

Dealing with a banking crisis: what lessons can be learned from Japan's experience?

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- This article examines Japan's policies in dealing with its banking crisis during the 1991–2004 period, in order to draw lessons for policymakers today.
- Japan's policy choices reflected a difficult trade-off between the need to contain moral hazard on the one hand, and the need to limit systemic risk on the other. The resolution of the crisis ultimately required recapitalising banks and resolving uncertainty over banks' asset valuations.

Overview

Japan's equity and property market booms ended in 1990–91 after monetary policy was tightened following a period of low interest rates, and the banking regulator introduced a new policy to curb real estate lending. This was followed by a 'lost decade', characterised by slow economic growth and financial instability.

The banking regulator initially responded with a policy of regulatory forbearance — that is, refraining from forcing banks to recognise their losses promptly. But after the crisis turned systemic in 1997, the authorities undertook public capital injections and set transparent regulatory standards to improve disclosure and provisioning of non-performing loans. Drawing extensively on the statements, memoirs and interviews of the Japanese policymakers of the time, this article examines Japan's policies in dealing with its banking crisis during the 1991–2004 period and draws the following lessons:

- Japan's experience with policies to curb real estate lending at the peak of the property boom contains some lessons for modern macroprudential policy — even though the Japanese regulatory authority did not have an explicit macroprudential policy mandate. In particular, Japan's experience highlights the need for a macroprudential policy authority to choose the timing and the form of intervention appropriately by taking into account the impact of monetary policy and the behaviour of institutions that are not covered by its policy tools.

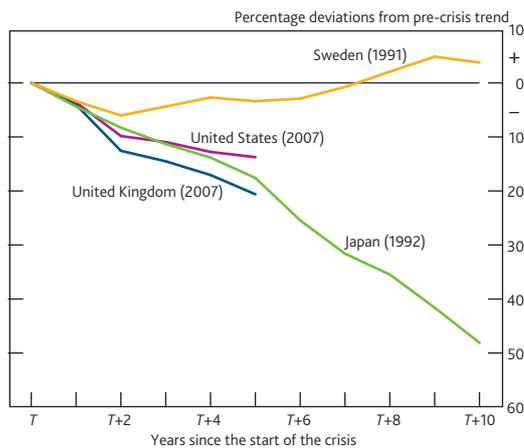
- Japan's policy experience in the first half of the 1990s highlights risks associated with forbearance — both by banks and the regulators. Evidence suggests that forbearance may have increased eventual losses at banks. The underestimation of the extent of the problem, the expectation of an economic recovery, and the absence of a comprehensive legal framework to facilitate prompt recapitalisation and orderly resolution of failing banks were factors behind regulatory forbearance. This underscores the need to ensure that banks are adequately capitalised to withstand plausible stress scenarios.
- Resolving uncertainty over banks' asset valuations and recapitalisation were crucial for restoring market confidence. In Japan, this required detailed and repeated supervisory inspections based on transparent loan classification and provisioning standards.
- Credit support measures might smooth adjustment in the short run, but risk exacerbating imbalances and make its withdrawal politically difficult if extended over long periods. Such measures therefore need to be designed to maintain the right incentives and supported by strong underwriting standards.

[Click here for a short video that discusses some of the key topics from this article.](#)

(1) The authors would like to thank Hitoshi Mio for his help in producing this article.

Following a collapse in equity and property prices in the early 1990s, Japan underwent a period of financial sector distress culminating in a full-blown systemic banking crisis in 1997. The long period of economic stagnation accompanying the period of financial sector distress is frequently referred to as Japan's 'lost decade'. The size of the decline in output during the first few years of the 'lost decade' relative to the path implied by the pre-crisis trend growth rate was similar to that of the United Kingdom after the recent financial crisis (Chart 1).

Chart 1 Post-crisis output losses relative to pre-crisis trend^(a)



Sources: IMF *World Economic Outlook* (October 2013) and Bank calculations. Crisis dates are from Reinhart and Rogoff (2009).

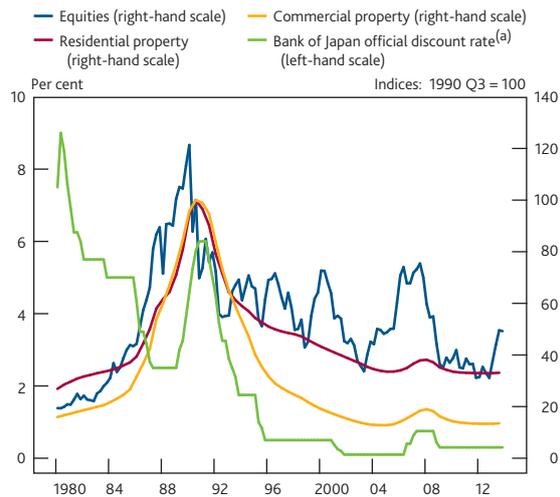
(a) T = year when the crisis started. Pre-crisis trend growth was calculated using the average annual growth rate ten years prior to the crisis.

This article reviews Japan's policies towards its banking sector since the early 1990s, and considers what lessons can be drawn from its experience for macroprudential policy, the resolution of failed banks, and policies aimed at supporting credit. Specifically, it examines the factors that contributed to the delay of loss recognition and recapitalisation of the banking system in the first half of the 1990s, and what steps were taken from the late 1990s onwards in order to set the banking system on a recovery path. **In order to shed light on the constraints and thinking behind particular policy choices, this article draws extensively on statements, interviews and memoirs of the Japanese policymakers of the time, most of which are available only in Japanese.** A short video explains some of the key topics covered in this article.⁽¹⁾

It is worth noting at the outset that the crisis dynamics in Japan differed from those that played out in the United Kingdom in the aftermath of the recent global financial crisis. The crisis in the United Kingdom turned rapidly systemic during 2007–08, whereas the Japanese banking crisis was more 'slow burning', unfolding over several years. Policy responses — including the recapitalisation of banks and monetary stimulus — were also undertaken more rapidly in the United Kingdom compared with Japan. Perhaps partly as a result, the United Kingdom has managed to avoid the deep

asset price deflation which exacerbated losses at Japanese banks over time (Chart 2). Nevertheless, there are some perennial issues and trade-offs facing policymakers dealing with the aftermath of a financial crisis. Japan's experience contains a wealth of policy lessons which remain pertinent to today's policymakers, not least because of the number of approaches tried in dealing with failing banks during the 'lost decade'.

Chart 2 Japan's asset prices and monetary policy



Sources: Thomson Reuters Datastream and Bank calculations.

(a) Bank of Japan official discount rate currently refers to the Basic Discount Rate and Basic Loan Rate.

This article is organised as follows. The first section briefly describes the origins of the Japanese banking crisis. The article then examines the Japanese authorities' approach to dealing with the banking sector during 1991–96, and considers how policies changed after the crisis became systemic in 1997. It then evaluates policies to support credit after the crisis turned systemic. The final section draws lessons from the Japanese experience. Although this article focuses on policies towards banks, it should be noted at the outset that Japan's prolonged downturn reflected a complex interplay of monetary, fiscal and banking sector policies, as well as external factors, such as the Asian crisis during 1997–98.

