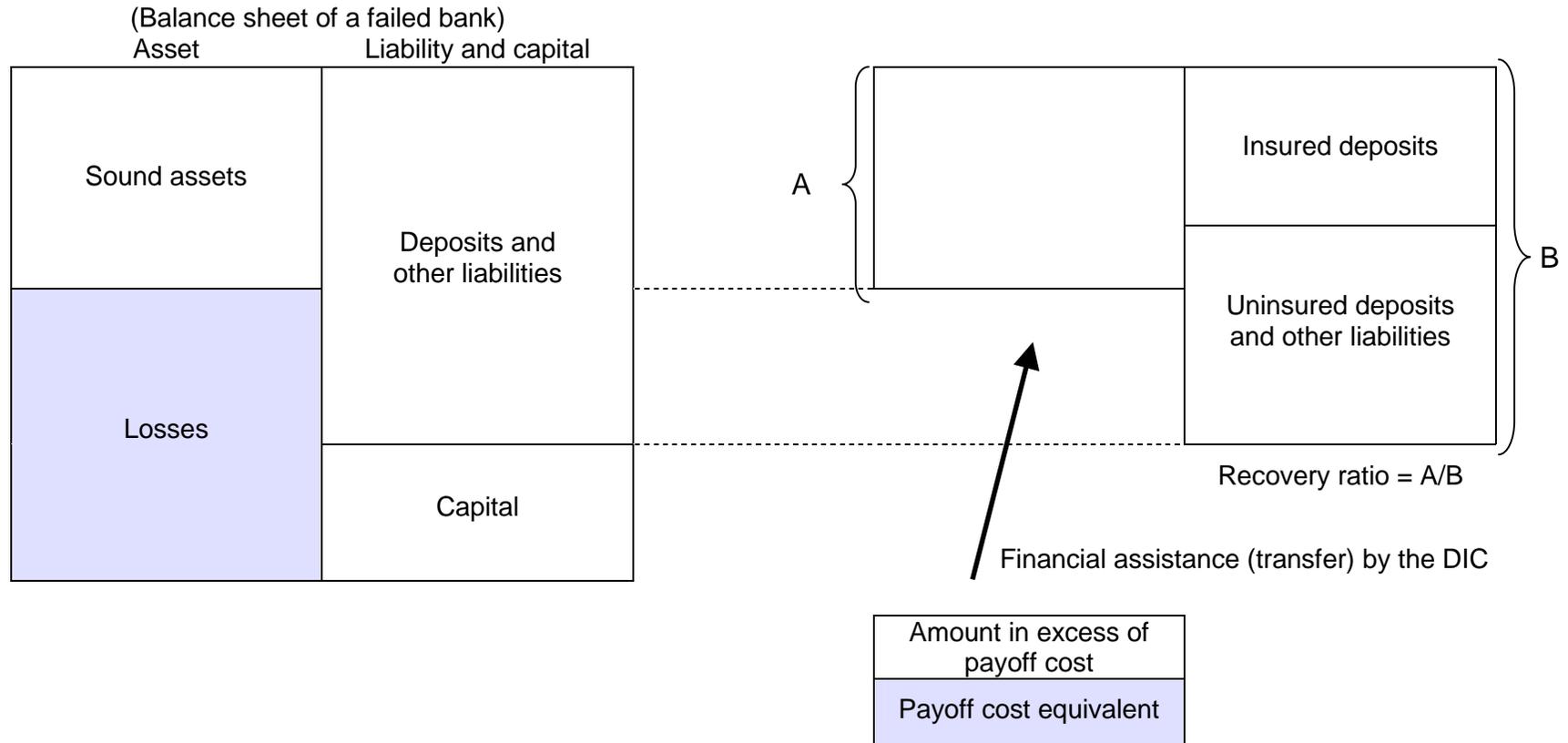
1. Losses include those arising from debt forgiveness and loan restructuring.
2. For FY 1992-FY 1994, figures are for city banks, long-term credit banks and trust banks.

Sources: FSA; DIC.

Table 11
Capital loss ratio of failed banks
(in ¥ billion)

	Capital (A)	Net losses (B)	(B) / (A)
Internationally active banks			
Hokkaido Takushoku Bank	297	1,773	6.0
Long Term Credit Bank	157	3,588	22.8
Nippon Credit Bank	477	3,344	7.0
Regional banks			
Tokuyo City Bank	13	119	9.5
Kokumin Bank	5	180	36.0
Koufuku Bank	13	440	33.6
Tokyo Sowa Bank	62	700	11.2
Namihaya Bank	45	430	9.4
Total	1,069	10,574	9.9

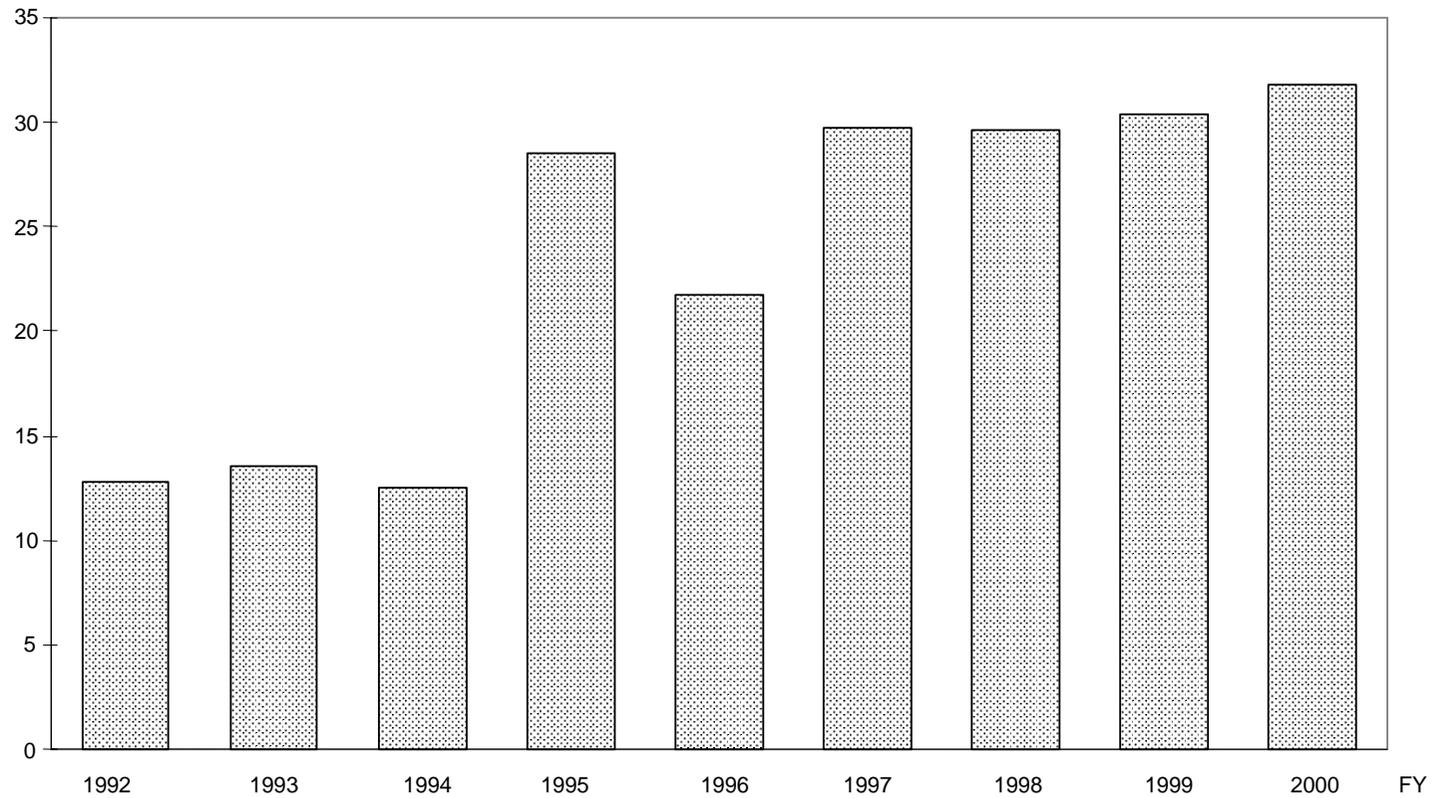
Figure 1: Mechanism of financial assistance by the DIC



