

**The Impacts of “Shock Therapy” under a Banking Crisis:
Experiences from Three Large Bank Failures in Japan ***

Shin-ichi Fukuda (University of Tokyo)**

Satoshi Koibuchi (University of Tokyo)

June 21, 2005

Abstract

A bank failure can have various adverse consequences for the clients. The adverse impacts might, however, differ depending on who takes over the operation of the failed banks. In this paper, we show that how to manage the new banks is important in mitigating the short-run and long-run consequences of bank failures. In the analysis, we focus on clients of three large failed Japanese banks - Hokkaido Takushoku Bank, the Long-term Credit Bank of Japan (LTCB), and the Nippon Credit Bank. We examine when the number of bankruptcies increased and how the market valuation changed for the client firms after the banks' operations were taken over by new banks. As for the clients of LTCB, there were dramatic increases of bankruptcies in the short-run but the surviving clients showed significant recovery of their stock prices. In contrast, as for the clients of the other two banks, there was neither dramatic increase of bankruptcies nor significant recovery of their stock prices. The result implies that “shock therapy” or “soft budget constraints” had dramatically different consequences in solving bad loan problems in Japan.

Key Words: bank failure, shock therapy, main bank

JEL #: G12, G21, G33.

* Earlier versions of this paper, which were titled as “Costs and Benefits of Shock Therapy: Experiences from Three Large Bank Failures in Japan”, were presented at the Spring Meeting of JEA (Meiji Gakuin University on June 12-13, 2004), the Three-country Conference (Beijing University in China on November 6, 2004), the CIRJE-TCER macro conference (University of Tokyo on December 11-12, 2004), the HKEA-WEA conference (Lingnan University in Hong Kong, January 14-16, 2005), and the Conference on Contemporary Economic Issues in Asia (University of Tokyo on April 7, 2005). We would like to thank a referee, Fumio Hayashi (a guest editor), Akiyoshi Horiuchi, Masaya Sakuragawa, Masahiro Hori, Young Sik Kim, and other participants of the conferences for their helpful comments. Fukuda's research is supported by Japanese Government, Ministry of Education Aid for Science Research on Priority Area #12124203.

** Correspondence: Shin-ichi FUKUDA, Faculty of Economics, University of Tokyo, Hongo Bunkyo-ku Tokyo 113 JAPAN. E-mail: sfukuda@e.u-tokyo.ac.jp, FAX: 81-3-5841-5521.

1. Introduction

Japanese economy experienced a prolonged slump after the collapse of the asset price bubble of the late 1980s. There are a large number of studies that have investigated why the slump had been so prolonged. Although their conclusions vary, it is widely recognized that the problem of “bad loans” was one of the major sources for “the lost-decade” in Japan. [Figure 1](#) and [Figure 2](#) respectively depict the amounts of bad loans (risk management loans) and total losses on disposal of non-performing loans of all banks and major banks from FY1992 to FY2003. They show that bad loans started to increase after the crash of the bubble in the early 1990s and kept accumulating until 2001, causing a large amount of losses on disposal of non-performing loans. This implies that policy prescriptions for bad loan problems in the banking sector were far from satisfactory in solving the prolonged recession in the 1990s.

The purpose of this paper is to provide a case study that explores what consequences “soft budget constraints” and “shock therapy” had in solving the bad loan problems in Japan. In the analysis, we focus on the market valuation of the clients of three large failed Japanese banks - Hokkaido Takushoku Bank (HTB), the Long-term Credit Bank of Japan (LTCB), and the Nippon Credit Bank (NCB), and examine when the number of their bankruptcies had increased and how their stock prices had changed after the banks’ operations were taken over by new banks. In the presence of asymmetric information and incomplete contract, banking relationships enhance the value of client firms. A bank failure can therefore have various adverse consequences for the clients, even when observable characteristics relating to borrower risk are controlled for. The adverse impacts might, however, differ depending on who took over the operations of the failed banks.

In the case of the clients of LTCB, the impacts appeared as a “shock therapy” where there were dramatic increases of bankruptcies after the new bank started its operation. The negative impacts were, however, temporary and the surviving clients started to show significant recovery of their stock prices. In contrast, in the cases of the other two banks’ clients, we see no dramatic increase of bankruptcies. Their stock prices, however, did not show any significant recovery under “soft budget constraints” where the bank accepts the request for debt forgiveness and keeps pouring loans into insolvent client firms.¹ The result implies that the choice of the “shock therapy” or the “soft budget constraints” by the new banks had dramatically different impacts on the clients’ market valuation. One may argue that the “shock therapy” by the new LTCB is partly attributable to the “cancellation right” (warranty of loan related assets), that allowed the new LTCB to return the assets to the government for liquidation if their value fell

¹ The terminology of “soft budget constraints” follows that in previous studies such as Dewatripon and Maskin (1995) and Berglöf and Roland (1995).

sufficiently.² It is, however, worthwhile to note that the government agreed the same rules for the sale contract with both the new LTCB and the new NCB. The different consequences between LTCB's and NCB's clients are thus largely attributable to different management strategies taken by the new banks rather than the form of sale contract such as the "cancellation right".

In previous literature, a number of papers provide empirical evidence on adverse consequences for the clients of the failed banks.³ In particular, Yamori and Murakami (1999), focusing on HTB, and Brewer, Genay, Hunter, and Kaufman (2003a), focusing on HTB, LTCB, and NCB, examine the effects of the bank failures on their customers in Japan.⁴ They find that the stock returns of customers of the bank unexpectedly declined at the time of failure announcement.⁵ Our results are in marked contrast with these studies in showing that who took over the operations is important in mitigating short-run and long-run consequences of the bank failures. If banks had accumulated huge amounts of bad loans, their failures would be inevitable. It is thus important to see how to mitigate the adverse impacts of the bank failures. Our results imply that the "shock therapy" would exacerbate short-run bankruptcies but that the "soft budget" would be accompanied by more costly long-run adverse impacts.

A defining characteristic of Japanese bank failures in the late 1990s was that the failed banks had concealed the true extent of their problems in order to reduce the reported amount of nonperforming loans on their book or to inflate their reported capital. In particular, when bank failed, it turned out that the magnitude of bad loans and valuation losses previously disclosed had been significantly understated.⁶ The market participants thus revised their estimates of the size of bad loans upward and became suspicious against the valuation of the surviving clients of the failed bank. If a new bank still follows traditional management techniques with "soft

² Spiegel (2002) pointed out that such assurances had been used in the United States in the savings and loan (S&L) crisis in the late 1980s and early 1990s. He reviewed the circumstances surrounding the sale of LTCB and NCB as well as the U.S. experience in the S&L crisis.

³ Slovin, Sushka, and Polonchek (1993) studied the effects of the de facto failure of Continental Illinois Bank and its subsequent rescue by the Federal Deposit Insurance Corporation (FDIC) during 1984 on the share prices of the bank's loan customers. They showed that the impending failure led to negative excess returns for firms with a lending relationship with Continental, while the rescue led to positive excess returns for those firms.

⁴ Using Japanese data, Gibson (1995) found that firm investment is sensitive to the financial health of the firm's main bank, holding Tobin's Q and cash flow constant. Kang and Stulz (2000) showed that firms that were more dependent on bank finance suffered significantly larger wealth losses during the first 3 years of the 1990s when the Japanese stock market fell dramatically.

⁵ Hori and Takahashi (2003), in contrast, find that the customers' profits showed no significant decline after the HTB's failure. Miyajima and Yafeh (2003) explored abnormal returns of non-financial companies around various significant dates in history of the banking crisis, including failures of the three banks.

⁶ For example, the bad loans at HTB were actually three times the amount stated in its last financial statement.

budget constraints”, the market valuation of the clients would remain low even after the new bank started their operation. In particular, if the bank allows insolvent firms to continue to operate, the problems could result in fewer profitable investments by firms that are highly dependent on bank financing. In contrast, if a new bank changes its management technique to the “shock therapy”, the stock market might react favorably for the surviving customers because most of insolvent clients were cleared up. The “shock therapy” has a short-run adverse impact because of temporary increases in bankruptcies. However, the “shock therapy” might increase profitable investments by solvent firms and have a desirable consequence for economic efficiency in the long-run.

The paper proceeds as follows. After outlining the three bank failures in section 2, we explore their impacts on the number of bankruptcies in section 3. Section 4 proposes the positive revaluation hypothesis and section 5 explains our methodology and data to test the hypothesis. Section 6 presents our basic empirical results. Section 7 summarizes our main results and refers to their implications.