Origins of the Japanese banking crisis

During the second half of the 1980s, Japan experienced a macroeconomic boom accompanied by sharp increases in real estate and equity prices (Chart 2). The build-up of macroeconomic and asset price booms was associated with the easing of monetary policy. Following the 1985 Plaza Accord, in which the G5 countries agreed to let the Japanese yen appreciate against the US dollar, the Bank of Japan (BoJ) lowered the official discount rate five times, by a total of 2.5 percentage points, between

(1) See www.youtube.com/watch?v=-9R7LVq3DU0.

January 1986 and 1987. This was intended to counter the contractionary impact of the stronger yen on net exports but also as part of efforts at international policy co-ordination that called for countries with current account surpluses — such as Japan and Germany — to stimulate their domestic demand. The BoJ took the first step towards changing its monetary easing stance at the end of August 1987 by starting to guide market interest rates to a higher level. But this policy was soon suspended with the onset of the global stock market crash in October 1987 ('Black Monday') and the consequent international pressure for policy co-ordination in order to prevent excessive weakness of the US dollar.⁽¹⁾ This gave rise to the expectation that the BoJ would not raise rates for a prolonged period.

At the same time, the gradual liberalisation of capital markets in the 1980s served to increase competition in the corporate loan market as large corporates increased their bond issuance and reduced their reliance on bank borrowing. This induced banks to seek alternative investment opportunities and to increase their exposures to the real estate market. There is also evidence that banks expanded small business and foreign lending during this period as they lost their traditional large corporate customers.⁽²⁾

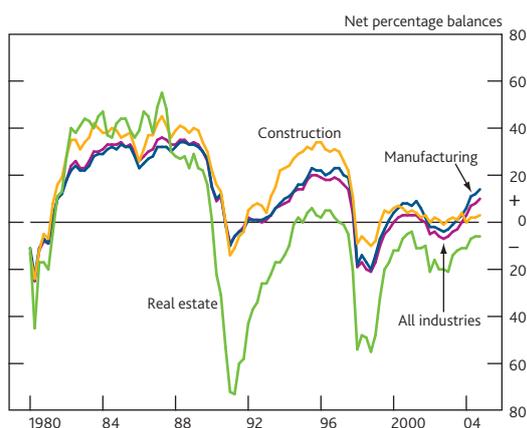
The greater competition from banks in mortgage lending during the 1980s in turn drove the *jusen* — the private non-bank financial firms dedicated to mortgage and real estate lending — to seek alternative, riskier investment opportunities in order to maintain their profitability. The *jusen* companies had been created by banks in the 1970s to meet the public's demand for homeownership. In the 1980s, however, the *jusen* started increasing their exposure to real estate companies and property developers as they started facing stiff competition from banks in the home mortgage market. This meant that banks themselves became indirectly exposed to risky real estate companies, as the banks were providers of equity and credit to the *jusen*.⁽³⁾

The rapid increase in property prices was politically unpopular, as it was seen to be profiting speculators and property developers at the expense of ordinary people seeking homeownership. On the back of this, the Banking Bureau of the Ministry of Finance (MoF), which was in charge of bank supervision and regulation until 1998, began issuing administrative guidance to depository financial institutions to restrain lending to the property sector in as early as 1985 Q3. But, collectively, the administrative guidance issued in the late 1980s was generally considered to have been ineffective in curbing the asset price boom.⁽⁴⁾ The BoJ had also started urging commercial banks to maintain a 'prudent lending attitude' from 1987 Q2 but, with the official discount rate held at a low level, this did not prove effective in curbing lending growth.⁽⁵⁾

The asset price boom ultimately ended in 1990, and it did so abruptly. Having peaked in December 1989, equity prices fell by nearly 40% in the following twelve months, and property prices started falling sharply a year later. It is thought that two policy actions contributed to the end of Japan's 'bubble era'. First, the BoJ began tightening monetary policy by raising the official discount rate for the first time in almost nine years, from 2.5% to 3.25% in May 1989. This was followed by further rapid increases to 6% by August 1990.

Second, in March 1990 — just at a time when monetary policy tightening was beginning to curb lending growth across sectors — the MoF's Banking Bureau issued an administrative guidance, referred to as credit 'quantity restrictions' (*souryou kisei*), requesting depository institutions under its supervisory power (i) to keep the growth rate of lending to the real estate sector below that of total lending, and (ii) to report lending to the real estate, construction and related non-banking sectors, including to the *jusen*. In contrast to the MoF's earlier measures, the 'quantity restrictions' set a concrete quantitative benchmark for credit growth to the real estate sector. This policy — which was kept in place until December 1991 — appears to have had a strong catalytic effect in tightening bank lending to the real estate sector: as **Chart 3** shows, real estate firms had reported a particularly abrupt and sharp tightening of bank lending attitudes from 1990 Q2. At the same time, agricultural co-operative financial institutions, which were not fully under the MoF's supervision and hence were not covered by the quantity restrictions, continued to increase their exposures to the *jusen*.⁽⁶⁾

Chart 3 Tankan survey of enterprises: lending attitudes of financial institutions by sector



Notes: Net percentage balance of 'Accommodative' minus 'Severe', percentage points. In the Tankan, there is a discontinuity between the time-series data up to the December 2003 survey and those in and after the March 2004 survey.

Source: Bank of Japan Tankan short-term economic survey of all enterprises in Japan.

(1) See Okina, Shirakawa and Shiratsuka (2001).

(2) See Hoshi and Kashyap (2000).

(3) See Hoshi and Patrick (2000), pages 12–13.

(4) See Komine (2011), pages 380–81 and the statement of Yoshimasa Nishimura, the Head of the MoF's Banking Bureau during 1994–96, in Matsushima and Takenaka (2011), page 309. The administrative guidance was not legally binding.

(5) See Okina, Shirakawa and Shiratsuka (2001).

(6) See Hoshi and Patrick (2000), pages 12–13.

Policies towards failing financial institutions: Phase I (1991–96)

This section examines how policymakers responded to the deepening financial sector problems in the first few years after the collapse of the asset price bubble. As discussed below, 'regulatory forbearance' and the protection of creditors of failed institutions were the main initial policy responses. Although these policies prevented individual bank failures from triggering a systemic crisis, they gave rise to creditor moral hazard and ultimately undermined investor confidence in the asset quality of the banking system.

The *jusen* problem: the overture

The collapse in property prices plunged the *jusen* into severe financial difficulty, as their borrowers started defaulting on their payments. The *jusen* problem had two important implications for the banking sector. First, exposures to the losses at the *jusen* weakened banks' balance sheets. As at March 1991, the MoF's Banking Bureau had estimated that 37% of the *jusen*'s outstanding loans were non-performing.⁽¹⁾ In 1993, the MoF orchestrated the restructuring of loans to the *jusen* by its main creditors, based on the assumption that property prices would increase by 25% in the following ten years. By 1995, however, around 75% of the *jusen*'s loans were estimated to have become non-performing, as property prices continued to slide further. All the *jusen* were eventually declared insolvent and were liquidated in 1995, with banks shouldering most of the resulting losses.

