CIRJE-F-439

The Impacts of "Shock Therapy" on Large and Small Clients: Experiences from Two Large Bank Failures in Japan

Shin-ichi Fukuda
University of Tokyo

Satoshi Koibuchi
University of Tokyo

October 2006

The Impacts of "Shock Therapy" on Large and Small Clients: Experiences from Two Large Bank Failures in Japan*

Shin-ichi Fukuda (University of Tokyo)**

Satoshi Koibuchi (University of Tokyo)

September 27, 2006

Abstract

A "shock therapy" might have different impacts between large and small firms. In this paper, we focus on the clients of two large failed Japanese banks - the Long-term Credit Bank of Japan (LTCB) and the Nippon Credit Bank (NCB). We first show that subsequent events after the bank failures allowed the new LTCB to adopt a "shock therapy" but kept the new NCB to face "soft budget constraints". We then show that the different therapies made performances of these two banks' customers very different. Under the shock therapy, large firms showed significant recovery of their profits but small firms did not. In contrast, under the soft budget constraints, large firms did not show recovery and small firms experienced significant decline in their profits when the new bank terminated the banking relationship.

Key Words: bank failure, shock therapy, soft budget constraints, banking relationship

JEL #: G12, G21, G33.

---

* An earlier version of this paper was presented at the 2nd APEA conference at Seattle on July 28-29, 2006. The authors would like to thank an anonymous referee, Fumio Hayashi, Nobuyoshi Yamori, Quian-yuan Sui, and the conference participants for their useful comments. Fukuda's research is supported by Japanese Government, Ministry of Education Aid for Science Research on Priority Area #12124203.

** Correspondence address: Shin-ichi FUKUDA, Faculty of Economics, University of Tokyo, Hongo Bunkyo-ku Tokyo 113 JAPAN. E-mail: sfukuda@e.u-tokyo.ac.jp, Phone: 81-3-5841-5504, Fax: 81-3-5841-5521.

1. Introduction

Japanese economy experienced a prolonged banking crisis in the 1990s. The trigger was the large stock and land price declines that began in early 1990s. These negative shocks impaired collateral values dramatically so that many banks could not adjust to the shocks. One appropriate prescription for the banking crisis would have been kicking out insolvent firms from the market. However, under "soft budget constraints", many Japanese banks had incentives to continue making credit available to weak firms, many of which were already insolvent. The banks accepted the request for debt forgiveness and kept pouring loans into insolvent zombie firms.[1] The "soft budget constraints" might reduce temporary increases of adjustment costs. They, however, continue to avoid market discipline in cleaning up its economy.

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. The market participants were thus suspicious against the valuation of the surviving clients of the troubled bank. If the major lender allows insolvent firms to continue to operate, bad loan problems could result in fewer profitable investments by firms that are highly dependent on bank financing. Under the circumstance, the "shock therapy" might have a positive impact on the market value of the clients through removing inefficiencies under the "soft budget constraints".

However, in the presence of asymmetric information and incomplete contract, banking relationships enhance the value of client firms (see, for example, Boot [2000] for overview of the literature). This is particularly true for small firms that obtain most of their external

[1] The terminology of "soft budget constraints" follows that in previous studies such as Dewatripont and Maskin (1995) and Berglöf and Roland (1995). Recent empirical studies that explored negative consequences of "soft budget constraints" in Japanese banking sector include Peek and Rosengren (2005), Sekine, Kobayashi, and Saita (2003), Hanazaki and Horiuchi (2003), Ahearne and Shinada (2004), and Caballero, Hoshi, and Kashyap (2006).

financing from banks with which they established a relationship. The relationship allows a Pareto-improving exchange of information between the borrower and the lender and thereby helps to mitigate some of the inefficiencies associated with one-shot incomplete contracting. The role of the banking relationships is particularly important during times of distress, when it changes the affiliated firm's management and the board directors. Monitoring performed by banks may help to overcome several problems associated with diffuse debt-holding. Firms with strong bank-firm relationships may therefore be able to overcome financial distress better, giving such firms a more stable, informed, and committed source of financing.