2. Three Large Bank Failures

In the following analysis, we explore various impacts of three failed Japanese banks - Hokkaido Takushoku Bank (HTB) on November 17, 1997, the Long-term Credit Bank of Japan (LTCB) on October 23, 1998, and the Nippon Credit Bank (NCB) on December 13, 1998. HTB was the first large bank so resolved in the post-war Japan, and LTCB and NCB were among the largest and most visible Japanese banks. Table 1 reports the amounts of loans outstanding of these three banks as well as those of other major banks in March 1997 and in March 1998. The amounts of loans of the three banks were not as big as those of top six city banks. However, the amount of LTCB’s loans outstanding was the 10th largest. Even in HTB that was the smallest among the three, the loans outstanding amounted to 6 trillion yen.

The resolution of these banks was a turning point of the government policy because it revealed that Japanese regulators would no longer use “too-big-to-fail” policy. The government reactions to the three bank failures had several common features. The government announced that it would guarantee all of their obligations; the bank’s bad loans were sold to the Deposit Insurance Corporation (DIC); and the Bank of Japan extended emergency loans to the banks during the transition period to provide liquidity to meet deposit outflows. The failed banks, however, had several different features on who took over their operations.

The operation of HTB was taken over by other private banks. Unlike the traditional convoy system, where the entire troubled institutions would merge with a stronger institution, the assets of HTB was sold piecemeal or liquidated. In principle, its operations in the

Hokkaido region were transferred to the North Pacific Bank and those outside of the Hokkaido region to Chuo Trust and Banking Co. Only good assets of the bank were, however, transferred, and its bad loans were sold to DIC. Focusing on the firms listed on the Tokyo and Sapporo stock exchanges, [Table 2](#) reports how many clients of HTB were transferred to these two banks. In calculating the figures, we first defined the clients of HTB when HTB was either one of the top five in its loan share or its loan share exceeded 5% in March 1998. We then explored which banks increased their loans when HTB disappeared in the bank list in March 1999. All of the data were taken from 2000 issue of [Kigyo Keiretsu Soran \(published by Toyo Keizai\)](#). The table shows that 82% of the HTB's clients (41 out of 50 clients) were transferred either to the North Pacific Bank or to Chuo Trust and Banking Co. Six clients were, however, transferred to the other banks, and three clients were transferred to nobody.

LTCB and NCB were, on the other hand, nationalized first. Their good assets were then sold to a consortium of private investors. In both cases, the Financial Reconstruction Commission (FRC) invited bidders for these banks under the condition that sale was to take place quickly. LTCB was sold to a group of American investors, who tried to introduce American management techniques as a bold new experiment in financial reform. The new LTCB started its operation on March 1, 2000 and changed its name to "Shinsei Bank" on June 5, 2000. Almost since its inception, Shinsei Bank has been a controversial figure in Japanese financial markets. NCB was, in contrast, sold to a group of domestic investors, who tried to follow traditional corporate ways in Japan. The new NCB started its operation on September 1, 2000 and changed its name to "Aozora Bank" on January 2001.

When the government sold the nationalized LTCB and NCB to the private investors, the government promised the "cancellation right" (warranty of loan related assets) to each of the new banks. The "cancellation right", or *Kashi-tampo* in Japanese, was a bastardized version of a loss-sharing scheme, albeit potentially far more costly for the government.⁷ Unlike standard loss-sharing arrangements that split any future losses between the government and the private investors, the government promised to provide a moderate level of reserves against loss on bad loans, using public funds. It also guaranteed that during the first three years the purchaser could "return" any loan if they lost more than 20 percent of their value, provided that they also returned the relevant reserves. If these reserves did not compensate the loss on the loan, the bank would then be compensated as well. This was akin to a "put" option, or the right to sell the purchased loan at a future date in certain conditions, "putting" the loan back to the government if its value falls sufficiently low. Under this scheme, the government would need

⁷ In legal term, this was an odd proposal. The concept of *Kashi-tampo* had first appeared in the nineteenth century, when the government created a law to cover street makers and other forms of trading. In theory, nobody had ever thought of extending this concept to banking.

to bear the loss by itself if the new owners of the loans started to return bad loans to the government. The government therefore had a risk that the cost of the scheme could go up dramatically at a later date.

3. The Impacts on the Number of Bankruptcies

A bank failure can have various adverse consequences for the clients. In particular, if the adverse impacts are large enough, it might lead the client firms to go bankrupt. In this section, we investigate the impacts of the three large bank failures on bankruptcy probabilities of their borrowers. Specifically, we explore how the number of bankruptcies had changed for the client firms before and after the new banks took over the operations.

(a) The Number of Bankruptcies of Listed Companies

We first analyze the number of bankruptcies of the clients that were listed on the stock exchanges or on over the counter markets.⁸ In the analysis, we focused on the clients for which one of the three failed banks was one of the top five in the loan shares.⁹ We define "bankruptcy" when a company is recognized as corresponding to any of the following 7 cases. (1) Drawing unpaid notes two times and business is suspended. (2) Dissolution of the company (when the representative admits being bankrupt). (3) Applying for Corporate Rehabilitation Law to the court. (4) Applying for dissolution arrangement under Commercial Code to the court. (5) Applying for Civil Rehabilitation Law to the court. (6) Applying for bankruptcy to the court. (7) Applying for commencement of special liquidation proceedings to the court. The above can be classified broadly into "voluntary liquidation" consisting of (1) and (2), and "legal liquidation" consisting of (3) and (4). It is also divided into the "bankruptcy for liquidation purposes" aimed at company liquidation (extinction) and the "bankruptcy for reconstruction purposes" whereby the company pays off its debts while remaining in business.

Table 3 summarizes the number of bankrupt firms for each failed bank for each sub-period. From December 1997 to September 2003, 92 listed companies went bankrupt in total in Japan. Among them, 22 were the clients of LTCB, 10 were the clients of NCB, and 5 were the clients of HTB. Allowing their loan outstanding, the number of bankruptcies of the three banks' clients is larger than that of other major banks. In particular, the number is larger for the

⁸ Japan had eight stock exchanges in 1997: Tokyo, Osaka, Nagoya, Kyoto (merged into Osaka March 2001), Hiroshima (merged into Tokyo March 2000), Fukuoka, Niigata (merged into Tokyo March 2000), and Sapporo. Over the counter markets are JASDAQ, Mothers in Tokyo, NASDAQ JAPAN in Osaka (Hercules in Osaka after December 2002), Centrex in Nagoya, Ambitious in Sapporo, and Q-BOARD in Fukuoka.

⁹ We identify the clients of HTB by using the bank lists in March 1998 and those of LTCB and NCB by using the lists in March 1999.

clients of LTCB than for those of the other two failed banks. However, loans outstanding of LTCB were twice as much as those of NCB and nearly three times as much as those of HTB. The number thus does not necessarily imply that the clients of LTCB had much larger bankruptcy probabilities than those of the other two failed banks throughout the whole period.

The clients of LTCB, however, had a remarkable feature in that most of the bankruptcies had occurred in two years after the new bank, “Shinsei Bank”, took over the LTCB’ operation. In particular, from April 2000 to September 2000, Japan experienced eight bankruptcies of listed companies, five of which were the clients of LTCB. This implies that dramatic increases of bankruptcies occurred for the clients of LTCB in six months after the new bank started its operation. In contrast, we see no significant increase of bankruptcies for the clients of the other two banks even after the new banks started their operations. The result implies that only the clients of LTCB faced the “shock therapy” when the new LTCB introduced American management strategies as a bold new experiment in financial reform.

(b) The Number of Bankruptcies of All Clients

The different management strategies taken by the new banks are still observed even if we extend our samples to unlisted companies. Table 4 summarizes the number of bankrupt clients of LTCB and NCB and their total liabilities for each semi-year. A noteworthy feature in the table is that it includes not only bankruptcies of listed companies but also those of unlisted companies. The data was taken from each bank’s report on “Business Revitalization Plan” that was submitted to the Financial Service Agency (the “FSA”) each year.¹⁰

In the table, we can see remarkable surges of bankruptcies for the LTCB’s clients around the first half of 2000. This implies that not only listed but also unlisted clients of LTCB experienced dramatic increases of bankruptcies in six months after the new bank started its operation. The surges of bankruptcies, however, did not persist and almost disappeared in 2002. In contrast, we see no significant increase of bankruptcies for the clients of NCB in 2000 when the new bank started its operation. Instead, the clients of NCB had faced almost constant probabilities of bankruptcies throughout the whole period. The result implies that the clients of NCB could avoid bankruptcy in the short-run but kept suffering from a high bankruptcy risk even in the long-run.