1. Shareholders' capital of the failed bank is first drawn on to cover the losses of the failed bank.
2. The residual losses are covered by the DIC's financial assistance. By fully covering the losses, all liabilities (deposits and other liabilities) are protected.
3. Until 1996, there was a legal limit to the amount that the DIC could offer in a single financial assistance. The limit was called the "payoff cost limit", designed to minimise the DIC's expenditure.
4. Payoff cost limit = insured deposits \times loss ratio = insured deposits \times $(1-A/B)$.
5. Sound assets and liabilities of the failed bank are transferred to an assuming bank (the DIC's financial assistance is extended to the assuming bank).

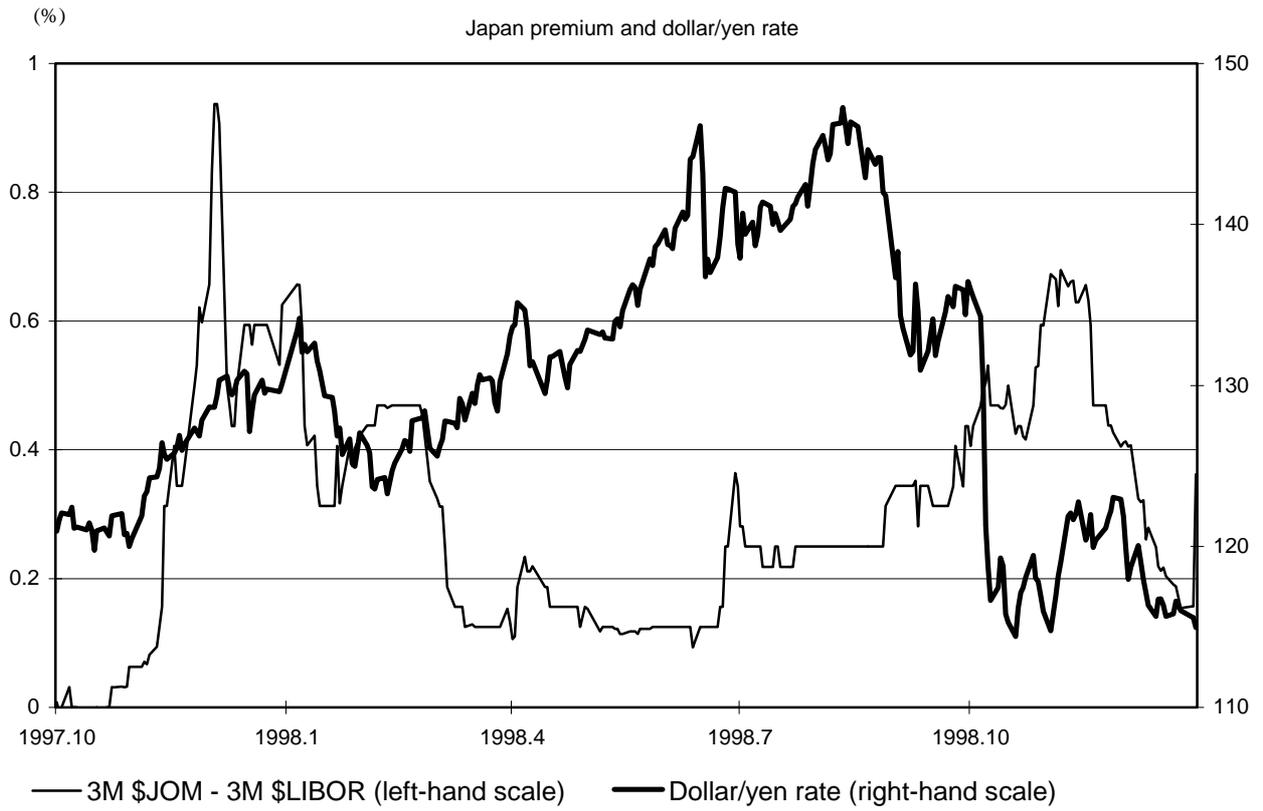
Figure 3: Amount of risk management loans (all Japanese banks)

In ¥ trillion

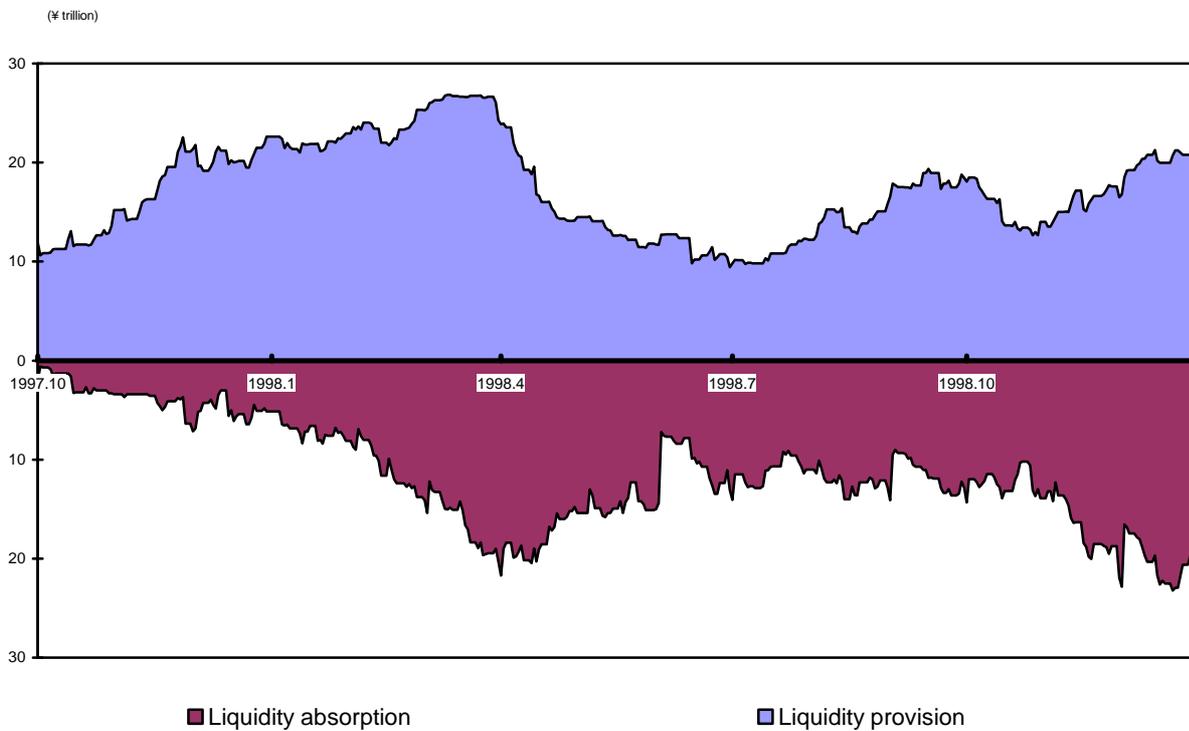


Note: Before FY 1994, the disclosed amount of NPLs was the total of “loans to legally bankrupt companies” and “loans past due for 6 months or more”. From FY 1995 to FY 1996, the figures include the amount of “loans for which interest rates were reduced”, which banks were required to disclose under the new rule, in addition to the above categories. From FY 1997 to the present, the figures include “loans past due for 3 months or more” and “restructured loans”. The category for “loans for which interest rates were reduced” was reclassified as a part of the “restructured loans”.