The purpose of this paper is to provide a case study that explores how different consequences "soft budget constraints" and "shock therapy" had in improving performances of large and small borrowers in Japan. In the analysis, we focus on the clients of two large failed Japanese banks - the Long-term Credit Bank of Japan (LTCB) and the Nippon Credit Bank (NCB), and examine how their profits had changed after the banks' operations were taken over by new banks. The resolution of these two 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 failed banks, however, had different features on who took over their operations. LTCB was sold to a group of American investors, who tried to introduce American management techniques as a bold new experiment in financial reform. In the case of the clients of LTCB, the impacts therefore appeared as a "shock therapy" where there were dramatic increases of bankruptcies after the new bank started its operation. NCB was, in contrast, sold to a group of domestic investors, who tried to follow traditional corporate ways in Japan. In the case of the NCB' clients, we thus see no dramatic increase of bankruptcies. In the following analysis, we explore how the different features lead to different consequences for profitability of small and large client firms.

In previous literature, Fukuda and Koibuchi (2006) explored a similar issue by using stock prices of the borrowing firms. They show that the surviving clients of LTCB showed significant recovery of their stock prices but that those of NCB did not. The result implied that the "shock therapy" by the new banks was beneficial in improving the clients' market valuation. Stock prices are, however, only loosely related to the market values of the firms. More importantly, the use of stock prices limited our analysis to listed firms for which the role of banks became relatively smaller throughout the 1990s. A new contribution of this paper is that we analyze performances of client firms including small unlisted firms. A series of financial liberalization reduced the role of banks for most of listed Japanese companies in the 1990s. Banks, however, keep playing a dominant role in the financing of small and medium firms in Japan. It is thus worthwhile to focus on unlisted firms for which the role of bank is more important. It is likely that the "shock therapy", which may make the bank-firm relationship unstable, has different impacts between large and small firms.

Investigating the performances of client firms, we obtained information of the client firms of the two failed banks from the CD Eyes data set supplied by TSR Database Service. The CD Eyes provides information of 500 thousands of listed and unlisted Japanese companies for each year. In particular, it provides a list of major lenders of each company for each year. The information allows us to investigate how different consequences were brought to profitability of small client firms by subsequent events after bank failures.

A number of papers provide empirical evidence on adverse consequences for the clients of failed banks.[2] In particular, Brewer, Genay, Hunter, and Kaufman (2003) examine what effects

[2] 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. Klein, Peek, and Rosengren (2002) found that financial difficulties of Japanese banks were economically and statistically important in reducing the number of FDI projects by Japanese firms into the United

the failures of LTCB and NCB had on their customers in Japan. They find that the stock returns of the customers unexpectedly declined at the time of failure announcement.[3] Our results are in marked contrast with these studies in two respects. One is that we focus not only on listed firms but also on small unlisted firms. The other is that we show 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 who succeeds the operation and how the new bank could mitigate the adverse impacts of the bank failure.

Bank regulation and supervision policies in Japan provided the troubled banks little incentive to be strict with troubled borrowers. When their non-performing loans were piled up, the banks therefore followed a policy of forbearance with their problem borrowers in order to avoid pressure on the banks to increase their own loan loss reserves, further impairing their capital. This leads to additional credit to troubled firms to enable them to make interest payments on outstanding loans and avoid or delay bankruptcy. Keeping these troubled firms alive would distort resource allocation in the economy. Rolling over the debt of problem borrowers may reduce the supply of credit available to healthy borrowers. Even if the supply of credit does not decline, it may have various negative external impacts on healthy borrowers, especially when the market cannot distinguish between good and bad borrowers. Depressing market prices for their products, raising market wages, and congesting the markets would be typical consequences of the negative externality.

Under such circumstances, the "shock therapy" might increase profitable investments by solvent firms and have a desirable consequence for economic efficiency in the long-run.

States.

[3] Focusing on failure of Hokkaido Takusyoku Bank, Yamori and Murakami (1999), Hori and Takahashi (2003), and Hori (2005) examine the effects of the bank failure on their customers in Japan.

However, to the extent that imperfect information and incomplete contract are important, the inability of banks to perform their intermediary role would damage the real economy by disrupting the flow of credit. It is thus possible that the "shock therapy" might have a perverse impact on performances of small and medium firms that have few alternative sources of funding. Our empirical results support this view through finding that the consequences are different between large and small firms.