(c) Implementation of the “Cancellation Right”

When the new banks took over the nationalized LTCB and NCB, the government agreed the

¹⁰ In Japan, all private banks that had public capital injection are required to report the number of bankruptcies of their clients in “Business Revitalization Plan” as disclosure categories under the Financial Reconstruction Law.

same rules for the sale contract and promised the same “cancellation right” (warranty of loan related assets) to both of the banks. The right influenced the banks’ management of the existing loans and made the banks reluctant to rollover the loans if there were reasonable expectations of losses. In particular, the compensation from the government motivated the banks not to grant major concessions to avoid liquidation of bad loans.

Shinsei Bank (the new LTCB) was, however, more aggressive than Aozora Bank (the new NCB) in implementing the cancellation right. In particular, Shinsei Bank was aggressive in demanding restructuring plans from problem debtors and hardly shied away from collateral seizure in the events of default. Based on reports by the Financial Service Agency (FSA), Table 5 summarizes the number of clients, the book value of the loans, and the amount of payments for which each new bank implemented the cancellation right from March 2001 to September 2003. The table suggests that even allowing the size difference between two banks, Shinsei Bank was more aggressive than Aozora Bank in its relative unwillingness to roll over loans of problem debtors. In particular, Shinsei Bank tended to implement the right before the clients declared "legal bankruptcy". Based on unpublished reports by the Deposit Insurance Corporation (DIC), Table 6 summarizes reasons why each new bank implemented the cancellation right until September 2002. It indicates that more than half of the clients which Shinsei Bank implemented the right before the clients declared "legal bankruptcy" eventually went bankrupt until September 2002.

In establishing the rules of the sale contract, the government promised to buy back the loans if they lost more than 20 percent of their value. Therefore, when the clients went bankrupt, the banks could implement the right automatically. However, when the clients were still alive, the banks need to verify that the purchased loan had depreciated more than 20 percent of their value. The table suggests that Shinsei Bank was more aggressive in the verification, which led to more frequent bankruptcies of its clients. In particular, when we focus on the companies that declared "legal bankruptcy" before January 2003, Shinsei Bank implemented the right for 49 clients, while Aozora did only for 9 clients.

One of the well know clients Shinsei Bank implemented the right was Sogo for which LTCB had been a quasi main bank along with Industrial Bank of Japan (IBJ). Sogo had been one of the most prestigious retailers in Japan. But after the crash of the 1980s bubble, Japanese bankers came to recognize that Sogo was effectively bankrupt. Meanwhile, IBJ and LTCB dispatched their own officials to help run Sogo and continued to pour loans into the Sogo group. The forbearance under the “soft budget constraints” had continued even after LTCB was nationalized. When Shinsei Bank took over the operation of LTCB, Sogo asked Shinsei to cancel 97 billion yen (925 million USD) in loans, or about half of the total loan outstanding with the company. The request for debt forgiveness was part of a larger IBJ-orchestrated

restructuring plan. A refusal by Shinsei could trigger Sogo's collapse, which in turn could create losses at the other lenders. In the traditional Japanese banking world, to refuse was therefore unusual. But the rules of the sale contract stipulated that Shinsei could no longer implement the cancellation right for the extended loans if it had given debt forgiveness. Shinsei therefore decided not to accept the IBJ request to avoid losses from the remaining Sogo loans. On June 28, Shinsei informed the government that it would refuse to extend debt forgiveness to Sogo. Shinsei then exercised the cancellation right for the first time, returning the 200 billion yen Sogo loans to the government, together with the 100 billion yen in reserves. Eventually, on July 12, Sogo's board declared that it would apply for Civil Rehabilitation Law to the court and went bankrupt.

4. The Hypothesis

If the bank keeps practicing "soft budget constraints", it would accept the request for debt forgiveness and keep pouring loans into insolvent client firms. To the extent that the market recognizes the "soft budget constraints", the stock prices of the surviving clients would remain low. However, if dramatic increases of bankruptcies clear up most of insolvent clients, default risk of surviving clients would decline and the market valuation of the surviving clients may go up. In this case, investors perceive the "shock therapy" of the new bank as positive news, generating a positive impact on stock prices of the surviving clients. In the following sections, we call the positive impact of a shock therapy the positive revaluation hypothesis. We will then test the hypothesis by investigating how stock prices of the surviving client firms responded to subsequent events on the failed banks.

A key feature of the positive revaluation hypothesis can be modeled as follows. Consider a continuum of the bank's client firms that are listed on the stock exchange. For simplicity, we assume that there are only two types of firms: good and bad. The value of a good firm is G and that of a bad firm is zero. Let x be the fraction of bad firms (so is $1-x$ the fraction of good firms). Both the bank and the market investors know this distribution. However, the investors cannot distinguish between good and bad firms. The expected value of a representative client firm for the investors is thus $(1-x)G$, which can be interpreted as the stock price of a client firm.

Because of its information advantage over the investors, the bank can identify some of its bad client firms. However, we assume that the old bank practices "soft budget constraints" and kills none of the identified bad clients. Assuming that the investors know the bank's behavior, the stock prices of the surviving clients thus remain low before the bank is replaced by a new one. Now, suppose that a new bank succeeds the operation and introduces a "shock therapy".

It kills fraction of y of the client firms, leaving fraction of $1-y$ listed on the stock exchange. The new bank does not have information advantage over the old bank. Thus, if the old bank had already cleaned up the identified bad clients, the “shock therapy” would have been a costly policy that kills many good clients. However, to the extent that the old bank practiced “soft budget constraints”, most of the identified bad client firms are still alive before a new bank starts its operation. We therefore assume that the “shock therapy” kills only the identified bad client firms.

The investors, who know that the old bank practiced “soft budget constraints” but that the new bank does not, observe the fraction y and update their subjective distribution of a representative client firm. Since the investors recognize that y fraction of bad firms has been eliminated by the “shock therapy”, $(1-x)/(1-y)$ becomes updated fraction of good firms among the surviving firms. The expected value of a representative client firm for the investors is thus $[(1-x)/(1-y)]G$, which can be interpreted as the stock price of a client firm after the bank is replaced by a new one. It is easy to see that the expected value $[(1-x)/(1-y)]G$ is increasing in y . This implies that the more the “shock therapy” kills the client firms, the more the stock prices of the surviving client firms go up. A key assumption behind this result is that the “shock therapy” kills bad client firms. The assumption would be supported if the old bank practiced “soft budget constraints” which leave most of the identified bad client firms alive. The test of the positive revaluation hypothesis will therefore provide an indirect test to examine whether the old bank practiced “soft budget constraints” and the new bank does not.

However, in testing our hypothesis, it is restrictive to assume that investors never distinguish the types of firms. We therefore allow the case where investors identify some of insolvent client firms. For the apparently insolvent clients, the stock prices drop down after the “shock therapy” starts because the investors expect that the identified insolvent client firm will go bankrupt soon. In the following empirical studies, we will distinguish the impacts for apparently insolvent firms from those for other client firms.

5. The Impacts on the Stock Prices

(a) Methodology

In the following sections, we will test the positive revaluation hypothesis through exploring how abnormal returns of the surviving client firms responded to subsequent events on the failed banks. The abnormal return is the actual *ex post* return of the security over the event window minus the normal return of the firm over the event window. For modeling the normal return, we choose the market model which assumes a stable linear relation between the market return and the security return; $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$ where R_{it} and R_{mt} are the period- t stock returns of

firm i and the market portfolio, respectively, and ε_{it} is the zero mean disturbance term. For each event window, we estimate parameters α_i and β_i for the estimation window that corresponds to 60 months prior to the event time.

The monthly (cumulative) abnormal returns of surviving clients are examined to identify any abnormal performance over each event window. Our methodology is similar to the event study methodology used in previous studies in examining abnormal returns over the event window (see, for example, MacKinlay [1997] and Campbell, Lo, and MacKinlay [1997, ch.4] for general discussions). It is likely that the failed bank's clients had poorer stock market performance than their competitors if their financial conditions were worse than those of the competitors. However, if the reported financial conditions of the surviving clients were noticeably worse, it is more likely that the poor performance had been reflected in the stock prices before the event was announced. The abnormal returns would therefore reflect the market responses to news on the bank failure or to news on the new bank's operation.