Figure 5: The Bank of Japan's monetary operations (Oct 1997-Dec 1998)



Two-way operations



Source: BOJ

Figure 6 : The Bank of Japan's Article 38 loans and loans to the DIC (in ¥ billion, %)

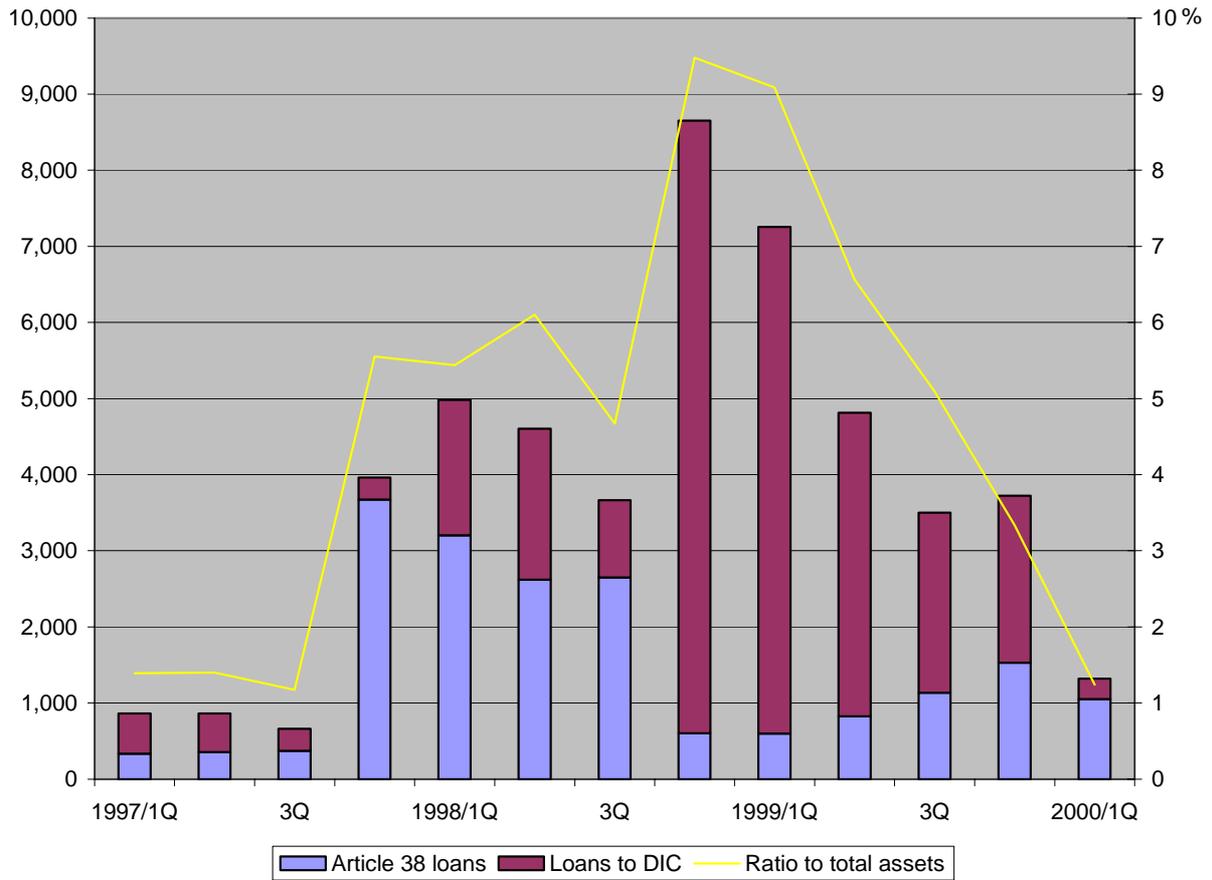


Figure 7: Borrowing by the DIC (in ¥ billion)

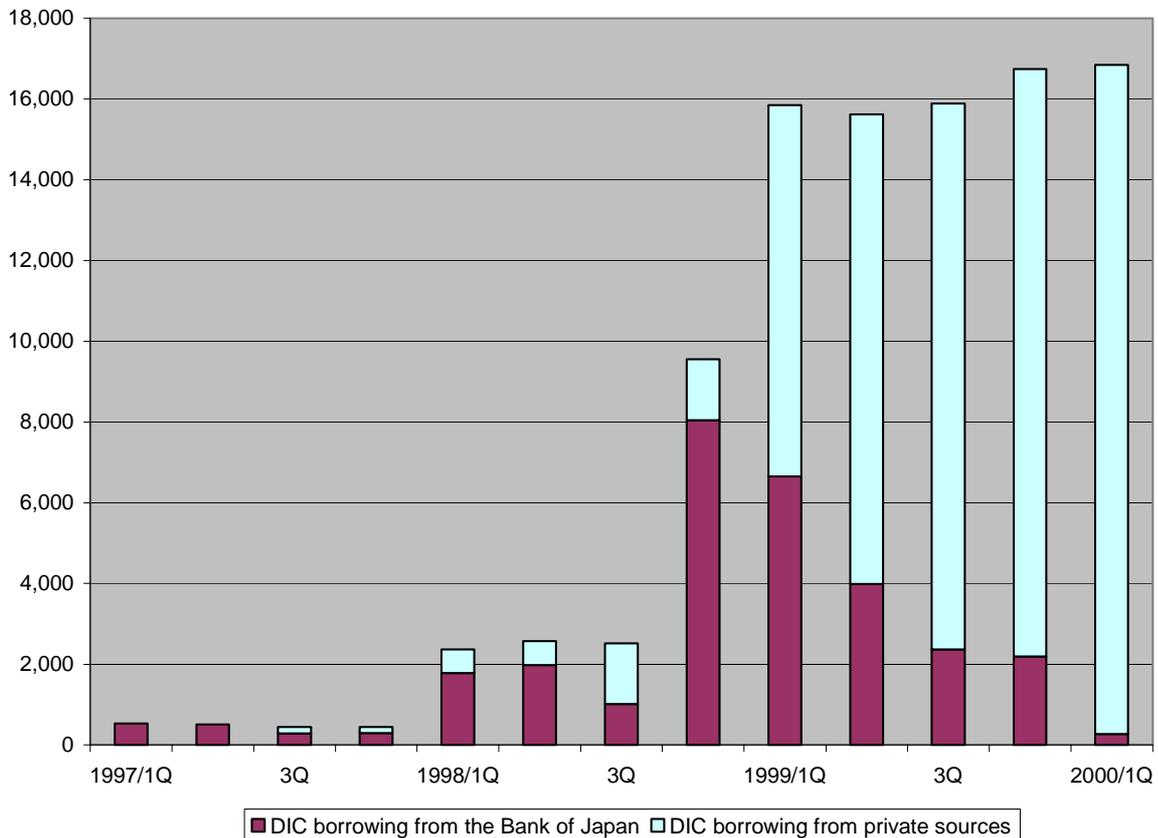


Figure 8: Magnitude of non-performing loans (NPLs/nominal GDP)