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

2. Two Large Bank Failures

In the following analysis, we explore impacts of two large failed banks in Japan - the Long-term Credit Bank of Japan (LTCB) failed on October 23, 1998 and the Nippon Credit Bank (NCB) failed on December 13, 1998. LTCB and NCB were among the largest and most visible Japanese banks so resolved in the post-war Japan. Table 1 reports the amounts of loans outstanding of these two banks as well as those of other major banks in March 1997 and in March 1998. The amounts of the two banks were not so big as those of top six city banks. However, the amount of LTCB's loans outstanding was the 10^{th} largest and was almost twice as much as that of NCB's.

LTCB was the second largest long-term credit bank. 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. The merger attempt with Sumitomo Trust Bank, however, failed in the beginning of October 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.

NCB was the third largest long-term credit bank in Japan. Founded as the Nippon Real Estate 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 day – December 13, and started special public management under the Financial Reconstruction Law.

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 two bank failures had several common features. Both LTCB and NCB were nationalized first. 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. 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.

When the government sold the nationalized LTCB and NCB to the private investors, the government promised the same "cancellation right" (warranty of loan related assets) to each of the new banks. The "cancellation right", or *Kashi-tampo* in Japanese, was bastardized version of a loss-sharing scheme, albeit potentially far more costly for the government. 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.

The two failed banks, however, had different features on who took over their operations.

LTCB was sold to a group of American investors led by Ripplewood Holdings LLC, which paid 1 billion yen for purchasing the bank and injected an additional 120 billion yen in capital. 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, the new bank has been controversial figure in Japanese financial markets because it tried to introduce American management techniques as a bold new experiment in financial reform. NCB was, in contrast, 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" on January 2001. A group of domestic investors tried to follow traditional corporate ways in Japan. The new bank's management behavior may be responding to significant government and public pressure to avoid a credit crunch that might occur if it were to reduce credit to troubled firms.

Table 2 reports how loan outstanding of LTCB and NCB changed after the fiscal year 2000, based on Shinsei and Aozora's Business Revitalization Plans each year. For the new LTCB, total domestic loans and loans for small and medium-size enterprises (SMEs) were near 7.5 and 2.7 trillion yen respectively when it began its operations. These loans, however, sharply declined for four consecutive years by nearly 60% until FY2003. The sharp declines partly reflected revaluation of the book value due to disposal of NPLs. Even controlling the changes of loan outstanding driven by the revaluation, we can observe sharp decreases of loan outstanding immediately after the new LTCB took over the operations.

In contrast, loans of the new NCB were almost constant until FY2003 even without controlling the changes of loan outstanding driven by the revaluation. When we removed the changes coming from the disposal of NPLs, total domestic loans and loans for SMEs rather

increased every fiscal year. The evidence is consistent with the view that the new NCB remained facing soft budget constrains and kept lending to insolvent firms.

3. Data

In the following analysis, we investigate performance of LTCB's and NCB's client firms. Information of the client firms is based on the CD Eyes data set supplied by TSR Database Service. Each version of the CD Eyes provides information of 500 thousands of listed and unlisted Japanese companies for each fiscal year (FY). In particular, it provides a list of major lenders of each listed and unlisted company for each fiscal year. We define the LTCB's clients and NCB's clients respectively by the non-financial firms for which each bank was listed as one of the major lenders in FY1998.

Table 3 reports some summary statistics on the total number, the size, the amount of sales, and before-tax profit-sales ratio for client firms of LTCB and NCB in our sample. For comparison, it also reports corresponding statistics for clients of the Industrial Bank of Japan (IBJ), the largest long-term credit bank in Japan. When we look at all client firms for which each bank was listed as a major lender, the total number was 3,169 for LTCB, 1,503 for NCB, and 5,850 for IBJ in our sampled firms. Like the amounts of loans outstanding in Table 1, the LTCB's total number of the client firms was almost twice as much as that of NCB's. It was, however, nearly half of IBJ's.