The basic equation is as follows:

$$(1) \quad AR_i = \text{constant} + \gamma_1 D_{i1} + \gamma_2 D_{i2} + \gamma_3 D_{i3} + \sum_I \delta_I D_{iI} + e_i,$$

where AR_i is the (cumulative) abnormal returns of firm i over the event window. When the event window is over two months, we use the cumulative abnormal returns for AR_i . Explanatory variables D_{i1} , D_{i2} , and D_{i3} are dummy variables each of which equals to 1 when the firm i is a client of HTB, LTCB, and NCB respectively and zero otherwise. D_{iI} 's are industry dummies and e_i is a random error. Each industry dummy D_{iI} takes one when firm i belongs to the industry I and zero otherwise.

In equation (1), we relate the abnormal returns to constant term and clients' dummies of the three failed banks. The constant term is included to measure how abnormal returns of the other banks' clients responded to various news after the banks failures. Three dummy variables are, in contrast, included to measure how different responses the clients of the three failed banks showed. The coefficients of three dummy variables become significant if and only if abnormal returns of the three banks' clients are significantly different from those of the other banks' clients. We estimate equation (1) with industry dummies. The industry dummies are dummies for 11 industries using manufacturing industry as a benchmark. The industry dummies are included to account for unobserved industry "fixed effects".

(b) Data

For constructing the abnormal return of each firm, we use the monthly rate of stock returns for 1276 Japanese non-financial firms listed on the first and second sections of the Tokyo Stock

Exchange in March 1999. We excluded the firms that had merger during the sample period and those in gas & electric power industry. We also excluded the firms that had no external borrowings because our main interest is the impact of bank failures. The monthly rate of returns for the market portfolio is the monthly change of value-weighted-average stock price of all firms listed on the first section of the Tokyo Stock Exchange. All of the data on the monthly rate of individual stock returns are provided by [the Japan Securities Research Institute database 2002](#), where the rate of stock returns is adjusted so as to include dividend payments and allotment of new share to shareholders. In the analysis, we use data of monthly abnormal returns rather than daily abnormal returns. In our event study, it is hard to verify the exact date on the event news partly because the events evolved over several trading days and partly because the events could be anticipated in advance. We therefore need to examine the impacts of the events on cumulative stock returns over a longer event window. Under the circumstance, we have little gain by using daily data.

Some summary statistics for the firms in our sample are shown in [Table 7](#). As in the previous sections, we define the clients of each bank when the bank was one of the top five in the loan share. The table shows that 27 firms are the HTB's clients, 131 firms the LTCB's, and 51 the NCB's in our sampled firms. HTB had no bankrupt clients that had listed on the Tokyo Stock Exchange. The clients of LTCB and NCB, however, had higher percentages of bankruptcies and larger average debt-to-sales ratios than those of other banks in Japan. Among 1276 firms, 34 went bankrupt from March 1997 to March 2003.

The implications of our estimation differ depending on whether we exclude these 34 bankrupt firms or include them when they are alive during the month(s) in question. When testing the positive revaluation hypothesis, it is desirable to exclude apparently insolvent firms that investors may identify. We therefore estimate equation (1) either excluding these firms or including additional dummies for these firms when they are alive. It is more likely that investors can identify these firms as insolvent client firms partly because their financial conditions tend to be bad and partly because some information of the lender is revealed in advance. If this is the case, we would be able to test the positive revaluation hypothesis more appropriately excluding these firms.

(c) Event Windows

We run cross-sectional regressions of equation (1) over five alternative event windows: (i) the month of the HTB failure (November 1, 1997 to November 28, 1997), (ii) a month before LTCB's nationalization and a month of the nationalization (September 1, 1998 to October 30, 1998), (iii) a month before NCB's nationalization and a month of the nationalization (November 1, 1998 to December 30, 1998), (iv) two months after the new LTCB started its operation

(March 1, 2000 to April 30, 2000), and (v) two months after the new NCB started its operation (September 1, 2000 to October 31, 2000). We included a month before the nationalization in the event windows (ii) and (iii) because the nationalization was somewhat expected in advance for each failed bank. We, in contrast, used two months after the new bank's operation for the event windows (iv) and (v) because the market investors usually take time to learn management styles of the new banks.

If the HTB failure had unanticipated negative implications for the value of the HTB client firms, we would expect that the coefficient γ_1 to be negative and statistically significant for the event window (i). If the HTB failures had unanticipated negative externalities for the value of the other banks' clients, we would also expect that the constant term to be negative and statistically significant for the event window (i). Similarly, if the failures of LTCB and NCB had unanticipated negative implications for the value of their client firms, we would expect the coefficient γ_2 to be significantly negative for the event window (ii) and the coefficient γ_3 to be significantly negative for the event window (iii) respectively. If the failures had unanticipated negative externalities, the constant term would also be negative and statistically significant for each of event windows (ii) and (iii).

The estimation results for the event windows (iv) and (v), in contrast, reflect the impacts of the new banks' operation, which provide direct tests of the positive revaluation hypothesis. If the start of the new LTCB's operation had an unanticipated positive implication for the value of its own client firms, we would expect that the coefficient γ_2 to be significantly positive for the event window (iv). If the start of the new NCB's operation had an unanticipated positive impact on the value of its own client firms, we would expect that the coefficients γ_3 to be significantly positive for the event window (v). If the new operation had some externality impacts on the other banks' clients, the constant term would also be statistically significant for each of event windows (iv) and (v).

6. The Impacts on the Stock Prices: Estimation Results

Table 8 summarizes our estimation results of equation (1), excluding firms that went bankrupt before March 2003 (Table 8-1) and including all firms but adding dummies for firms that went bankrupt after the event (Table 8-2). The estimation results for the event windows (i), (ii), and (iii) measure the impacts of the three bank failures on the client firms. The estimation results for the event windows (iv) and (v) measure the impacts of two new banks' operations. Although the latter ones derive direct tests of the positive revaluation hypothesis, comparing the latter with the former would provide several additional implications on the role of a close bank-firm relationship and the existence of "soft budget constraints" before the new bank

introduces its “shock therapy”.

(a) The Impacts of the three bank failures

For the event window (i), not only the coefficient γ_1 but also the constant term and the other two coefficients, γ_2 and γ_3 , are significantly negative in Table 8-1. Since the absolute value of γ_1 is larger than the absolute values of γ_2 and γ_3 , the HTB failure had a larger negative impact on the value of its own clients than on those of the other two banks’ clients. However, we can see that the HTB failure also had a negative impact on the stock prices of the other banks’ clients, particularly the LTCB’s and NCB’s clients. Since a banking relationship enhances the value of the client firm, it is straightforward to see that the HTB failure had an adverse consequence for its clients. The resolution of HTB, however, meant more in Japan, revealing that Japanese regulators would no longer use “too-big-to-fail” policies. In the days immediately after the HTB’s failures, the Japanese financial market experienced significant turbulence, so that the market perceptions on financial institutions’ solvency were pessimistic. It is thus natural that the financial turbulence might have affected not only on the clients of the failed bank but also on those of surviving but troubled banks. The result is essentially the same in Table 8-2. But in Table 8-2, we also observe a negative impact on the other banks’ clients that would go bankrupt in the next six years. This supports the view that the financial turbulence had a larger perverse impact on the market valuation of apparently insolvent firms.

The constant term is still significantly negative for the event window (ii), although its absolute value is smaller than that for the event window (i). This implies that the financial turbulence still affected the clients of surviving but troubled banks when LTCB was nationalized. The constant term is, however, no longer negative for the event window (iii). The financial turbulence had no additional impact on abnormal returns of the other banks’ clients when NCB was nationalized.

Both for the event windows (ii) and (iii), none of the coefficients γ_1 , γ_2 , and γ_3 is significantly negative when excluding the firms that would go bankrupt (Table 8-1). This implies that neither the LTCB’s nor the NCB’s failure announcement had significant impact for abnormal returns of their own surviving client firms. One possible interpretation is that the market anticipated the failures of LTCB and NCB in advance. In our event study, we included a month before the nationalization in the event windows (ii) and (iii) to allow for the possibility that the nationalization was expected in advance for each failed bank. The interpretation suggests that a month might not be long enough to capture the market anticipation. Under a series of financial turbulences, the stock prices of the clients of LTCB and NCB had declined more substantially than those of the other clients before the announcements of their failures. The market surprises for the announcements of their failures were thus limited to have further

negative consequences for their clients.

However, γ_2 is positive for the event window (ii) for the firms that would go bankrupt (Table 8-2). This indicates that the LTCB's failure announcement had a positive impact on the value of client firms that would eventually go bankrupt. Investors knew that some of insolvent clients were still alive when the bank practiced "soft budget constraints". The positive impact may reflect the market anticipation that the LTCB's "soft budget constraints" would be intensified when the LTCB was nationalized.