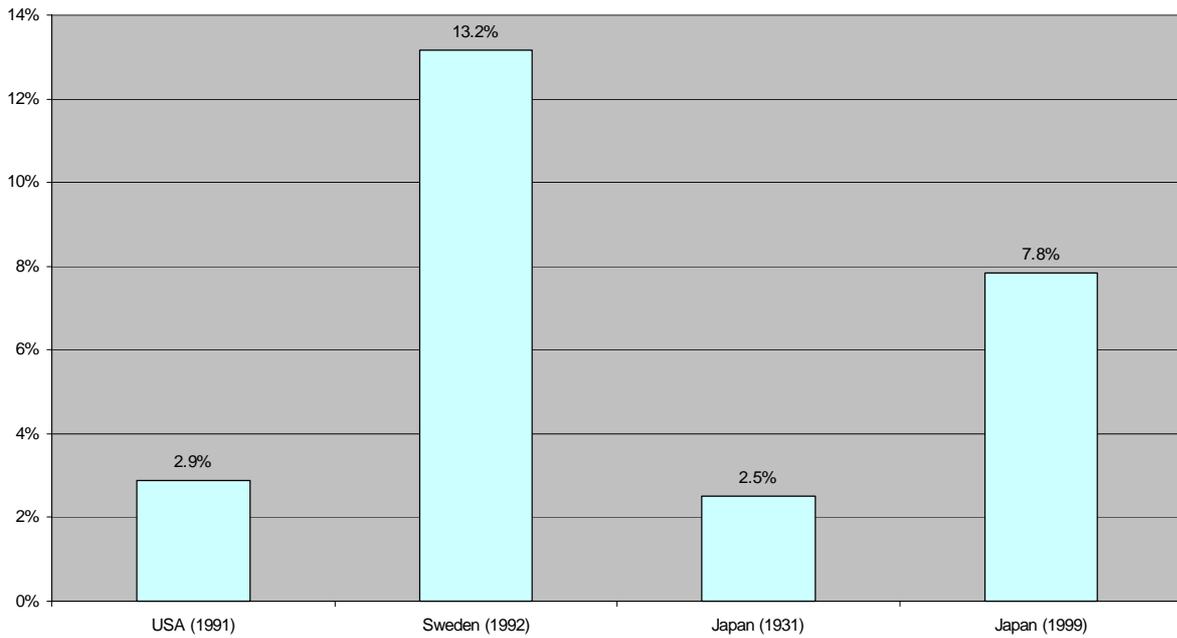


Figure 9: Profits and loan losses of all Japanese banks (in ¥ billion)

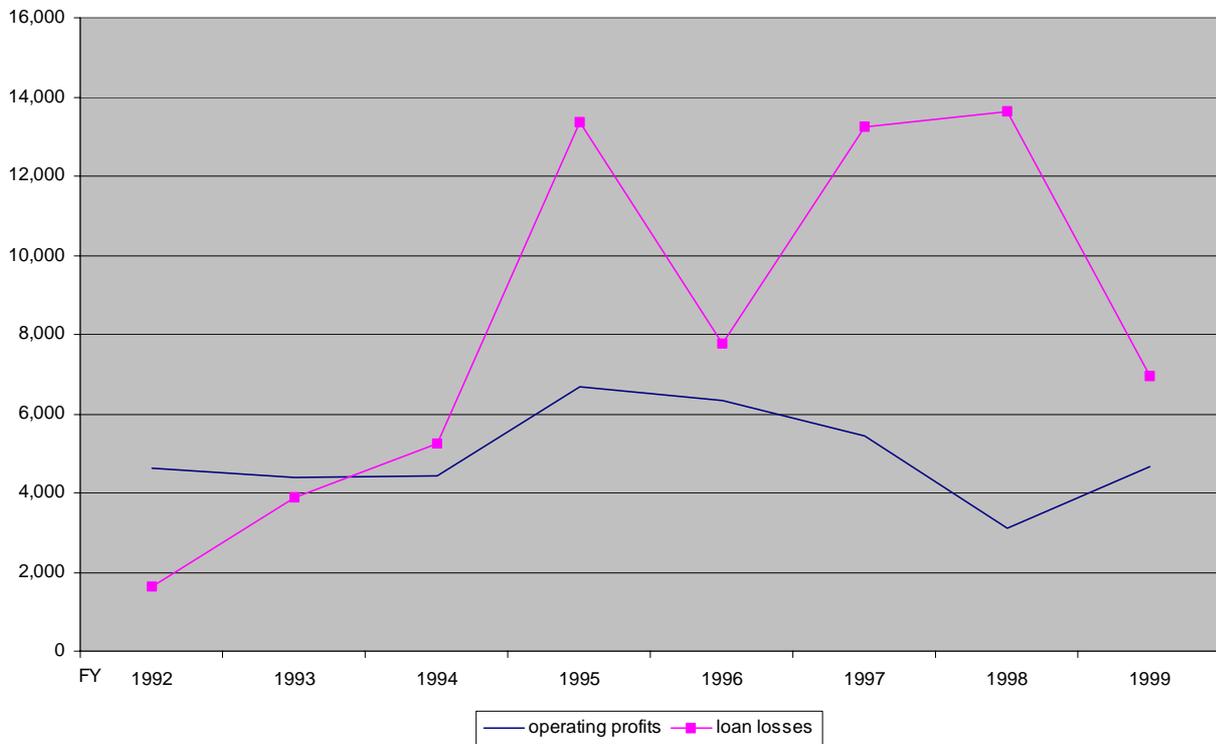
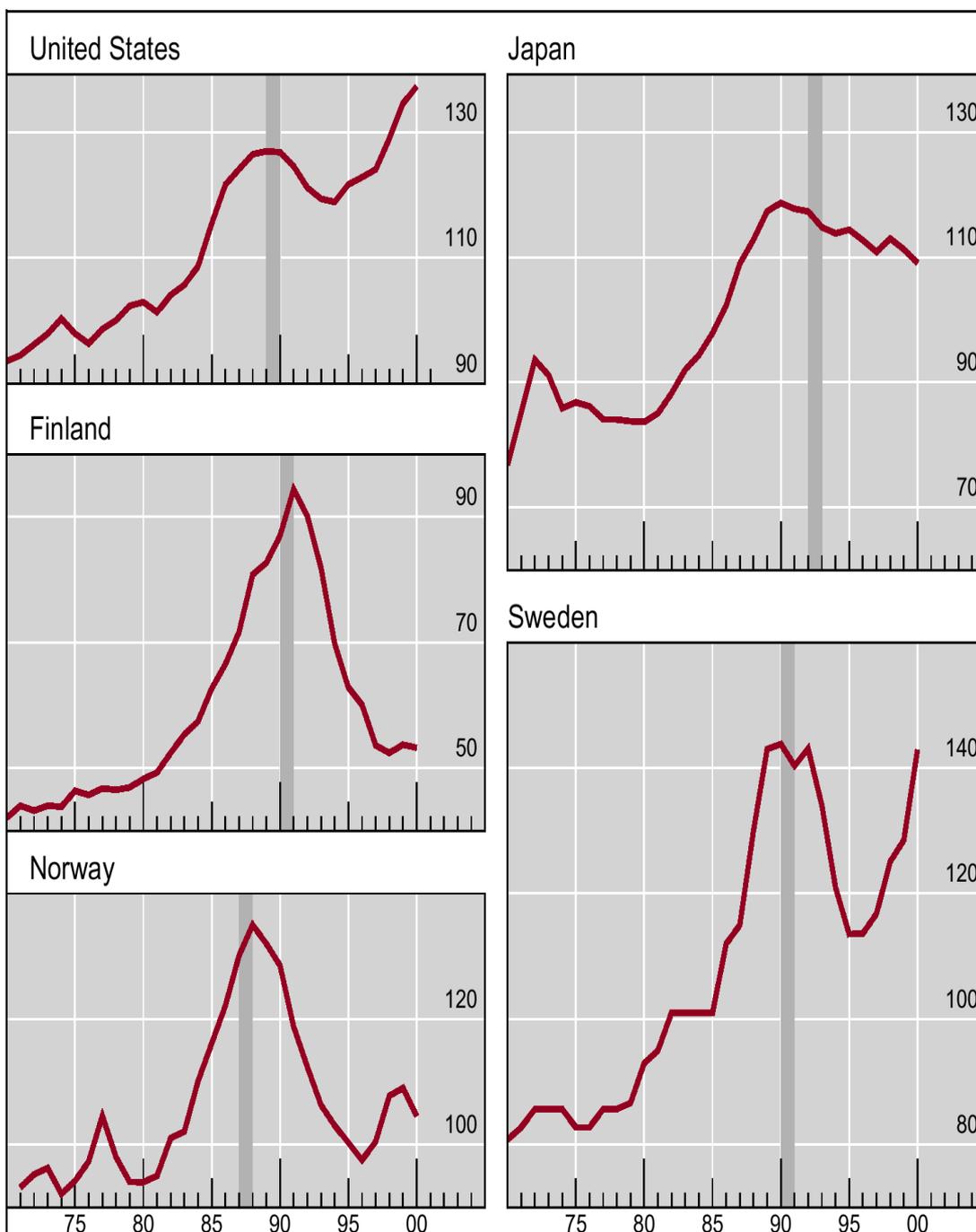