The client firms' characteristics are, however, similar among the three banks; the size of paid-in-capital was around 4 billion yen on average and about 150 to 280 million yen on median; the amount of sales was around 50 billion yen on average and about 6 to 8 billion on median. These characteristics imply that the long-term credit banks had a tendency to lend to

larger companies than the other banks in Japan. The medians, however, indicate that even the long-term credit banks had a significant number of small and medium-size clients. The median of after-tax profit-sales ratio is also similar among the three banks. The average of before-tax profit-sales ratio is similar between LTCB's and NCB's. However, the averaged ratios for LTCB's and NCB's clients are much lower than that of IBJ's clients. This implies that both LTCB and NCB had a significant number of bad clients in the late 1990s, which eventually led them to be failed.

The above characteristics are essentially the same even if we restrict the client firms to those that had closer relationships with LTCB and NCB: firms for which each bank was one of the top five lenders, one of the top three lenders, and the top lender respectively. However, the number of the client firms declines dramatically when either LTCB or NCB was the top lender. More interestingly, when either LTCB or NCB was the top lender, the clients' average before-tax profit-sales ratio declines dramatically; it took -0.107 when the LTCB was the top lender and -0.072 when the NCB was the top lender. This implies that the client firms that had a very tight relationship with either LTCB or NCB tended to suffer big losses and possibly became insolvent in the late 1990s.

Table 4 reports client firms' distributions by industry for LTCB, NCB, and IBJ in our sample. It also reports distributions of firms borrowing from both LTCB and NCB. The table shows nearly one third of client firms belong to manufacturing sector. This is a common characteristic among the three banks, although the share of manufacturing sector is slightly larger for IBJ. Among non-manufacturing sectors, the share of wholesale & retail sector as well as that of service sector is large for all of the three banks. The share of real estate sector is also significant for both LTCB and NCB. In particular, when we focus on the client firms borrowing from both LTCB and NCB, the share of real estate sector goes up to 17.3%, while the

share of manufacturing sector drops down to 26%. As the land prices fell in the 1990s, many of its real estate-related loans became non-performing. The large share of real estate sector would be a source of big losses that LTCB and NCB suffered from in the late 1990s.

4. The Impacts on the Number of Bankruptcies

When the borrowers of the two banks were roughly in the same initial condition, it is likely that managing styles of the new banks would be reflected in timing and frequency of the client firms' bankruptcy. Under shock therapy, there would be a dramatic surge of client firms' bankruptcy soon after the new banks started the operations. In contrast, under soft budget constraints, client firms would go bankrupt only gradually. In this section, we investigate timing and frequency of the client firms' bankruptcy of the two failed banks. Specifically, we explore how the number of bankruptcies had changed for the client firms before and after the new banks took over the operations. 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. We collected the bankruptcy information of the client firms from 1999 to 2004 by TSR Database Service.

Table 5 reports how the number and the total liability of bankrupt client firms had changed from 1999 to 2004 for the two failed bank. Throughout the sample period, 226 LTCB's client firms went bankrupt, and so did 132 NCB's clients. The resulting amount of liability of the

bankrupt client firms was 8 trillion yen for LTCB and 5 trillion yen for NCB. These numbers are larger for LTCB than for NCB. However, since the number of clients and the amount of loan outstanding of LTCB were twice as much as those of NCB, they mean that the clients of LTCB had slightly smaller bankruptcy probabilities than those of NCB for six years after the bank failures. The results are essentially the same even if we focus on the client firms for which either LTCB or NCB was one of the top 5 lenders. In terms of eventual bankruptcy probabilities, we may conclude that LTCB had slightly better quality of borrowers than NCB.

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. The number of bankrupt LTCB's clients was particularly large soon after the new bank started its operation; 47 LTCB's clients went bankrupt in the first half of 2000. The tendency become more conspicuous when we focus on the client firms for which LTCB was one of the top 5 lenders. The result implies that the new LTCB introduced American management techniques as a bold new experiment and killed many of insolvent clients as a "shock therapy". The surge of bankruptcies, however, did not persist; very few LTCB's clients went bankrupt after the second half of 2003. In contrast, we see no significant increase of bankruptcies for the clients of NCB even after the new bank started its operation in September 2000. This was particularly true for those for which NCB was one of the top 5 lenders. This suggests that the new NCB followed traditional corporate ways in Japan and kept practicing soft budget constraints. It is, however, noteworthy that the number and the total liability of bankrupt clients remained high for the NCB's clients throughout the period and that eventual bankruptcy probabilities became slightly higher for the NCB's clients than for the LTCB's. This indicates that the new NCB had accepted the request for debt forgiveness pouring loans into insolvent zombie firms, which eventually went bankrupt.