(b) The Impacts of the two new banks' operations

For the event window (iv), the coefficient γ_2 takes a large positive value which is statistically significant at 5% level when excluding firms that would go bankrupt (Table 8-1). The surviving LTCB's clients experienced significantly larger increases of their market values than the other firms after the new bank took over the operation of LTCB. Since there were temporary but dramatic increases of bankruptcies of the LTCB's clients during the same period, the result is consistent with the positive revaluation hypothesis in section 4. It implies that investors perceived the "shock therapy" of the new bank as positive news, generating a positive impact on the stock prices of the surviving clients.

It is, however, noteworthy that the constant term also takes a large positive value which is statistically significant at 1% level. This implies that not only the surviving LTCB's clients but also the other banks' clients increased their market values significantly after the new bank took over the operation of LTCB. The "shock therapy" of the new LTCB generated positive externality impacts on the stock prices of the surviving clients of the other banks.

We also need to note that for the event window (iv), the coefficient γ_2 is negative for the firms that would go bankrupt (Table 8-2). This happened because the market valuation of apparently insolvent clients significantly dropped down after the new bank took over the operation of LTCB. The introduction of the "shock therapy" implied that the LTCB would no longer practice "soft budget constraints". To the extent that they are the clients that could survive only under the "soft budget", it is natural that the "shock therapy" had a negative impact on their stock prices.

For the event window (v), the constant term is significantly negative, implying a negative externality impact on the stock prices of the surviving clients of the other banks when the new NCB started its operation. None of the coefficients γ_1 , γ_2 , and γ_3 is, in contrast, statistically significant at 5% level when excluding firms that would go bankrupt (Table 8-1). The insignificance of γ_3 implies that most of the NCB's surviving clients could not improve their market valuations after the new bank took over the operation of NCB. The positive revaluation hypothesis is therefore far from relevant for the new NCB. It is noteworthy that

there were no dramatic increases of bankruptcies of the NCB's clients during the same period. The result supports the view that the new NCB remained practicing "soft budget constraints". Since the new bank allowed insolvent firms to continue to operate, not only insolvent clients but also solvent clients faced difficulty in improving their market valuations. This also generated negative externality impacts on the abnormal returns of the other banks' clients.

7. Conclusions

In this paper, we explored what consequences "soft budget constraints" and "shock therapy" had in solving bad loan problems in Japan. In the analysis, we focused on the market valuation of the clients of the three large failed Japanese banks, and examined how the number of their bankruptcies and their stock prices had reacted after the banks' operations were taken over by the new banks. As for the clients of LTCB, there were dramatic increases of bankruptcies in the short-run but the surviving clients started to show significant recovery of their stock prices in the long-run. In contrast, as for the clients of the other two banks, there was neither dramatic increase of bankruptcies in the short-run nor significant recovery of their stock prices in the long-run. The result implies that the choice of "shock therapy" or "soft budget constraints" by the new banks had dramatically different impacts on the clients' market valuation.

During the banking crisis in the late 1990s, it turned out that the failed banks had concealed the true extent of their problems in order to reduce the reported amount of nonperforming loans on their book or to inflate their reported capital. The market valuation thus became suspicious against the clients of the failed banks. High default risk may not only result in stagnation of the stock prices but also can reduce the firms' fundamental values. If the new banks change the market perception only gradually, then the market valuation of the clients would remain low even after the new banks started their operation. However, if the new bank chooses a "shock therapy", the stock market might react favorably for the surviving customers.

In Japan, banks have played an important role in the financing of corporations. Although they were less so for larger Japanese companies after the beginning of the 1990s, banks still played an important role for many Japanese firms. It is thus widely recognized that the problem of "bad loans" was one of the major sources for why the slump had been prolonged after the collapse of the asset price bubble of the late 1980s. To the extent that banks allow insolvent firms to continue to operate, problems in the banking sector could result in fewer profitable investments by firms that are highly dependent on bank financing. It is an urgent issue for the banking sector to find an appropriate prescription for bad loan problems in solving the prolonged recession in Japan.

Needless to say, we have to incorporate various other factors when discussing costs and benefits of “shock therapy”. First, it is possible that the shock therapy of the new LTCB killed several solvent clients as well as insolvent clients. If the shock therapy killed several solvent clients, then we can no longer justify the shock therapy that had improved the stock prices of the LTCB’s clients. Increases of stock prices of surviving firms do not necessarily mean that the “shock therapy” killed no good firm. Secondly, “shock therapy” may increase the costs of fire sale. The market value of existing capital stock is usually smaller than replacement costs of capital. This is particularly true when existing capital stock has firm-specific properties. Unexpected bankruptcy that increases fire sales would thus be accompanied by deterioration of the market value of existing capital stock. When we allow these costs, frequent unexpected bankruptcy under the “shock therapy” may not be desirable in reducing the costs of fire sale. Thirdly, the value of healthy firms may change under “shock therapy”. In our paper, we implicitly assumed that the fundamental value of healthy firms is constant. However, increased uncertainty may decrease the value of healthy firms. Frequent bankruptcies may affect other clients of the failed bank through limiting the availability of additional products, parts, and service among the clients. The price a customer is willing to pay for durable goods declines as the probability of the firm’s liquidation increases reflecting the increase in expected maintenance costs. When default risk is high, turnovers of good employees may also increase. If these negative consequences are large, the “shock therapy” of the new bank could have other costly impacts. More general discussions incorporating these factors would be desirable in our future research.

Appendix 1. A Brief Description of Events on Three Banks

(i) Hokkaido Takushoku Bank (HTB)

HTB was the smallest city bank but the biggest bank in the Hokkaido region in northern Japan. Its assets were more than 9.5 trillion yen that was one of the largest 20 commercial banks in Japan. HTB failed when its regulatory agency-arranged merger with Hokkaido Bank (the second biggest bank in the Hokkaido region) was abandoned because of a disagreement over the extent of bad loans of HTB. On November 17, 1997, the bank announced that, due to its difficulty in raising funds, it would transfer its operations in the Hokkaido region in northern Japan to the North Pacific Bank. Its operations outside of Hokkaido were eventually sold to Chuo Trust and Banking Co. In the days immediately after the HTB's failures, the Japanese financial market experienced significant turbulence. Despite the large extent of liquidity provision by the bank of Japan, domestic credit lines to weaker companies were reduced and stock prices of financial institutions dropped significantly. Yamaichi Securities, one of the four large securities houses, was among the institutions that suffered the most and closed on November 25, 1997. On November 17, 1998, the operation of HTB was transferred to the North Pacific Bank and to Chuo Trust and Banking Co.

(ii) The Long-term Credit Bank of Japan (LTCB)

LTCB was the second largest long-term credit bank in Japan. Despite an injection of capital from the government in March 1998, its debt was downgraded several times and its share price dropped sharply. There was a regulator-sanctioned merger attempt to rescue LTCB. A merger attempt with Sumitomo Trust Bank, however, failed in the summer of 1998. On October 19, 1998, news reports indicated that the newly-established Financial Supervisory Agency (FSA) had informed LTCB earlier in the day that the bank was insolvent on a market-value basis as of the end of September, when it was last inspected. The reports also indicated that LTCB was expected to be nationalized later in the week, when recently adopted banking legislation would take effect. Four days later on October 23, 1998, LTCB applied for nationalization. According to the FSA report, at the end of September, the bank had total assets of 24 trillion yen and 160 billion yen in book-value capital. It also reports 500 billion yen, or three times its book value capital, of unrealized losses on its securities portfolio and other assets totaling 4.62 trillion yen, or 19 percent of total assets and roughly 30 times its capital. The losses to the shareholders of LTCB had already been occurred before the time of its nationalization. The bank's stock price, which was 210 yen at the beginning of the year, had eroded to 58 yen by June 25, 1988. By the time the bank was nationalized, its stock price had declined to 2 yen. LTCB was sold to a group of American investors led by Ripplewood

Holdings LLC, which paid 1 billion yen for the bank and injected an additional 120 billion yen in capital. The new bank also received 240 billion yen of public capital from the Financial Reconstruction Commission in March 2000. The new bank started its operation on March 1, 2000. The new bank changed its name to Shinsei Bank, Ltd. on June 5, 2000.