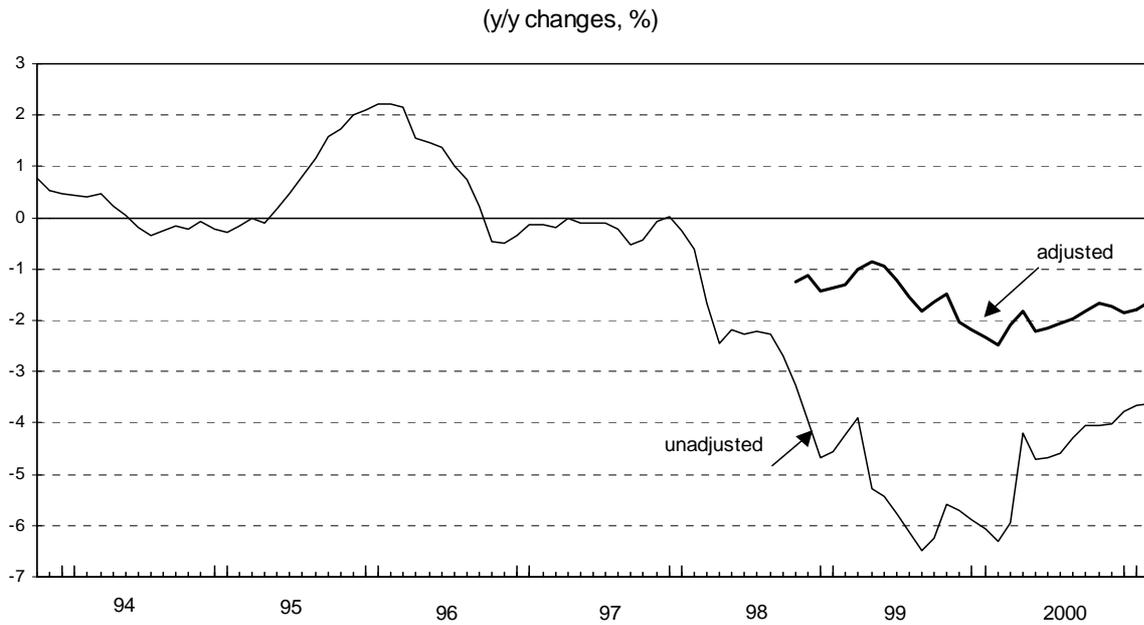
Figure 10: Credit cycles and financial stress¹



¹ Private credit as a percentage of GDP; comparability across countries is restricted by differences in the definition of private credit. The shaded areas mark the onset of stress in the financial system.

Sources: G Kaminsky and C Reinhart, "The twin crises: The causes of banking and balance-of-payments problems", American Economic Review, June 1999; national data; BIS estimates.

Figure 11: Lending by domestic commercial banks

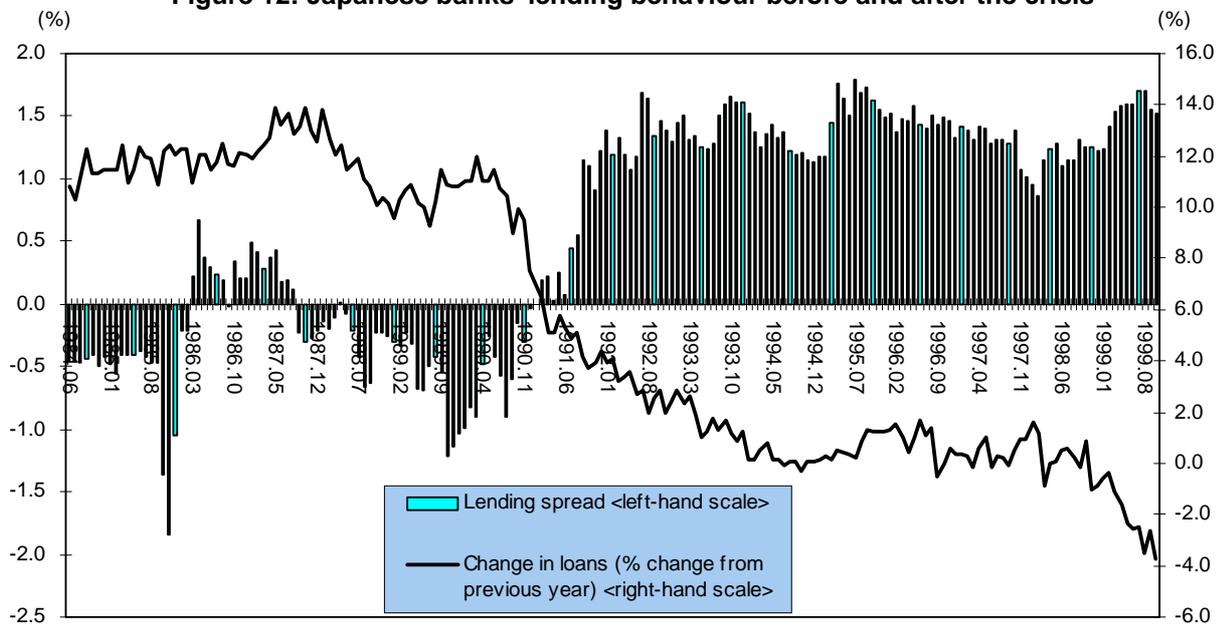


Notes:

1. Percentage changes in average amounts outstanding from a year earlier.
2. Commercial banks: all Japanese banks.
3. Adjusted figures exclude fluctuations resulting from loan write-offs and changes in exchange rates, etc.

Source: Bank of Japan.

Figure 12: Japanese banks' lending behaviour before and after the crisis



Note: Lending spread (all Japanese banks) = average interest rates on new loans (domestic yen, banking accounts) – CD (3-month) quotations.

Source: Financial and Economics Statistics Monthly, BOJ.