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 sufficiently. 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. 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 to the form of sale contract such as the "cancellation right".

5. The Basic Specification

If the bank keeps practicing "soft budget constraints", it would have little incentive to be strict with troubled borrowers. When its non-performing loans are piled up, the bank would therefore follow a policy of forbearance with its problem borrowers in order to avoid pressure on the bank to increase its own loan loss reserves, further impairing its capital. Under such circumstances, average profits of the client firms would remain low. However, if dramatic increases of bankruptcies clear up most of insolvent clients, average quality of surviving clients would become high. In particular, if market participants perceive the "shock therapy" of the new bank as positive news, decreased default risk may improve the value of healthy firms. This may happen when decreased default risk increases the availability of additional products, parts, and service among the clients. The price a customer is willing to pay for durable goods may go up as the probability of the firm's liquidation decreases reflecting the decline of

expected maintenance costs. More importantly, when default risk is low, turnovers of good employees would decline. To the extent that these favorable consequences are large, the "shock therapy" of the new bank might have a positive impact on average profits of the surviving clients.

However, banking relationships may overcome the problems of asymmetric information and incomplete contract and enhance the value of client firms. This is particularly true for small firms that obtain most of their external financing from banks with which they established a relationship. To the extent that the lack of public information impedes a smaller firm's access to capital markets, relationship lending would be important to improve the inefficiencies through appropriate contract design and/or the bank's ability to acquire the necessary information. The bank-firm relationship tends to be unstable under the "shock therapy", while it tends to be stable under the "soft budget constraints". It is therefore likely that the "shock therapy" and "soft budget constraints" may have different impacts between large and small firms.

In the following sections, we will test this hypothesis by investigating how the profits of the large and small surviving clients responded to subsequent events after the bank failures. The profits are before-tax profits of the client firms. The annual profits of the surviving clients are examined to identify any abnormal performance after the new banks started their operations.

The basic equation is as follows:

$$(1) \qquad \Pi_i = \text{constant} + \alpha\, \Pi^0_i + \beta\, SG_i + \gamma_1\, LTCB_{i1} + \gamma_2\, LTCB_{i2} + \delta_1\, NCB_{i1} + \delta_2\, NCB_{i2},$$

where Π_i is average before-tax profits of firm *i* from FY2001 to FY2003, Π^0_i is average before-tax profits of firm *i* from FY1996 to FY1998, and SG_i is growth rate of sales from

FY1996-98 to FY2003. Both $LTCB_{i1}$ and $LTCB_{i2}$ are dummy variables for the clients that had LTCB as one of the top 5 lenders in FY1998. The dummy variable $LTCB_{i1}$ equals to 1 when firm *i* had the new LTCB in its lender's list in FY2004 and zero otherwise, while $LTCB_{i2}$ equals to 1 when firm *i* no longer had the new LTCB in its lender's list in FY2004 and zero otherwise. The variables NCB_{i1} and NCB_{i2} are corresponding dummies for the NCB's clients. We estimate equation (1) with and without an auxiliary variable SG_i.

In equation (1), we relate the clients' profits to the two types of dummies for each failed bank's clients. The dummy variables are included to measure how different profits the clients had depending on persistence of their banking relationships after the new banks started the operations. The coefficients of the dummy variables $LTCB_{i1}$ and NCB_{i1} would be positive if the two banks' clients increased their profits when keeping the bank-firm relationship with LTCB or NCB until FY2004. The coefficients of the dummy variables $LTCB_{i2}$ and NCB_{i2} would be negative if the two banks' clients decreased their profits when loosing the bank-firm relationship with LTCB or NCB before FY2004. We estimate equation (1) with Π^0_i as well as industry dummies. The industry dummies are dummies for 9 industries using manufacturing industry as a benchmark. The industry dummies are included to account for unobserved industry "fixed effects".