(iii) The Nippon Credit Bank (NCB)

Founded as the Nippon Fudosan Bank in 1957, NCB traditionally focused on loans secured by land collateral. The bank expanded its real estate related loans even more in the late 1980s. As the land prices fell in the 1990s, many of its real estate-related loans and loans to non-bank affiliates became non-performing. The semi-annual public financial statements issued by all Japanese banks on November 24, 1998, for six months ending September 30 showed that NCB with assets of 7.7 trillion yen as of September 1998 had significant amount of problem loans and that its earnings had deteriorated significantly since March 1998. However, the bank stated that it was still solvent. On December 9, 1998, it was announced that NCB was abandoning its previously announced merger with Chuo Trust and Banking Co. The abandoned merger was perceived as a sign of further problems at NCB. Shortly thereafter, news reports indicated that the FSA's examination of the bank showed that as of March 31, 1998, contrary to what NCB had reported, the bank had a capital deficit of 94.4 billion yen and was insolvent. On December 12, the government urged NCB to apply for nationalization, which it did on the next business day – December 14, and started special public management under the Financial Reconstruction Law. Unlike LTCB, the stock price of NCB increased from 114 yen at the beginning of 1998 to 158 yen the day before its failure. Its stock holders were, however, wiped out and lost significant amounts when NCB was nationalized. NCB was sold to a consortium of Japanese investors led by SOFTBANK CORP., ORIX Corporation, The Tokio Marine and Fire Insurance Co., Ltd., and other financial institutions. Special public management ended and the new bank started its operation on September 1, 2000. The new bank changed its name to Aozora Bank, Ltd. on January 2001.

Appendix 2. Outline of “cancellation right” (warranty of loan related assets)

The followings, which are based on news release from FSA, are outline of the basic agreement on “cancellation right” (Article 7: warranty of loan related assets). It was made by and among, the Depository Insurance Corporation (hereinafter referred to as "DIC"), The Long-Term Credit Bank of Japan, Ltd. (hereinafter referred to as "LTCB") and New LTCB Partners CV (hereinafter referred to as "New LTCB Partners") as of December 24, 1999. The same cancellation right was agreed for acquisition of NCB.

1. Cancellation

(1) In the transaction contemplated by this Basic Agreement and the Definitive Agreement, DIC will be deemed to have transferred the Loan Related Assets to LTCB as of the Closing Date. LTCB shall have a right (hereinafter referred to as the "Cancellation Right") to cancel a portion of sale of the Loan Related Assets, retroactively effective as of the Closing Date, if a defect is found and 20% reduction of value is recognized in association with the Loan Related Assets during the three years after the Closing Date.

(2) Existence of Defect shall mean a case where, for those loans judged to be "appropriate for LTCB to continue to own" by the FRC, the basis of such judgment as "appropriate" turns out to have changed or become untrue within three years from the Base Date. The cases are not regarded as a Defect where the book value reduction is caused by any reason attributable solely to New LTCB Partners, or New LTCB after the purchase of LTCB.

(3) The Cancellation Right shall be exercisable at any time on or prior to the 3rd anniversary of the Closing Date; provided, however, that LTCB may extend such term for another three months after the 3rd anniversary of the Closing Date, solely for the purpose of establishing and presenting the facts as they were on or prior to the 3rd anniversary.

(4) 20% reduction means that the aggregate book value (minus the loan loss reserves at such time) for all loans to a borrower is reduced by 20% or more from the aggregate initial book value (minus the initial loan loss reserves).

(5) If a request for abandonment of claims is made (upon which a Defect is deemed to have occurred) and accepted by the new LTCB, the Cancellation Right shall be deemed to have been waived. On the other hand, a request for easement of lending conditions is made by a borrower who is in financial difficulties in an attempt for restructuring (upon which a Defect is deemed to have occurred) and accepted by the new LTCB under circumstances where there is a reasonable ground for DIC to consider such request as reasonable, the Cancellation Right shall not be deemed to have been waived at that time, and the exercise of the Cancellation Right shall be held for three years from the Base Date.

2. Effect of Cancellation

(1) When a Cancellation Right is exercised, DIC will pay LTCB an amount equal to the Initial Book Value (the Initial Principal Amount less the Applicable Initial Loan Loss Reserve) of such canceled Loan Related Assets and in exchange DIC will obtain such Loan Related Assets. If LTCB has received principal payments of the relevant Loan Related Asset or proceeds from the sale of collateral or guarantor (including corporations) payments, DIC may deduct such amounts from the amount to be paid to LTCB mentioned above. Whenever LTCB intends to transfer a Loan Related Asset to DIC, LTCB may negotiate in each case with DIC to repurchase such Loan Related Asset from DIC at the then Current Book Value after deducting the amount of the loan loss reserve.

(2) If an event of force majeure such as war, natural calamity or economic great depression occurs within three years after the purchase of LTCB and a debtor's condition is deteriorated as a result thereof, the payment obligation of DIC shall be subject to restriction. If an event which appears to come within the force majeure, DIC and LTCB shall discuss in good faith the relevant matters including as to whether the event constitutes the force majeure and whether the deterioration of the debtor was caused by that force majeure event and shall determine the fair shares of the burden between the parties.

3. Procedures for Cancellation

In the event LTCB elects to exercise the Cancellation Right with respect to one or more Loan Related Assets, or portion thereof, LTCB shall deliver to DIC a cancellation notice. Such notice shall be made on a quarterly basis. DIC shall pay the Initial Book Value of the canceled Loan Related Assets within the period determined in the Definitive Agreement from the receipt of such notice unless DIC sends notice to LTCB notifying LTCB of DIC's intention to dispute the determination. If DIC sends such notice to LTCB, DIC and LTCB shall faithfully discuss. If such discussion is not successful, the determination shall be reviewed by an internationally recognized accounting firm that LTCB and DIC mutually agree. LTCB and DIC will respect the results of the review by such accounting firm; provided, however, that this shall not deny the right of LTCB or DIC to file a suit in respect of the result of such review. Whenever DIC determines to comply with the results of the review of the accounting firm or the decision of the court confirming DIC's payment obligation becomes final, DIC shall pay the Initial Book Value of the canceled Loan Related Assets. The Definitive Agreement shall contain more detailed procedures for exercise of the Cancellation Right.

References

- Berglöf, E., and G. Roland, (1995), "Bank Restructuring and Soft Budget Constraints in Financial Transition," Journal of the Japanese and International Economics, vol.9, pp.354-375.
- Brewer III, E., H. Genay, W. C. Hunter, and G. G. Kaufman, (2003a), "The Value of Banking Relationship during a Financial Crisis: Evidence from Failures of Japanese Banks," Journal of the Japanese and International Economics, vol.17, pp.233-262.
- Brewer III, E., H. Genay, W. C. Hunter, and G. G. Kaufman (2003b), "Does the Japanese Stock Market Price Bank-Risk? Evidence from Financial Firm Failures," Journal of Money, Credit, and Banking, vol.35, pp.507-543.
- Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, (1997), Econometrics of Financial Markets, Princeton, Princeton University Press.
- Dewatripont, M., and E. Maskin, (1995), "Credit and Efficiency in Centralized and Decentralized Economies," Review of Economic Studies 62, pp.541-555.
- Gibson, M. S. (1995), "Can Bank Health Affect Investment? Evidence from Japan," Journal of Business, vol.68, no.3, pp.281-308.
- Hori, M, and T. Takahashi, (2003), "The Value of Bank Relationship -A Study on the Hokkaido Takusyoku Bank's Failure-," (in Japanese), Economic Analysis Series No.169, (ESRI, Cabinet Office, Japanese Government).
- Hoshi, T., A. Kashyap, and D. Scharfstein, (1990), "The Role of Bank in Reducing the Costs of Financial Distress in Japan," Journal of Financial Economics 27, pp.67-88.
- Kang, J. K. and R. M. Stulz, (2000), "Do Banking Shocks Affect Borrowing Firm Performance? An Analysis of the Japanese Experience," Journal of Business, vol.73, no.1, pp.1-23.
- MacKinlay, A. Craig, (1997), "Event Studies in Economics and Finance," Journal of Economic Literature, Vol. 35, pp.13-39.
- Miyajima, H. and Y. Yafeh (2003), "Japan's Banking Crisis: Who has the Most to Lose?," mimeo.
- Peek, J. and E.S. Rosengren (2003) "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan," NBER Working Papers: 9643.
- Slovin, M.B., M.E. Sushka, and J.A. Polonchek, (1993), "The Value of Bank Durability: Borrowers as Bank Stockholders," Journal of Finance 48, pp.247-266.
- Spiegel, M.M., (2002), "The Disposition of Failed Japanese Bank Assets: Lessons from the U.S. Savings and Loan Crisis," Federal Reserve Bank of San Francisco Economic Review, pp.1-15.
- Tett, G., Saving the Sun: A Wall Street Gamble to Rescue Japan from Its Trillion-Dollar

Meltdown, Harper Business, NY.