Figure 13: Average interest rates on time deposits*
 (*not less than ¥10 million, new receipts)
 (difference between failed banks and sound banks)

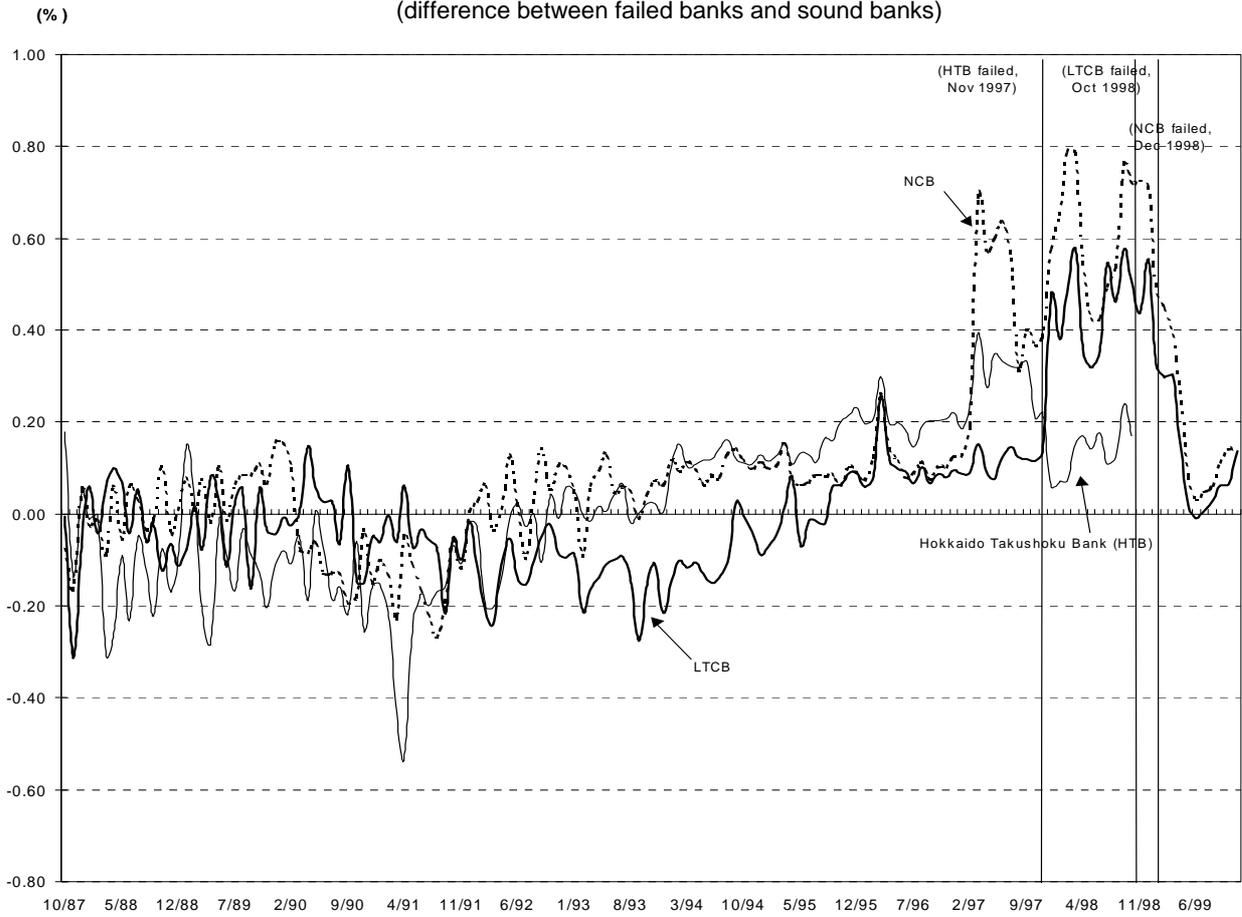


Figure 14: Average terms on time deposits*
 (*not less than ¥10 million, new receipts)
 (difference between failed banks and sound banks)