Second, the use of fiscal funds for the resolution of the *jusen* — which was mainly aimed at limiting the losses imposed on agricultural co-operative financial institutions — critically undermined public support for the use of fiscal funds in subsequent bank failures. Although only a small amount of public funds (¥680 billion, equivalent to 0.1% of GDP) was used for the resolution of the *jusen*, the resulting public outcry made the authorities reluctant to use public funds for bank recapitalisation in subsequent years.⁽²⁾

The policy of 'regulatory forbearance'

The collapse of property prices hit banks' balance sheets both through their direct lending to related sectors as well as through their indirect exposures via the *jusen*. The MoF first disclosed its estimate of non-performing loans (NPLs) at major banks to be ¥7 trillion–¥8 trillion (equivalent to 1.4%–1.6% of nominal GDP) in April 1992, but soon revised it up to ¥12 trillion (2.5% of GDP) in October 1992.⁽³⁾

The MoF's initial response was characterised by 'regulatory forbearance' — that is, refraining from forcing banks to recognise their losses promptly. In fact, the Head of the MoF's Banking Bureau during 1992–94 stated that its early attempts to privately persuade banks to write down bad loans and stop

paying dividends were rejected by bankers who feared shareholder criticism; and that he did not consider a more forcible intervention in individual banks' dividend policy to be appropriate at a time of financial liberalisation.⁽⁴⁾ Another senior official who was at the MoF's Banking Bureau around this time also stated that major banks were discouraged from issuing new equity in the domestic market as this could have further exacerbated falls in equity prices.⁽⁵⁾ Thus, banks were not forced to deal with their NPLs or to raise new capital in the first half of the 1990s.

In the early 1990s, the Japanese authorities dealt with the sporadic failures of relatively small banks and credit co-operatives by encouraging healthier institutions to absorb them. The institution taking over the failing bank was offered financial assistance from the Deposit Insurance Corporation (DIC), which was designed to limit depositors' losses in the event of a failure of a depository institution. Before 1996, however, the DIC's financial assistance could not legally exceed the cost of paying off the insured depositors. Hence, in some cases, where the amount of funds required exceeded the legal limit allowed under the Deposit Insurance Law at that time, the BoJ provided risk capital.⁽⁶⁾ These methods ensured that even uninsured creditors and depositors of failed institutions avoided suffering losses.⁽⁷⁾

There were a number of reasons why the policy of regulatory forbearance was adopted during the first half of the 1990s. These included:

- **Underestimation of the scale of the problem.** There was uncertainty over the exact size of the NPLs across the system because the data were patchy. The MoF's Banking Bureau at that time relied on banks' self-reported NPL data, but banks themselves were initially not fully aware of the extent of the problems with some of their borrowers.⁽⁸⁾ Moreover, these self-reported figures for NPLs were based on a narrow definition and did not include loans under forbearance (such as those with renegotiated or rescheduled interest payments). A former senior official at the MoF's

(1) See Nishino (2003), page 23.

(2) See Nakaso (2001). The main criticism was that the politically influential agricultural co-operatives refused to shoulder losses that were proportionate to their credit exposures in the resolution of the *jusen*. Although the founder banks of the *jusen* also ended up shouldering disproportionately large losses, the avoidance of proportionate losses by the agricultural co-operatives meant that the remaining losses were imposed on taxpayers.

(3) These figures covered NPLs at major banks only and included loans which were either in default or were more than six months in arrears. This definition of NPLs was narrower than the one used by the US banking supervisors at that time.

(4) See the statement of Nobuyuki Teramura, the Head of the MoF's Banking Bureau during 1992–94, in Matsushima and Takenaka (2011), pages 226–27.

(5) See the statement of Toshiyuki Tsukasaki, a head of division at the MoF's Banking Bureau during 1993–95, in Matsushima and Takenaka (2011), pages 371–72.

(6) For example, in 1995 the BoJ provided capital to establish Tokyo Kyodou Bank that assumed the assets of failed credit co-operatives in Tokyo. The limit on the financial assistance offered by the DIC was lifted in 1996 with the amendment of the Deposit Insurance Law. See Nakaso (2001) for further details.

(7) Before the temporary blanket guarantee on deposits was officially announced in 1996, the deposit principal was guaranteed up to a value of ¥10 million.

(8) See the statement of Teramura in Matsushima and Takenaka (2011), page 220.

Banking Bureau identified the shortage of bank inspectors and their limited power to conduct intrusive inspections as key factors for its failure to uncover the extent of problem lending.⁽¹⁾ Nevertheless, the authorities are likely to have been aware that the NPL problem was substantially larger than the published figures. The key reason for forbearance appears to have been the judgement by the MoF's Banking Bureau that major banks had the capacity to deal with the NPL problem over time in light of its projection for banks' operating profits and the substantial unrealised capital gains on their share holdings.⁽²⁾

- **Expectation of an economic recovery.** Underlying this judgement was the expectation of senior officials at the MoF's Banking Bureau that the NPL problem could be brought under control once the economy recovered and asset prices stabilised — even though the BoJ had privately recommended a speedy resolution of NPL problems to the MoF in as early as 1992.⁽³⁾ Few expected in the early 1990s that Japan was in for a 'lost decade' characterised by economic stagnation and falling asset prices, and hence there was little awareness at that time that the failure to deal with the NPL problem and to recapitalise banks early could increase the risk of a more systemic banking crisis a few years down the line. Even in 1996, the policymakers' focus was on credit co-operatives, which were thought to be the most damaged part of the financial system, while failures of major banks were unforeseen.⁽⁴⁾
- **Absence of a comprehensive legal mechanism for prompt recapitalisation and orderly resolution of failing banks.** Before 1998, the MoF's Banking Bureau did not have the remit to force banks to ensure that they had adequate funds to take account of the expected losses on NPLs (so-called 'loan loss provisioning').⁽⁵⁾ It also did not have the remit to order undercapitalised banks to take prompt corrective actions to raise capital — for example through new equity issuance or dividend restrictions.⁽⁶⁾ Moreover, forcing loss recognition could potentially have destabilised the system at this time: there was a genuine concern that imposing losses on creditors could have triggered a system-wide run, and there was no legal mechanism to inject fiscal funds into weak banks that could not raise new capital on their own.⁽⁷⁾

Although policymakers did not push banks to deal with their NPL problems in the early part of the decade, from 1996 onwards a number of reforms were made to strengthen the legal mechanisms to resolve insolvent institutions in an orderly manner so as to minimise their systemic impact. In 1996, the government announced a full guarantee on all deposits until March 2001, which was subsequently extended to March 2002.⁽⁸⁾ In practice, not only deposits but all forms of uninsured debt such as debentures (medium to long-term debt instruments), interbank lending and derivatives trading were fully guaranteed in all bank failures after 1996.⁽⁹⁾ In addition,

the jurisdiction and resources of the DIC were expanded through various legal reforms between 1996 and 1998. In 1996, the Housing Loan Administration Corporation and the Resolution and Collection Bank were established to hold assets and collect claims of failed *jusen*, and banks and credit co-operatives, respectively.⁽¹⁰⁾

Consequences of regulatory forbearance

The MoF's policies were, in some respects, successful in dealing with the failures of individual institutions without triggering a system-wide crisis or a credit crunch up until 1996. However, they gave rise to two unintended consequences: moral hazard, both on the part of banks' creditors and managers (acting in the interest of shareholders); and a loss of investor confidence.