Titman, S., (1984), “The Effect of Capital Structure on a Firm’s Liquidation Decision,” Journal of Financial Economics 13, pp.137-151.

Yamori, N., and A. Murakami, (1999), “Does Bank Relationship Have an Economic Value? The Effect of Main Bank Failure on Client Firms” Economics Letters 65, pp.115-120.

Table 1: Loan outstanding by major banks

(Unit: billion yen)

	Mar-97	Mar-98
HTB	6,971	5,929
LTCB	18,860	15,765
NCB	9,080	7,781
Mitsubishi-Tokyo	43,752	42,471
Sakura	36,834	35,084
DKB	36,604	35,023
Sumitomo	36,600	35,930
Sanwa	36,030	33,526
Fuji	34,037	32,031
IBJ	24,714	23,242
Asahi	21,499	20,966
Tokai	20,422	20,310
Daiwa	10,671	10,314

Source: unconsolidated financial statements of each bank

Table2: Status of HTB clients extracted from all non-financial firms listed on TSE and other local exchanges

	Clients that had HTB in Top 5 lenders in March 1998	Clients that didn't have HTB in Top 5 lenders but its loan share exceeded 5% in March 1998
Total Number of Clients	38	12
Number of clients whose loan were taken over by North Pacific Bank	10	2
Number of clients whose loan were taken over by Chuo Trust Bank	20	9
Number of clients whose loan were taken over by RCC	1	0
Number of clients whose loan were taken over by Other Financial Institution	5	1
Number of clients whose loan were transferred to nobody	3	0

Note.) The loan of one client firm was taken over by both of North Pacific Bank and Chuo Trust Bank. And the loan of another client firm was transferred to both of Chuo Trust Bank and RCC.

Source: Kigyo Keiretsu Soran 2000, published by Toyo Keizai

Table 3: Summary for the bankrupt companies listed on eight stock exchanges and over-the-counter markets in Japan

1. The number of the bankrupt companies

	Dec-97 to Mar- 98	FY1998		FY1999		FY2000		FY2001		FY2002		FY2003	Total (Dec- 97 to Sep- 03)
		First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	
Total number of the bankrupt listed companies in Japan	4	4	7	5	3	8	7	2	18	13	9	12	92
HTB clients	1	0	1	0	0	0	0	0	1	0	0	2	5
LTCB clients	0	0	1	2	2	5	1	1	5	5	0	0	22
NCB clients	1	1	1	1	0	0	0	0	2	2	0	2	10
Other bank clients	2	3	5	2	1	3	6	1	11	7	9	9	59

2. The amount of liability of the bankrupt companies (Unit: billion yen)

	Dec-97 to Mar- 98	FY1998		FY1999		FY2000		FY2001		FY2002		FY2003	Total (Dec- 97 to Sep- 03)
		First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	
Total amount of liability of the bankrupt listed companies in Japan	741	747	708	97	448	2,113	301	1,401	1,996	750	194	300	9,797
HTB clients	13	0	16	0	0	0	0	0	31	0	0	40	100
LTCB clients	0	0	16	49	439	1,807	24	13	1,291	156	0	0	3,795
NCB clients	69	414	250	33	0	0	0	0	37	303	0	58	1,164
Other bank clients	659	334	442	15	9	307	277	1,388	668	323	194	237	4,852

Note 1). Sample: All companies, excluding banks and insurers, listed on eight stock exchanges (Tokyo, Osaka, Sapporo, Niigata, Nagoya, Kyoto, Hiroshima and Fukuoka) and three over-the-counter markets (JASDAQ, Mothers, and NASDAQ JAPAN).

Note 2). The first half of fiscal year (FY) is from April 1 to September 30, and the second half is from October 1 to March 31.

Note 3). The "clients" of the failed bank are identified if each failed bank was one of the top five lenders as of end of fiscal year 1998 (only for HTB clients, as of end of fiscal year 1997). The "Other bank clients" are defined as firms that didn't have three failed banks in the top five lenders.

Note 4). For four companies that had more than one failed bank in top five lenders, they are defined as the clients of plural failed banks.

Source: Websites of Teikoku Data Bank and Tokyo Shoko Research

Table 4: Summary for the bankrupt clients of New LTCB and New NCB

1. The number of the bankrupt clients

	FY2000		FY2001		FY2002		FY2003
	First half	Second half	First half	Second half	First half	Second half	First half
New LTCB (Shinsei Bank) clients	51	32	17	21	10	5	5
New NCB (Aozora Bank) clients	25	14	12	23	12	7	15

2. Total amount of loans to the bankrupt clients (Unit: billion yen)

	FY2000		FY2001		FY2002		FY2003
	First half	Second half	First half	Second half	First half	Second half	First half
New LTCB (Shinsei Bank) clients	401.2	213.8	37.6	169.7	42.1	0.0	1.8
New NCB (Aozora Bank) clients	42.2	47.7	7.7	26.5	72.8	4.4	11.1

Note). Sample: All clients of Shinsei and Aozora bank, excluding clients whose amount of loan is less than 50 million yen.

Source: Shinsei and Aozora's reports on "business revitalization plan", submitted to the Financial Service Agency each half of the fiscal year.

Table 5: Status of Implementation of Cancellation Right by New Banks

1. Number of clients

	31-Mar-01	30-Sep-01	31-Mar-02	30-Sep-02	31-Mar-03	30-Sep-03
New LTCB (Shinsei Bank)	41	110	168	232	286	321
New NCB (Aozora Bank)	13	23	41	64	95	121
Total	54	133	209	296	381	442

2. Amount of book value of the loans

(Unit: billion yen)

	31-Mar-01	30-Sep-01	31-Mar-02	30-Sep-02	31-Mar-03	30-Sep-03
New LTCB (Shinsei Bank)	212.4	558.0	710.2	851.7	994.9	1,170.2
New NCB (Aozora Bank)	16.5	42.8	70.5	205.9	341.5	385.2
Total	228.9	600.8	780.7	1,057.6	1,336.4	1,555.4

3. Amount of payment

(Unit: billion yen)

	31-Mar-01	30-Sep-01	31-Mar-02	30-Sep-02	31-Mar-03	30-Sep-03
New LTCB (Shinsei Bank)	111.6	312.0	442.5	565.5	689.8	853.0
New NCB (Aozora Bank)	6.3	23.9	42.1	160.3	240.9	278.2
Total	117.9	335.9	484.7	725.8	930.7	1,131.2

Note.) The “amount of book value of the loans” is the book value of loan outstanding that the DIC purchased by the request of new banks. The “amount of payment” is the actual payments from the DIC to new banks. The difference between two amounts mainly reflects the reserves for loan losses.

Source: The Financial Service Agency

Table 6: Implementation of the cancellation right by the new banks (as of end of September 2002)

1. New LTCB (Shinsei Bank)

	Reason why the bank implements the cancellation right		
	Delay of repayments, effectively insolvent, or request to ease borrowing condition	Failure or delay of business revitalization plan, etc.	Bankrupt or Suspension of bill exchanges
Bankrupt clients (Total 97 firms)	34 (35%)	15 (15%)	48 (49%)
Borrower Classification when the new bank took over			
Normal	14	0	7
Needs attention	10	5	11
Needs management	7	2	9
In danger of bankrupt	3	8	18
Bankrupt	0	0	3
Surviving clients (Total 97 firms)	62 (64%)	34 (35%)	1 (1%)

Data are summarized as of September 30, 2002 by the DIC.

2. New NCB (Aozora Bank)

	Reason why the bank implements the cancellation right		
	Delay of repayments, effectively insolvent, or request to ease borrowing condition	Failure or delay of business revitalization plan, etc.	Bankrupt or Suspension of bill exchanges
Bankrupt clients (Total 27 firms)	4 (15%)	5 (19%)	18 (67%)
Borrower Classification when the new bank took over			
Normal	0	0	4
Needs attention	2	3	7
Needs management	1	0	2
In danger of bankrupt	1	2	3
Bankrupt	0	0	2
Surviving clients (Total 23 firms)	5 (22%)	17 (74%)	1 (4%)

Data are summarized as of September 30, 2002 by the DIC.