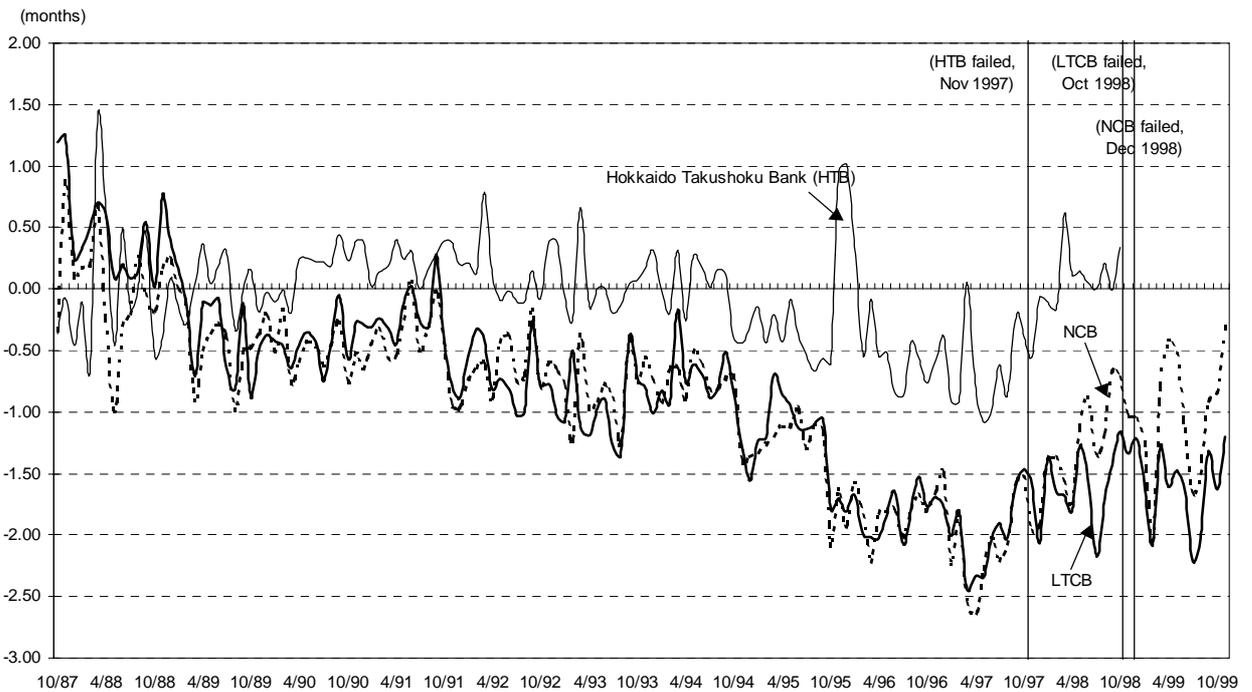


Figure 15: Volatility of deposit surplus ratio

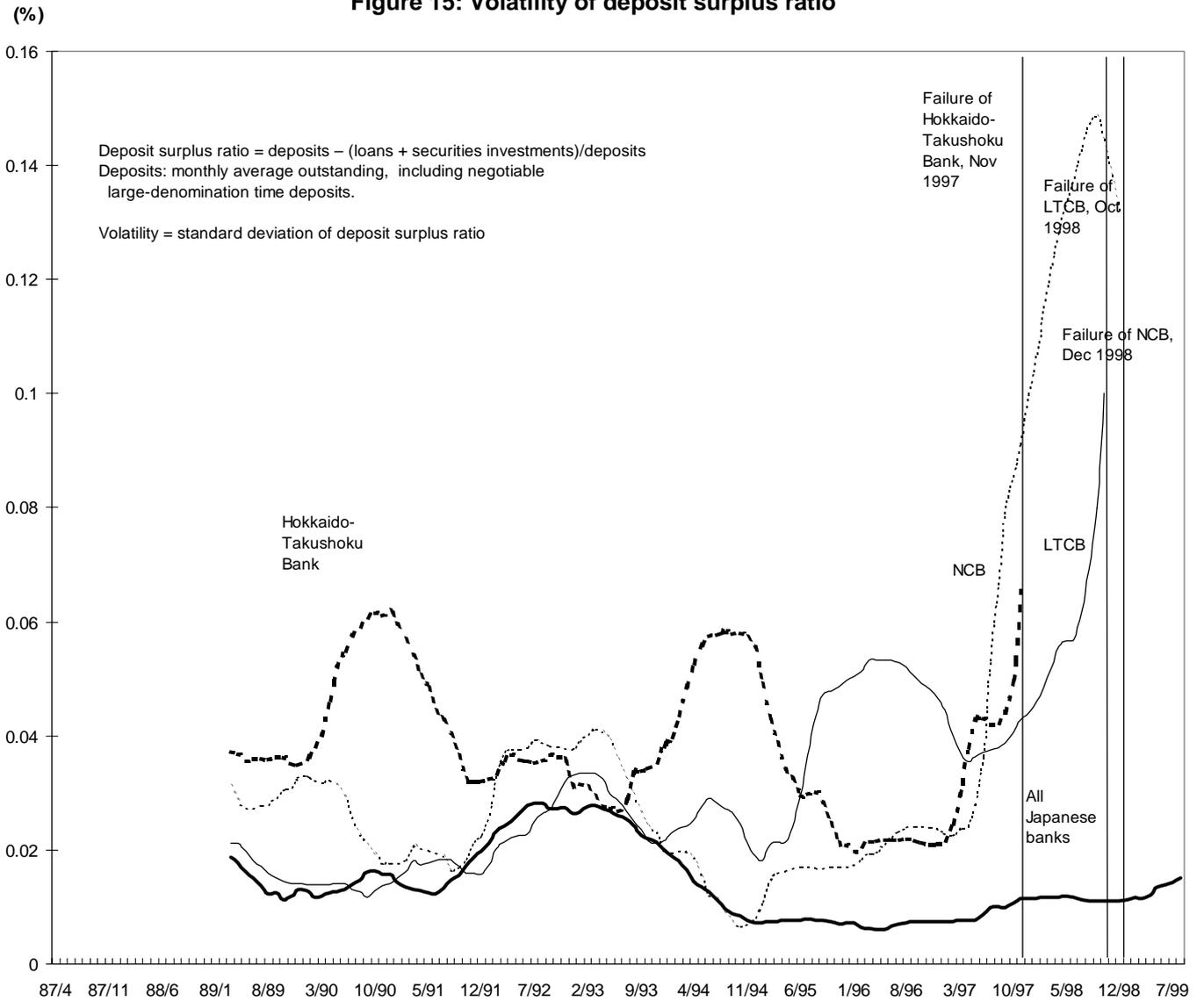
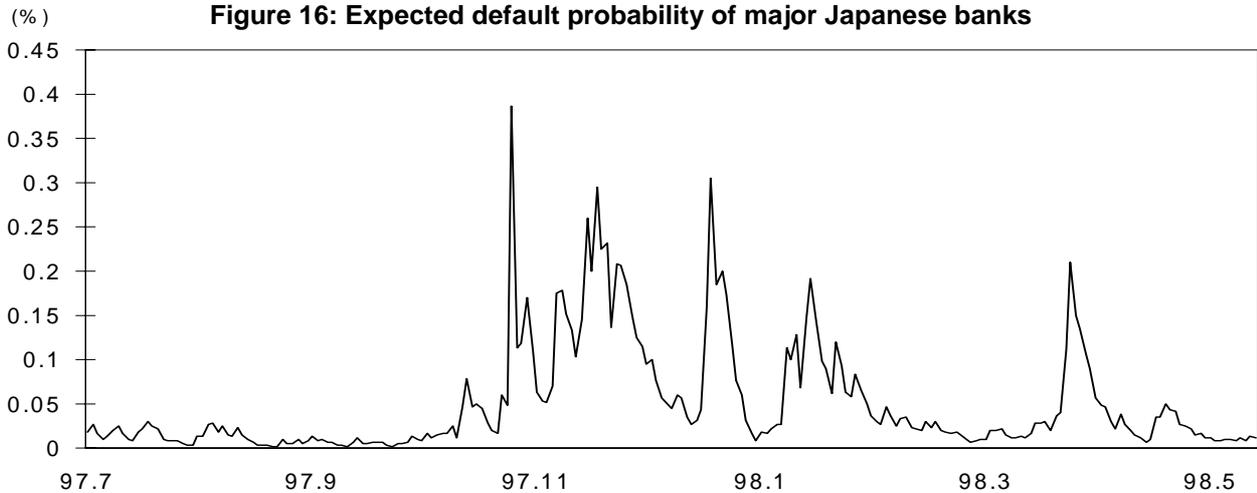


Figure 16: Expected default probability of major Japanese banks



Notes:

1. Estimation of expected default probability is based on the equity price volatility of six major Japanese banks. The volatility assumption relies on EGARCH (1,1) model. For details, see Ieda (1999).
2. There is a seasonal tendency for stock prices to become volatile around the end of the fiscal year, which partly explains the increase in expected default probability around the end of March.

Figure 17: Purchase and assumption (an example)

Failed bank (balance sheet)

Assets secured by deposits	10	Deposits securing assets	10
Sound assets	70	Insured deposits within insurance limit (a)	40
		Insured deposits over insurance limit (b)	20
Loss	35	Uninsured deposits and other liabilities (c)	40
		Capital	5

Anticipated rate of recovery from bankruptcy estate
 = Sound assets / (a) + (b) + (c) = 70%

Anticipated rate of loss (rate of deduction)
 = 100% – anticipated rate of recovery
 = 30%

Financial assistance by the DIC
 = Insured deposits within insurance limit x 30%
 = 12