Moral hazard

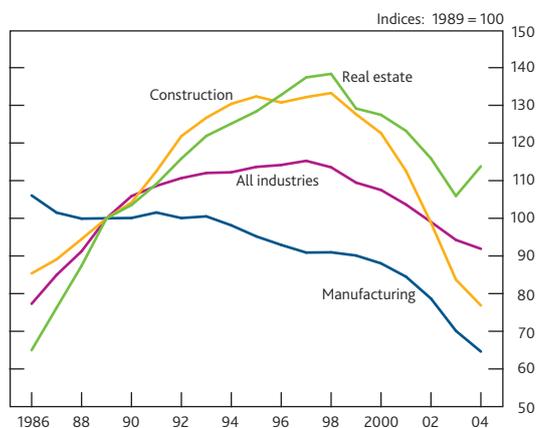
Moral hazard is a situation where a party has a tendency to take excessive risks as he or she does not have to bear the full cost of that risk. During the initial phase of the banking crisis, two types of moral hazard were observed:

- **Creditor moral hazard:** depositors and creditors were willing to lend money to nearly insolvent depository institutions offering above-market interest rates, due to the policy to avoid imposing losses on uninsured depositors and creditors. This resulted in higher losses for the deposit insurance fund when these institutions ultimately failed.
- **Bank management/shareholder moral hazard:** managers of a weakly capitalised bank with insured deposits, acting in the interests of its shareholders, may have the incentive to 'gamble for resurrection' by investing in risky assets: if the gamble is successful, shareholders gain, whereas if it fails, shareholders will at the most lose all their investments and the remaining losses will be borne by the deposit insurance fund.

(1) See the statement of Tsukasaki in Matsushima and Takenaka (2011), pages 355–59.
(2) The statement of Teramura confirms that the BoJ had privately shared with the MoF its own top-down estimate of NPLs to be more than ¥40 trillion (8.2% of GDP) in 1992: see Matsushima and Takenaka (2011), page 220. Nishino (2003) also reports that a confidential MoF paper estimated the system-wide NPLs to be ¥50 trillion (10.2% of GDP) by late 1992 — four times the published figure — but that paper concluded that major banks could deal with these NPLs over time. The statement of Tsukasaki confirms this: see Matsushima and Takenaka (2011), page 354.
(3) See Nishino (2003), pages 18–19.
(4) See Nakaso (2001).
(5) In general terms, capital is available for absorbing unexpected losses, whereas accounting provisions, together with related regulatory deductions, take account of expected losses.
(6) See Gomi (2012), page 34.
(7) Indeed, Prime Minister Kiichi Miyazawa floated the idea of the possible need to use public funds in order to stabilise the financial system in as early as 1992. Teramura states that he did not consider it to be politically feasible or necessary to establish a legal framework to inject public funds into financial institutions at a time when the crisis had not yet turned systemic. See Matsushima and Takenaka (2011), page 256.
(8) The blanket deposit guarantee was removed in a phased manner between April 2002 and March 2005.
(9) Creditors of Sanyo Securities, a security house which failed in 1997, did not receive a guarantee, and this triggered a systemic crisis (discussed in the following section).
(10) The two institutions were merged into the Resolution and Collection Corporation in 1999.

Japanese banks 'gambled' mainly by rolling over loans to weak firms with a high risk of insolvency in order to avoid realising losses — a practice known as 'evergreening'. In fact, the outstanding stock of loans to the troubled construction and real estate sectors continued to increase substantially until 1998 (Chart 4).⁽¹⁾ The failure to deal with problem loans in the early phases of the crisis eventually led to larger losses for banks and taxpayers as property prices failed to recover and bad debts continued to increase. Existing research also suggests that 'evergreening' contributed to a growing problem of credit misallocation, which could have had the effect of delaying Japan's economic recovery.⁽²⁾

Chart 4 Japanese banks' loans outstanding by sector^(a)



Sources: Bank of Japan and Bank calculations.

(a) Data from 1993 are for domestically licensed banks and overdrafts are included. Data before 1993 are estimates based on lending growth of the discontinued series for domestically licensed banks (excluding trust subsidiaries and foreign trust banks).

Loss of investor confidence

Investor confidence in the Japanese financial system and its regulators was eroded through a series of events during the 1994–95 period. The credibility of the published NPL figures was undermined when Hyogo Bank, which failed in August 1995, revealed its NPLs to be 25 times the amount that was published in its account as at March 1995.⁽³⁾ The MoF's credibility abroad was then undermined further by the discovery of large trading losses at the New York branch of Daiwa Bank in September 1995, amid reports that the MoF had failed to alert the US authorities even though Daiwa had informally let the Head of the Banking Bureau know about the losses by August of that year. This series of events led to increased funding costs for Japanese banks in international markets.

Dealing with a systemic banking crisis: Phase II (1997–2004)

This section examines how the crisis turned systemic in 1997, and discusses the set of policies that were subsequently adopted in order to set the banking system on a path for recovery. The policy package included the following elements:

- **Bank recapitalisation using public funds**, aimed at restoring confidence in the banking system and its ability to continue providing credit to the real economy.
- **Tightening of disclosure and provisioning standards for NPLs** in order to incentivise banks to clean up their balance sheets and to ensure that they had adequate funds to cover potential losses arising from NPLs (so-called 'loan loss provisioning'). These regulatory standards were enforced through intensified supervisory inspections.

What triggered the systemic banking crisis?

Japan's banking sector was unprepared for a further macroeconomic downturn in 1997, when the fragile recovery was choked by fiscal tightening and the onset of the Asian financial crisis.⁽⁴⁾ In November 1997, the banking crisis became systemic with the bankruptcy of Sanyo Securities. The Japanese authorities had judged that the failure of this medium-sized securities house would have limited systemic implications.⁽⁵⁾ Thus, contrary to the approach taken with bank failures up to this point, Sanyo was resolved under insolvency law, imposing losses on its shareholders and creditors.⁽⁶⁾ The authorities' intention was to minimise the creditor moral hazard discussed in the previous section and to improve market discipline.

Against their expectations, however, the bankruptcy of Sanyo triggered a chain of events which plunged the fragile banking system into a systemic crisis. Sanyo's bankruptcy, which constituted the first post-war default in the Japanese interbank market, caused an immediate freeze of interbank lending. As interbank rates shot up, several banks faced funding difficulties, thus propagating the crisis across the system. Within the same month, Hokkaido Takushoku Bank, one of the eleven large 'city banks',⁽⁷⁾ Yamaichi Securities, the fourth largest securities firm, and Tokuyo City Bank, a regional bank, collapsed. The interbank market was salvaged only through a massive liquidity injection by the BoJ, and a blanket guarantee on all creditors of these failed institutions.

This was a turning point in the history of Japan's banking crisis. In the following years, the Japanese authorities initiated a set of policies to recapitalise banks, to improve NPL disclosure and to force banks to improve provisioning against NPLs.