Source: Unpublished report by the Deposit Insurance Corporation (DIC)

Table 7: Summary Statistics for Sample Firms

	HTB clients	LTCB clients	NCB clients	Other bank clients
Number of sample firms	27	131	51	1,078
Number of surviving firms	27	120	48	1,057
Number of bankrupt firms	0	11	3	21
(Share in sample firms; %)	(0.0%)	(8.3%)	(5.8%)	(1.9%)
Average Sales	88,149	165,911	159,101	269,290
(Median)	(54,835)	(69,791)	(63,685)	(64,327)
Average Debt to Sales Ratio	0.51	1.05	1.01	0.72
(Median)	(0.48)	(0.77)	(0.77)	(0.61)

1). The “clients” of the failed bank are identified if each failed bank was one of top five lenders as of end of fiscal year 1997 (only for HTB clients, as of end of fiscal year 1996). The “Other bank clients” are defined as firms that didn’t have three failed banks in the top five lenders.

2). Sample firms are 1,276 non-financial firms listed on the first and the second sections in TSE excluding gas and electric power companies. Sample also excludes the firms that had no external borrowing and that had been delisted as a result of merger with other firms.

Table 8-1: Event studies using abnormal returns data (surviving firms)

Sample: 1,242 surviving firms (excluding bankrupt firms)

Dependent variable: (cumulative) abnormal return of firm *i*.

	(i) HTB failure	(ii) LTCB nationalization	(iii) NCB nationalization	(iv) new LTCB operation	(v) new NCB operation
	Abnormal returns (Nov. 1997)	Cumulative abnormal returns (Sep. 1998 and Oct. 1998)	Cumulative abnormal returns (Nov. 1998 and Dec. 1998)	Cumulative abnormal returns (Mar. 2000 and Apr. 2000)	Cumulative abnormal returns (Sep. 2000 and Oct. 2000)
Constant term	-0.089*** (-21.563)	-0.036*** (-6.422)	0.002 (0.524)	0.091*** (13.881)	-0.015*** (-3.160)
Dummy for HTB clients	-0.053** (-2.378)	0.047 (1.545)	-0.034 (-1.168)	-0.011 (-0.311)	0.004 (0.163)
Dummy for LTCB clients	-0.020* (-1.800)	0.022 (1.455)	-0.003 (-0.264)	0.044** (2.481)	0.013 (1.040)
Dummy for NCB clients	-0.044*** (-2.586)	0.025 (1.100)	-0.002 (-0.133)	-0.881 (-0.032)	-0.026 (-1.314)
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.049	0.004	0.008	0.042	0.023

Note 1). The t-statistics are reported in parentheses. The asterisk, ***, **, or *, means that the coefficient is significant at 1%, 5%, or 10% level, respectively.

Note 2). Abnormal returns at each event month are estimated by the market model using 60 monthly rates of returns from one months before each event month. Estimation periods are Nov. 1992 through Oct. 1997 for event (i), Sep. 1993 through Aug. 1998 for event (ii), Nov. 1993 through Oct. 1998 for event (iii), Mar. 1995 through Feb. 2000 for event (iv), and Sep. 1995 through Aug. 2000 for event (v), respectively.

Table 8-2: Event studies using abnormal returns data (all firms including bankrupt firms)

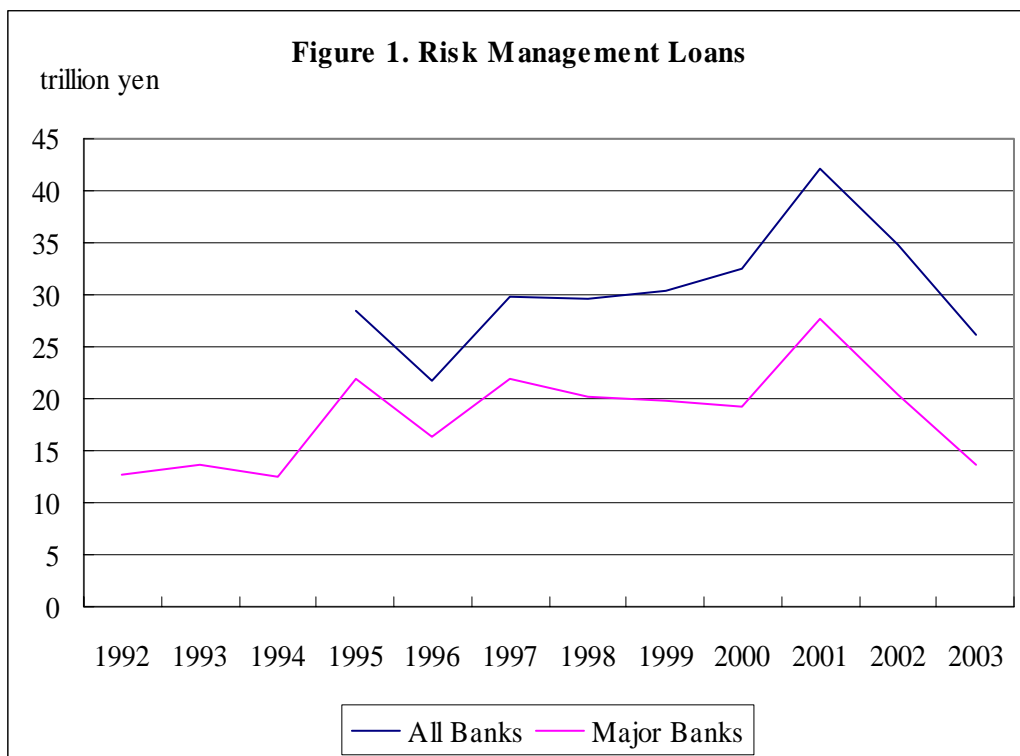
Sample: All firms that were alive as of each event month.

Dependent variable: (cumulative) abnormal return of firm *i*

	(i) HTB failure	(ii) LTCB nationalization	(iii) NCB nationalization	(iv) new LTCB operation	(v) new NCB operation
	Abnormal returns (Nov. 1997)	Cumulative abnormal returns (Sep. 1998 and Oct. 1998)	Cumulative abnormal returns (Nov. 1998 and Dec. 1998)	Cumulative abnormal returns (Mar. 2000 and Apr. 2000)	Cumulative abnormal returns (Sep. 2000 and Oct. 2000)
Constant term	-0.090*** (-21.700)	-0.036*** (-6.413)	0.003 (0.622)	0.090*** (13.942)	-0.015*** (-3.060)
Dummy for HTB clients	-0.053** (-2.392)	0.046 (1.494)	-0.033 (-1.119)	-0.011 (-0.326)	0.004 (0.161)
Dummy for LTCB clients	-0.020* (-1.788)	0.020 (1.343)	-0.003 (-0.231)	0.044** (2.473)	0.013 (1.018)
Dummy for NCB clients	-0.044*** (-2.577)	0.021 (0.916)	-0.001 (-0.079)	-0.001 (-0.047)	-0.027 (-1.344)
Dummy for LTCB's insolvent clients	-0.049 (-1.333)	0.161*** (3.161)	-0.030 (-0.633)	-0.155** (-2.384)	-0.087 (-1.344)
Dummy for NCB's insolvent clients	-0.038 (-0.548)	-0.221** (-2.318)	0.031 (0.346)	0.034 (0.252)	-0.071 (-0.696)
Dummy for Other banks insolvent clients	-0.137*** (-5.425)	-0.038 (-1.088)	0.055* (1.676)	0.067 (1.636)	-0.121*** (-3.918)
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.076	0.023	0.011	0.048	0.035
Number of Observations	1,276	1,276	1,276	1,273	1,270

Note 1). The t-statistics are reported in parentheses. The asterisk, ***, **, or *, means that the coefficient is significant at 1%, 5%, or 10% level, respectively.

Note 2). Abnormal returns at each event month are estimated by the market model using 60 monthly rates of returns from one month before each event month. Estimation periods are Nov. 1992 through Oct. 1997 for event (i), Sep. 1993 through Aug. 1998 for event (ii), Nov. 1993 through Oct. 1998 for event (iii), Mar. 1995 through Feb. 2000 for event (iv), and Sep. 1995 through Aug. 2000 for event (v), respectively.



Note 1). "Risk management loans" are the sum of (1) loans to borrowers in legal bankruptcy, (2) past due loans in arrears by 6 months or more, (3) loans in arrears by 3 months or more and less than 6 months, and (4) restructured loans.

Note 2). "Major 11 Banks" are City Banks, Long-term Credit Banks and Trust Banks but exclude Shinsei Bank and Aozora Bank.