- Shareholders' capital is used to absorb the loss

Business transfer

Assuming bank

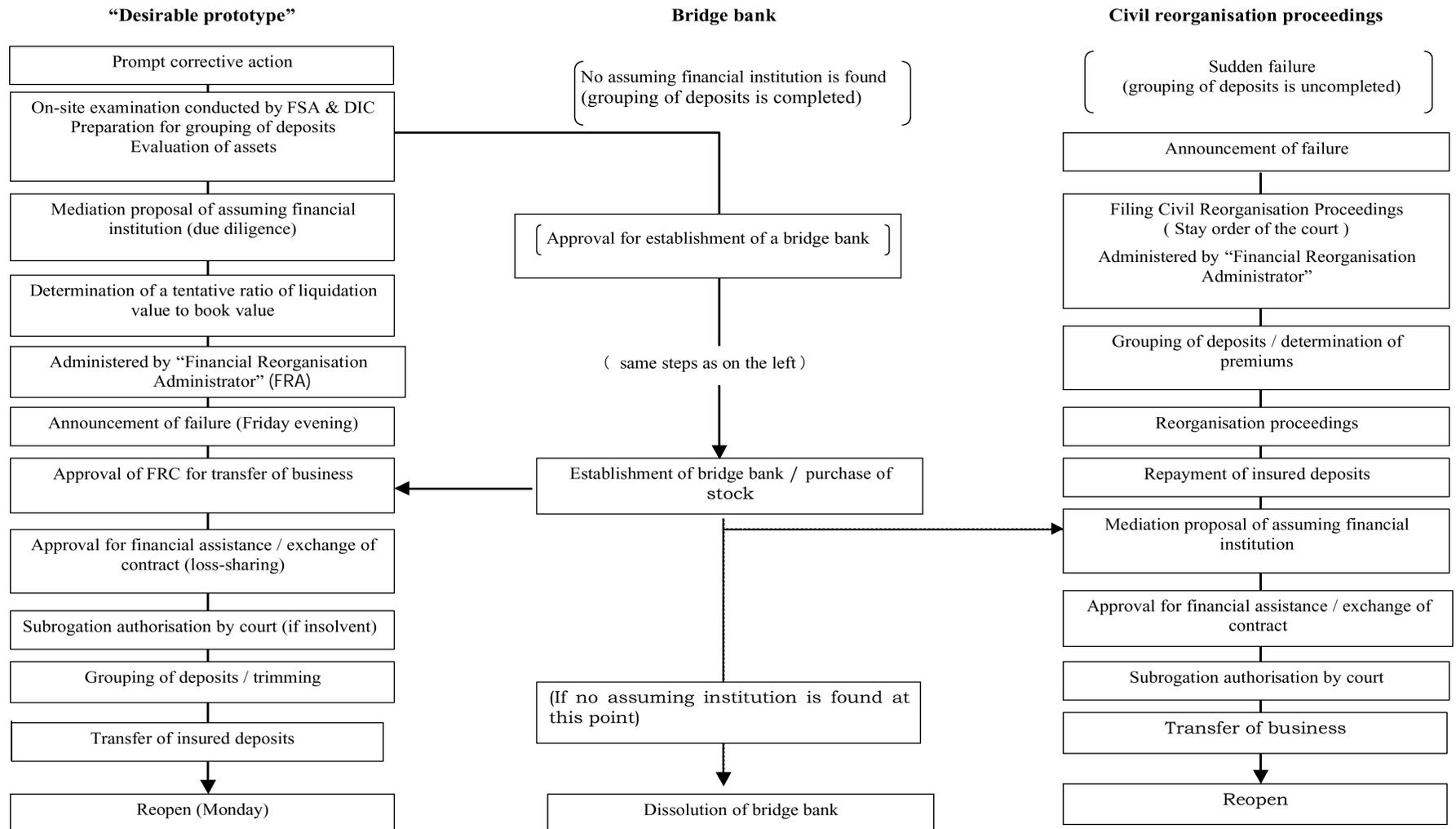
Sound assets	54	Insured deposits within insurance limit (a)	40
		(b) After deduction of anticipated loss 20 x 70% = 14	
Loss from (b)		Deduction from (b)	

Bankruptcy estate

Assets secured by deposits	10	Deposits securing assets	10
Sound assets	16	(c) After deduction of anticipated loss	
DIC's Financial Assistance	12	40 x 70% = 28	
Loss from (c)		Deduction from (c)	

- Subject to bankruptcy procedures
- Loan assets are offset by deposits

Figure 18: Speedy resolution by P&A



After business is transferred, uninsured deposits are repaid at a tentative ratio of liquidation value.

An assuming financial institution will also assume borrowers’ deposits up to the amount borrowed, along with loans.

Assets and liabilities which are not transferred to an assuming financial institution will eventually be liquidated through bankruptcy procedures.

As for an assuming financial institution, its capital will be enhanced if necessary, and “Additional financial assistance” also provided.

Figure 19: Systemic risk exception

Conference for financial crisis

Head:	Prime Minister
Members:	Chief Cabinet Secretary, Minister in charge of Financial Stability, Finance Minister, Commissioner of the FSA, Governor of the Bank of Japan. (In the case of labour credit associations, the presence of the Minister of Labour and Welfare is also required.)



Discussion



Condition

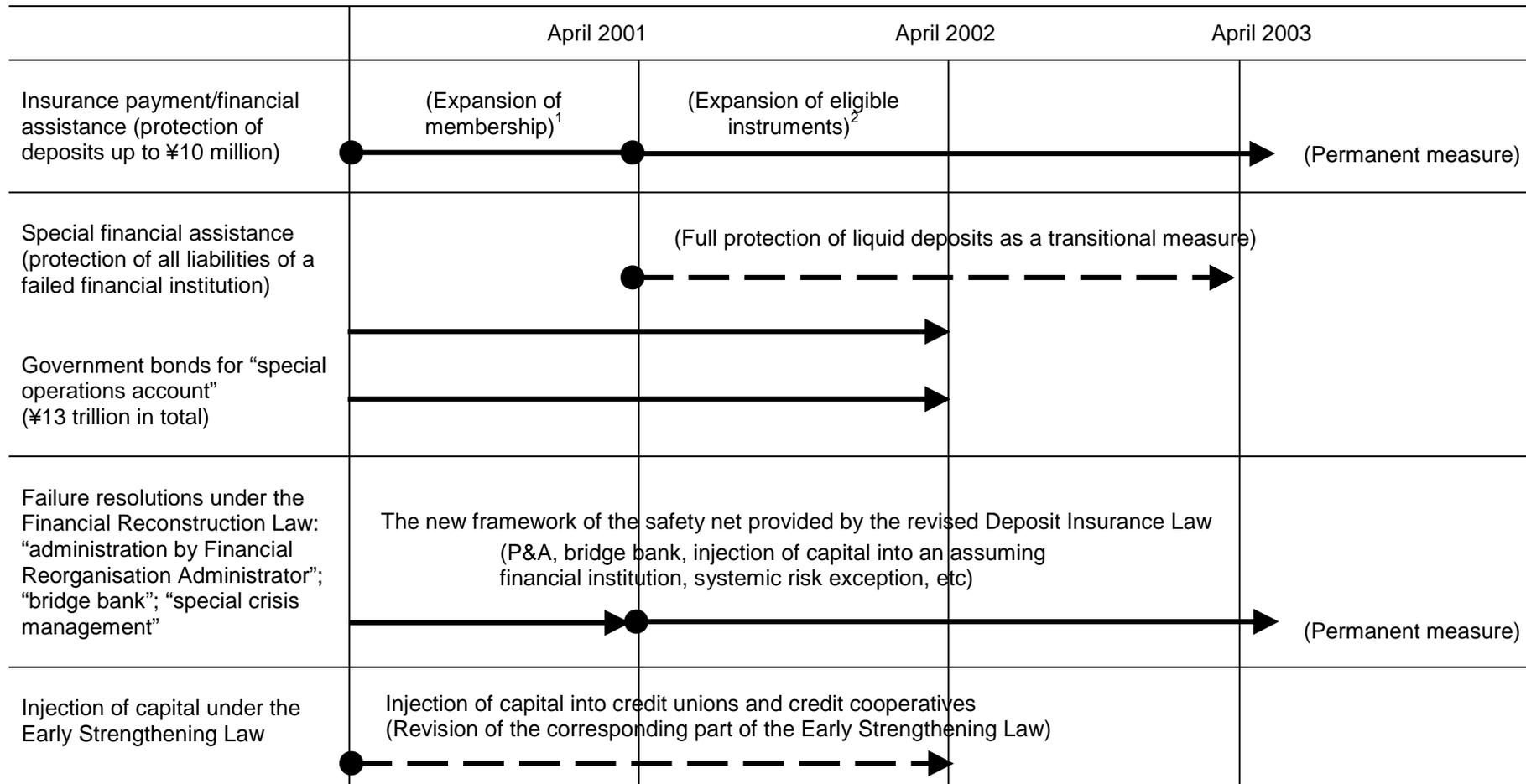
“If no measure is taken, the failure of said financial institution may disrupt overall financial stability and affect the stability of local and national economies.”



Measures

- (a) Capital enhancement
- (b) Financial assistance in excess of the payoff cost limit
- (c) Temporary nationalisation

Figure 20: Extension of the special temporary measures



Notes: ¹ The *Zenshinren* Bank, the *Shinkumi* Federation Bank, the National Federation of Labour Credit Associations are added. ² Includes: bank debentures (marketed to individuals as saving instruments), deposits of public funds and special corporations, interests on deposits (limit = principal ¥10 million + interest on the principal).