- (1) Peek and Rosengren (2005) find evidence that firms were more likely to receive additional bank credit if they were in poor financial condition, and that this 'evergreening' behaviour was more prevalent among banks with low capital ratios.
- (2) Caballero, Hoshi and Kashyap (2008) find evidence that the continued operation of weak firms due to banks' 'evergreening' had a negative effect on healthy firms, reducing their profit, likelihood of entry into markets and levels of investment.
- (3) See Nihon Keizai Shinbun Sha (1997), pages 148–51.
- (4) Specifically, the consumption tax was raised from 3% to 5%, the temporary income tax cuts were cancelled and the social security insurance premium was raised in 1997.
- (5) A security house specialises in trading stocks and bonds for itself and on behalf of its clients.
- (6) See Nakaso (2001).
- (7) City banks are typically large in size with headquarters and branches in major cities, and are involved in the financing of large corporates.

Two rounds of public capital injections during 1998–99

Faced with a systemic banking crisis, the government decided that a public capital injection would be necessary to restore investor confidence in the system and to preserve the system's capacity to continue lending to the real economy. The Japanese government undertook two rounds of public capital injection into major banks in the late 1990s.

The first round of public recapitalisations was conducted in March 1998, when 23 banks applied for capital injections totalling ¥1.8 trillion (0.4% of GDP).⁽¹⁾ In order to remove the stigma associated with receiving public capital, even strong banks were encouraged to apply, and, in the end, each of the major banks applied for an almost identical amount of funds.

The first round of capital injections soon proved to be insufficient to stabilise the system, however. The problem with this round of recapitalisations was that all applications were approved without thorough supervisory scrutiny of these banks' balance sheets, with the committee tasked to evaluate banks' applications for public funds not having direct access to detailed supervisory information related to individual banks. In fact, some members of that committee questioned the solvency of Nippon Credit Bank, which failed later in the same year. But both the BoJ and the MoF confirmed the bank to be solvent at that point, although the BoJ did raise concerns over the Long-Term Credit Bank, which also failed subsequently.⁽²⁾ In June 1998, supervisory responsibility was transferred from the MoF to the newly created Financial Supervisory Agency (JFSA).⁽³⁾ The Japanese authorities commenced the first large-scale, system-wide inspection of major banks, and by 1998 Q4, the JFSA had identified two major banks (Long-Term Credit Bank and Nippon Credit Bank) that had received public capital injections earlier that year to be insolvent. These two banks were temporarily nationalised, with the government taking full ownership.

In March 1999, the government undertook a second round of recapitalisations, with fifteen major banks receiving a total of ¥7.5 trillion (1.5% of GDP): one major bank, Bank of Tokyo Mitsubishi, decided not to apply for public funds this time around.⁽⁴⁾ Crucially, unlike the first round of recapitalisations, this second round of recapitalisation was authorised by the newly established Financial Reconstruction Commission, an independent administrative commission attached to the Prime Minister's Office with the authority to inspect and supervise financial institutions as the parent organisation of the JFSA.⁽⁵⁾ Accordingly, this round of capital injections was based on the JFSA's bank-by-bank estimate of underprovisioning — that is, the shortfall of funds relative to expected losses on NPLs — that it identified through a thorough system-wide inspection.

Tightening standards for NPL disclosure and provisioning

By early 1998, the MoF's internal estimates put NPLs in the banking system at ¥76 trillion (14.8% of GDP in 1998) once loans under forbearance were included. This was more than triple the MoF's published estimate of ¥21.7 trillion (4.1% of GDP) as at September 1997, which was based on a narrower definition of NPLs.⁽⁶⁾

By this time, there was a recognition that the disposal of NPLs needed to be accelerated in order to rebuild market confidence and mitigate systemic instability. The newly established JFSA tried to achieve this by strengthening the regulatory standards for assessing banks' asset quality, improving disclosure of NPLs, and tightening provisioning standards against NPLs. These stricter regulatory standards were enforced through intensive supervisory inspections by the JFSA. These reforms, which were aimed at strengthening banks' incentives to clean up their balance sheets, turned out to be crucial in putting the Japanese banking system on a sustainable path for recovery.

In 1998, the regulatory definition of NPLs was broadened,⁽⁷⁾ and banks were mandated to disclose their NPLs based on this new standardised definition from March 1999. In addition, the JFSA introduced a standardised inspection scheme in order to estimate the scale of system-wide underprovisioning by scrutinising banks' own self-assessments of loan quality.⁽⁸⁾ It also set out explicit guidelines for provisioning — that is, how much funds banks needed to set aside to take account of potential losses on NPLs — in its inspection manual in 1999. Finally, the JFSA revised guidelines for external auditors in order to ensure that the supervisor's inspection results were properly reflected in banks' financial statements.⁽⁹⁾ In addition to its regular inspections, the JFSA carried out four 'special inspections' between October 2001 and November 2004 in order to scrutinise the large, troubled exposures of major banks and to identify underprovisioning.⁽¹⁰⁾

It took several years and repeated inspections based on the inspection manual for the JFSA to force banks to recognise their underprovisioning. These efforts required substantial human resources, requiring almost a tripling of bank examiners at the JFSA between 1998 and 2004.⁽¹¹⁾ After peaking in

(1) Out of this ¥1.8 trillion, only 18% took the form of convertible preferred shares, while the remaining 82% took the form of subordinated debt and loans, which were classified as Tier 2 capital. New issuance of subordinated debt and loans does not lead to a dilution of equity holders' claims, and hence was preferred by banks over new equity issuance. See Deposit Insurance Corporation of Japan (2012).

(2) See Nishino (2001), pages 118–23.

(3) It was subsequently reorganised and renamed as Financial Services Agency (JFSA).

(4) See Hoshi and Kashyap (2010).

(5) See Nakaso (2001).

(6) See Nishino (2001), page 91.

(7) The new definition identified NPLs as loans to failed borrowers, loans with overdue interest payment over three months or more, and all restructured loans.

(8) See JFSA (1999).

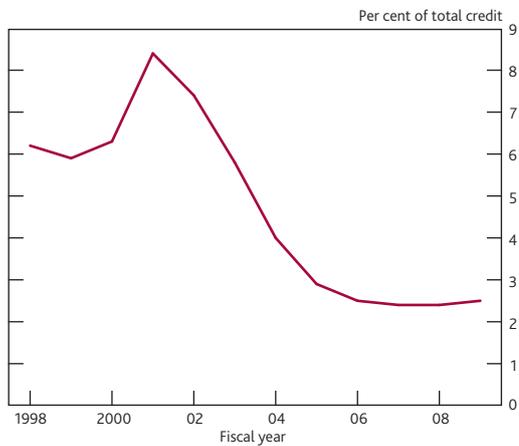
(9) See Nakaso (2001).

(10) See www.fsa.go.jp/news/newse/e20040916-1.html for information on these four rounds of inspections.

(11) See JFSA (2005).

March 2002, Japanese banks' NPL ratio gradually declined (Chart 5), while the share of NPLs that banks had covered through collateral and provisioning rose from 76% in March 2002 to 80% in March 2005.

Chart 5 Non-performing loans of Japanese banks^(a)



Sources: JFSA and Bank calculations.

(a) Fiscal year starts in April and ends in March (so the figure for 1998 refers to April 1998 to March 1999). Data are for all banks.

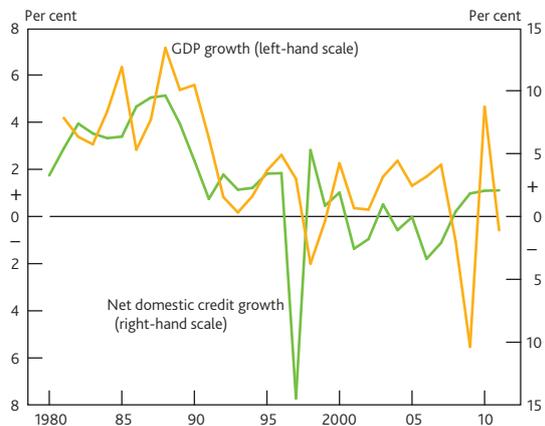
Meanwhile, as the degree of underprovisioning in the system was gradually revealed after the late 1990s, banks' loss-absorbing capacity came under scrutiny. As equity prices had fallen by over 40% by end-1999 from their peak at end-1989, unrealised gains on stockholdings were exhausted. Thus, several major banks relied heavily on opaque deferred tax assets (DTAs) and 'double gearing' — the cross-holding of equity capital between banks and life insurance companies — in order to maintain their regulatory capital ratios.⁽¹⁾ DTAs are the net present value of a future tax shelter due to accumulated loan losses in the past, and hence have real value only when a bank can generate taxable income in the near future. As DTAs have no value at liquidation, their value as 'capital' becomes questionable if a bank is continuously making losses.⁽²⁾ The JFSA tightened rules regarding the use of DTAs in calculating Tier 1 capital only gradually during the 2006–08 period. This policy of 'phasing' aimed to gradually enhance the resilience of the financial system amid concerns that an immediate tightening of capital rules could cause a second credit crunch and undermine the official sector's efforts to dispel deflationary pressure.

Policies to support credit (1997–)

This section reviews Japan's policy response to the credit crunch which emerged during the later stages of its banking crisis. Although bank lending growth slowed since the onset of the crisis, firms continued to report easy access to bank credit during the 1993–97 period. This was, in part, a reflection of forbearance on lending. A system-wide credit crunch emerged only after the crisis became systemic in 1997 and the

regulatory standards for NPL provisioning were subsequently tightened (Chart 6). The box on pages 44–45 presents evidence that the weak credit growth was mainly driven by those banks that entered the crisis with the weakest capital positions, or incurred the heaviest losses following the crisis.

Chart 6 Japanese GDP and credit growth^(a)



Sources: IMF *World Economic Outlook* (2003), World Bank and Bank calculations.

(a) Year-on-year growth rates. Both series are real. Net domestic credit is deflated by the consumer price index.

When the credit crunch emerged, there was little room for 'conventional' monetary policy easing, as the policy rate had already reached 0.5% by September 1995. Although the BoJ cut the policy rate to 0.25% in September 1998 and again to 0.15% in February 1999, the onset of deflation meant that real interest rates started drifting up in the late 1990s.⁽³⁾ In April 1999, the BoJ initiated 'unconventional' policy by announcing the 'zero interest rate policy' (ZIRP). Although the BoJ ended the ZIRP in August 2000 when it raised the policy rate to 0.25%, it again cut the rate to 0.15% in February 2001 following the burst of the dotcom bubble in the United States, and announced its 'quantitative easing policy' in March 2001.

The credit crunch after 1997 hit small and medium-sized enterprises (SMEs) — which depended on bank loans to finance their operations — most severely. To increase credit availability, the government launched a number of policy measures. First, it set SME lending targets for each bank that received a public capital injection in March 1999. Second, the government introduced the Special Credit Guarantee

(1) See Fukao (2003, 2007). 'Double-gearing' refers to a practice via which weak banks asked insurance companies to provide equity capital (Tier 1 capital) and subordinated debt (Tier 2 capital), with insurance companies asking banks in turn to hold their surplus notes (similar to non-voting redeemable preferred shares) and subordinated debt. This practice enabled both parties to flatter their regulatory capital ratios, but at the cost of increasing the likelihood of spillovers as insolvency of one party would give rise to direct losses for the other.
 (2) In 2003, before the JFSA started tightening rules regarding the use of DTAs in calculating Tier 1 capital, the accountants refused to certify accounts of Resona Holdings, which had been relying excessively on DTAs in maintaining adequate capital ratios. This event, which led to a public capital injection into Resona, was unexpected by the JFSA which was notified late in the day. See Gomi (2012), pages 102–03.
 (3) See Ueda (2012).

What types of banks drove the decline in credit in Japan?

Credit growth started slowing in 1990 following the collapse of asset prices, and ground to a halt in 1997 around the time when, as discussed in the main text of the article, the Japanese banking crisis became systemic (Chart A). Following that, credit growth turned negative for several years and the economy entered a period during which the ratio of credit to GDP declined substantially. By 2007, the credit to GDP ratio had returned to levels that had last been seen two decades earlier (Chart B).

Chart A Annual nominal bank credit growth



Sources: Bank for International Settlements (BIS) and Bank calculations.

- (a) Vertical line denotes 1990 Q3 when asset prices peaked.
 (b) Vertical line denotes 1997 Q4 when the crisis became systemic (see main text).

Chart B Credit to GDP ratio



Sources: BIS, IMF *World Economic Outlook* (October 2013) and Bank calculations.

- (a) The vertical line denotes 1997 Q4 when the crisis became systemic (see main text).

Bank credit accounted for around half of the total stock of credit provided to the private sector at the onset of the crisis. What explains the decline in credit provision by those banks whose lending contracted most acutely during the crisis period? And what were the balance sheet characteristics of the banks that expanded most rapidly?

Evidence from a panel of Japanese banks

We use a panel data set containing annual observations of a sample of around 100 Japanese banks over the period 1999 to 2012.⁽¹⁾ Table 1 contains some summary statistics. Mean growth in net loans (that is, the change in the stock of loans, adjusted for loan losses) was just short of 1% per year in this sample over the period, although there was considerable variation across banks and time (Chart C). The average ratio of Tier 1 capital to total assets — a measure of the loss-absorbing capacity of a bank — was around 4.6%. On average, there was deleveraging between 1999 and 2012, as indicated by the growth in the Tier 1 ratio, which was around 0.1 percentage points per year.

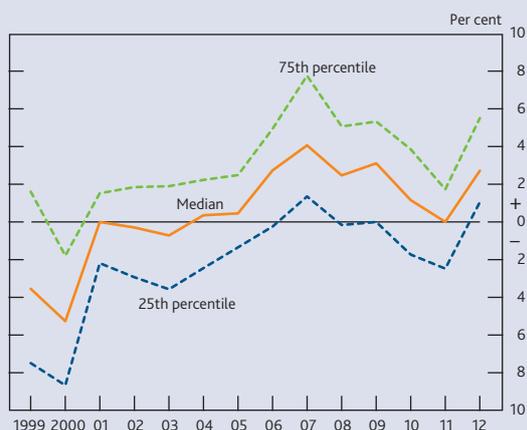
Table 1 Summary statistics for Japanese banks for 1999–2012 (annual data)

Statistics (per cent unless noted otherwise)	Growth rate of net loans	Growth rate of common equity	Tier 1 ratio ^(a)	Change in Tier 1 ratio (percentage points)	Liquid asset ratio ^(b)	Change in liquid asset ratio (percentage points)
Mean	0.97	5.28	4.60	0.10	4.96	-0.19
Median	0.89	3.81	4.24	0.03	3.74	-0.07
75th percentile	3.58	10.94	5.03	0.24	6.07	0.88
25th percentile	-1.89	-4.13	3.47	-0.13	2.24	-1.27
Standard deviation	5.94	21.19	3.37	0.63	6.54	2.18

Sources: Capital IQ and Bank calculations.

- (a) Defined as the ratio of Tier 1 capital to total assets.
 (b) Defined as the ratios of cash and cash equivalents to total assets.

Chart C Distribution of growth in net loans



Sources: Capital IQ and Bank calculations.

We investigate the statistical strength of the relationship between the various balance sheet and profitability characteristics of the banks in the sample and each institution's net loan growth. To do this, we run some simple regressions of the form:

$$\text{Loan growth}_{i,t} = \alpha_i + \alpha_t + \beta X_{i,t} + e_{i,t} \quad (1)$$

where i indexes institutions and t indexes time. The parameters α_i and α_t control for bank and time-specific effects,

such as bank-specific business models and time-specific macroeconomic conditions, and the vector $X_{i,t}$ contains a set of bank characteristics, such as the capital ratios and measures of profitability summarised in Table 1. The term $e_{i,t}$ is a normally distributed error. The vector β summarises the statistical strength of the relationship between the characteristics in $X_{i,t}$ and net loan growth, the variable we are most interested in for this exercise. The regression estimates of the β coefficients are reported in Table 2.

Table 2 Regression estimates for the relationship between loan growth and other bank balance sheet variables^(a)

Dependent variable:		
Net loan growth	Regression (1)	Regression (2)
Tier 1 ratio (-1)	1.74*** (3.23)	2.67*** (3.73)
D Tier 1 ratio (-1)		-2.30*** (-3.60)
Liquid asset ratio (-1)	0.65**	0.85**
D liquid asset ratio (-1)		0.40 (1.39)
Growth common equity (-1)		0.05* (1.96)
Observations	421	238
Number of banks	116	53
Average number of observations per bank	3.63	4.49
Year fixed effects	Yes	Yes
Bank fixed effects	Yes	Yes

(a) Regressions include a constant, year and bank fixed effects (not reported). 'D' denotes first difference. '-1' denotes a one-year lag. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively. Robust standard errors clustered by bank are reported in parentheses.

The estimates should be treated as purely *descriptive* as it is hard to make concrete statements about causality in this exercise.⁽²⁾ The simplest model, reported in column (1), suggests that banks with stronger capital and liquidity positions in the previous year tended also to have higher growth in net loans in the current year. Moving from column (1) to column (2) investigates how this picture changes as extra explanatory variables are added, although this comes at the cost of a reduced sample size.

In particular, column (2) shows the results of including *changes* in capital and liquidity positions in the regression. The results in this column suggest that banks with stronger capital or liquidity positions in the previous year continued to exhibit higher loan growth in the current year, *all else equal*. For example, the results in columns (1) and (2) imply that a bank starting with a capital ratio 1 percentage point higher in the previous year tended also to grow its net loans by between 1.7 and 2.7 percentage points more quickly in the current year. But column (2) shows that banks that had strengthened their solvency positions in the previous year (that is, banks for which the capital ratio increased) tended to exhibit slower net loan growth in the current year, *all else equal*. By the nature of the

exercise, we do not attach a causal interpretation to these comovements. But they suggest that weak lending growth and undercapitalisation went hand in hand. Overall, the results are indicative of considerable richness in the dynamics of balance sheet adjustment over the period.⁽³⁾

Growth in common equity in the previous year, which captures past profitability, also tended to be positively correlated with loan growth in the current year, though the economic significance of the relationship was weak. And there is some evidence that banks with a higher liquid asset ratio in the previous year, which captures the proportion of a bank's balance sheet comprised of highly liquid assets (here taken to be cash), were better able to support lending growth in the current period.⁽⁴⁾

Conclusions

There are various economic interpretations of the correlations uncovered by these simple regressions. One is that weak lending growth in the aftermath of the systemic phase of the Japanese banking crisis was driven by those banks that entered the crisis with the weakest capital positions, or incurred the heaviest losses following the crisis. These banks might have sought to restore these positions in the years after the crisis through deleveraging. Equally, banks with stronger liquidity positions may have been better able to access funding in the wake of the crisis as their balance sheets were to a greater degree shielded from the fall in collateral values that ensued throughout the period.

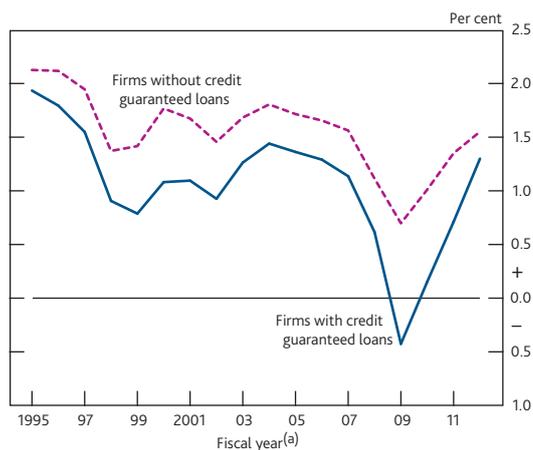
If these interpretations are correct, they suggest that, among other things, measures taken by the prudential authorities in the future which have the effect of boosting the solvency positions of banks could help smooth the provision of credit when shocks to the economy eventually materialise.

- (1) The data were collected from Capital IQ. Disclaimer: This may contain information obtained from third parties, including ratings from credit ratings agencies such as Standard & Poor's. Reproduction and distribution of third party content in any form is prohibited except with the prior written permission of the related third party. Third party content providers do not guarantee the accuracy, completeness, timeliness or availability of any information, including ratings, and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such content. Third party content providers give no express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use. Third party content providers shall not be liable for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or profits and opportunity costs or losses caused by negligence) in connection with any use of their content, including ratings. Credit ratings are statements of opinions and are not statements of fact or recommendations to purchase, hold or sell securities. They do not address the suitability of securities or the suitability of securities for investment purposes, and should not be relied on as investment advice.
- (2) A causal interpretation would require us, for example, to instrument the explanatory variables in the regression with other observables that affect loan growth only through their effect on the explanatory variables and which do not affect loan growth directly.
- (3) The liquid asset ratio used here is a simple ratio of cash and cash equivalents to total assets. It is therefore distinct from the Basel III Liquidity Coverage Ratio measure of liquidity risk.
- (4) These conclusions are consistent with findings of Kapan and Minoiu (2013), who study the effects of bank balance sheet strength on deleveraging during the recent crisis.

Programme, under which the government-backed Credit Guarantee System (CGS) guaranteed 100% of bank loans to SMEs. The approval standards for these guarantees were very generous: SMEs' applications for loan guarantees were approved unless they had significant negative net worth, tax delinquency, were already in default or were 'window dressing' to flatter their balance sheets.⁽¹⁾ As a result, 43.5% of SMEs were using the CGS guarantee as of 2001, with 11.7% of outstanding SME loans being guaranteed. Third, the JFSA clarified loan classification standards for SME loans in 2002 in order to prevent a further tightening of credit conditions.

While all these measures helped to support credit to SMEs, the dependence of SMEs on public loans rose sharply after 1998 and continued for a prolonged period thereafter: together with publicly guaranteed loans, lending by public financial institutions still constituted 26% of total loans to SMEs as of 2011.⁽²⁾ Available evidence also suggests that the credit guarantees may, in some cases, have sustained bank lending to relatively weak firms in troubled industries. For example, Bank of Japan (2009) presents evidence that the ratio of outstanding guarantees from CGS to total loans for small firms tended to be higher in sectors with longer years of debt redemption or higher default rates. Bank of Japan (2013) also shows evidence that those firms that received guaranteed loans tended to have a lower return on assets relative to firms without guaranteed loans (Chart 7), and that a significant proportion of firms receiving credit guaranteed loans were operating with a negative return on assets (Chart 8).

Chart 7 Return on assets of firms with and without credit guaranteed loans



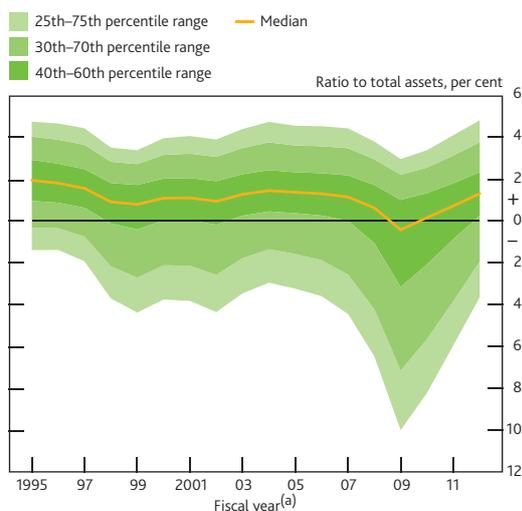
Source: Bank of Japan (2013), page 41.

(a) Fiscal year starts in April and ends in March (so the 1995 figure refers to April 1995 to March 1996).

Lessons from the Japanese experience

Japan's experience in dealing with its banking crisis clearly illustrates the difficult trade-off between the need to contain moral hazard and fiscal costs on the one hand, and the need to contain systemic risk on the other. The Japanese authorities

Chart 8 Distribution of return on assets of firms with credit guaranteed loans



Source: Bank of Japan (2013), page 41.

(a) Fiscal year starts in April and ends in March (so the 1995 figure refers to April 1995 to March 1996).

successfully prevented a collapse of its domestic financial system and avoided large-scale international spillovers from their national crisis, despite the involvement of several internationally active banks. This is unlikely to have been possible without guaranteeing the non-equity liabilities of failed financial institutions — particularly during 1997–98 when the rest of Asia was in financial turmoil.⁽³⁾ This policy, however, came at a cost of encouraging creditor moral hazard.

It should be recognised that the Japanese authorities' policy choices reflected this difficult trade-off in an environment of heightened uncertainty, and at a time when the legal frameworks for prompt recapitalisation and orderly resolution of failing financial institutions were initially missing. But with the benefit of hindsight, a number of lessons can be drawn from Japan's experience for macroprudential policy, the resolution of failing banks, and credit policy.

First, the MoF's experience in using credit 'quantity restrictions' to curb real estate lending contain some lessons for modern macroprudential policy. Its experience highlights the need for macroprudential policy authorities to choose the timing and form of intervention judiciously by taking into account the system-wide impact of rapid credit expansions.⁽⁴⁾ It underscores the need for macroprudential

(1) The limit on the total size of the guarantee programme was ¥20 trillion, which was increased to ¥30 trillion in 1999 — equivalent to 6% of GDP at the time. This scheme closed for new applications in 2001 but Japan reintroduced another credit guarantee scheme in October 2008 (which was due to expire in March 2010 but was replaced by a similar successor scheme a year later). Based on lessons from the past experience, approval standards were tightened under the new scheme. See Uchida (2010).

(2) See Bank of Japan (2012).

(3) For example, Nakaso (2001) notes that preventing international spillovers was a key consideration in guaranteeing all the liabilities of Yamaichi Securities, which failed in November 1997.

(4) More international experiences with sectoral capital requirements also highlight the importance of timing and calibration in achieving the desired outcome. See Bank of England (2014), Box 1.

authorities to consider the interaction of their policies with monetary policy, and communicate effectively in order to smooth the market reaction.⁽¹⁾ And it points to difficulties associated with controlling risk exposures of those financial institutions that are not covered by the macroprudential policy tools. This highlights the importance of a regular review of the appropriateness of the regulatory perimeter.⁽²⁾

Second, Japan's experience in the first half of the 1990s highlights risks associated with forbearance, both by banks and by regulators. To some extent, the combination of policies used in the first half of the 1990s was successful in avoiding an excessive tightening of credit conditions and the costly liquidation of a number of financial institutions during that period. But to the extent that forbearance allows weak banks and firms to survive, it can potentially worsen credit misallocation problems and increase eventual losses at banks.⁽³⁾ The underestimation of the extent of the problem, the expectation of an economic recovery, and the absence of a comprehensive legal framework to facilitate prompt recapitalisation and orderly resolution of failing banks were factors behind regulatory forbearance. Japan's experience thus highlights the need for ensuring that banks are adequately capitalised to withstand plausible stress scenarios.

Third, resolving uncertainty over banks' asset valuations and recapitalisation were crucial for restoring market confidence. This underscores the need for a regulatory mechanism to ensure that weakly capitalised banks are

promptly identified and forced to raise capital. In Japan, this required detailed and repeated inspections by bank supervisors based on transparent regulatory standards for loan classification and provisioning. This needed significant supervisory resources and took a long time.

Fourth, credit support measures extending over long periods risk exacerbating imbalances. Such measures might smooth adjustment in the short run by maintaining the flow of credit, but might not provide long-term solutions to the problem of rebalancing. Moreover, the emergence of sectors and firms dependent on continued policy support could make it politically difficult to withdraw such measures. To avoid these problems, such policy measures need to be designed carefully to maintain the right incentives for lenders and borrowers, and supported by strong underwriting standards.

Although this paper focused on Japan's policies towards its banking sector during its 'lost decade', these were not the only causes for the deep and prolonged banking crisis. In particular, the increase in bad assets throughout the 1990s was, to some extent, also due to the continued decline in asset prices, which had become overly inflated during the 1980s. There was also a complex interplay of fiscal, monetary and banking sector policies behind Japan's long stagnation, as well as external shocks, most notably the Asian crisis in 1997–98, which financial sector policy alone would have struggled to manage.

(1) For more information on the signalling channel of macroprudential policy see Giese *et al* (2013).

(2) See Bank of England (2012), Box 4 for a discussion of this issue.

(3) In the case of the United Kingdom, Arrowsmith *et al* (2013) concluded that bank forbearance to SMEs appeared to account for only a small proportion of the weakness in aggregate productivity and that it was unlikely to threaten financial system stability.

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