The explanatory variable Π^0_i, which reflects the clients' profitability before the bank failures, is included to capture the firm-specific performance before the new bank started. As we discussed in Table 2, it is likely that the failed bank's clients had poorer performance than their competitors. However, to the extent that the poorer performance was reported in financial conditions of the clients, the poor performance would be reflected in Π^0_i. The dummy variables would therefore reflect the profits' responses to news after each new bank started the operation.

The sampled firms are the non-financial client firms of LTCB, NCB, and IBJ which are available in both the 1999 year version and the 2004 year version of CD Eyes. We restrict the sampled firms to the client firms of the three long-term credit banks because types of customers could be different among different types of banks. As we discussed in Table 3 and Table 4, the three long-term credit banks had intrinsically similar types of customers that the other banks did not in 1998. Allowing different degrees of the banking relationship tightness, we collect two samples of firms. The first sample consists of the three banks' clients for which one of the three banks is at least in the list of top 10 lenders. The second sample consists of the three banks' clients for which one of the three banks is at least in the list of top 5 lenders. Needless to say, the banking relationship is tighter for the second sample than for the first. In both samples, we exclude public or semi-public firms, non-profit organizations, and firms for which relevant financial variables are missing. We also exclude outlier client firms whose profit-sales ratio exceeds 1.5 in order to rule out the cases where bad firms had temporary special gains from debt renegotiation. They allow us to have 6,006 firms in the first sample and 4,601 firms in the second sample.

Table 6 reports how many clients in the second sample kept the bank-firm relationship with LTCB or NCB until FY2004 and how many clients did not. As for the LTCB's clients that had a close banking relationship in FY1998, only 26% kept the relationship until FY2004 and 50% lost the relationship in FY2004 even if they were still alive. In contrast, for the NCB's clients that had a close bank relationship in FY1998, 37% kept the relationship until FY2004. Although 35% surviving clients lost the relationship in FY2004, the NCB's clients had more persistent relationship than the LTCB's. This provides another evidence that the new LTCB introduced a shock therapy but the new NCB did not.

6. Estimation Results

For the two samples of the firms, we estimate (1) dividing the sampled firms depending on their capital sizes: large size and small size. In Table 7-1 to Table 7-3, we summarize our estimation results by size with and without industry dummies; Table 7-1 for all size clients, Table 7-2 for large-size clients (with capital over 100 million yen in 1998), Table 7-3 for small-size clients (with capital of less than 100 million yen in 1998). In Table 7-4, we also report the Wald test statistic for each of three null hypotheses: $\gamma_1 = \gamma_2$, $\gamma_1 = \delta_1$, and $\delta_1 = \delta_2$ of the first sample for the large-size clients and for the small-size clients respectively. Regardless of the banking relationship tightness, the model specification, and the capital size of the client firms, Π^0_i is positive and statistically significant. This implies that there was significant coherency of the clients' profits during the estimation period. The dummy variables, however, took different signs depending not only on the persistence of the bank-firm relationship but also on the capital size of the client firms.

The coefficient of $LTCB_{i1}$ took a positive value for all sizes of sampled firms. In particular, it was statistically significant for the large firms. This suggests that the surviving large LTCB's clients, who kept the banking relationship with LTCB, experienced larger increases of their profits 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 view that the "shock therapy" of the new bank was beneficial, generating a positive impact on the profits of the surviving clients. The "soft budget constraints" would have kept pouring loans into insolvent zombie firms. Under such circumstances, the "shock therapy" might increase profitable investments by solvent firms and have a desirable consequence for economic efficiency in the long-run. The

estimated coefficients of $LTCB_{i1}$ took 0.013 to 0.014 for the large-size firms. The positive impacts exist even for the LTCB's surviving large clients that lost the banking relationship; the estimated coefficients of $LTCB_{i2}$ took 0.004 to 0.005 for the large-size firms, although none of them is statistically significant. The Wald test statistic under the null hypothesis, $\gamma_1 = \gamma_2$, takes relatively large value, 1.638, although its significance level is marginal.

It is, however, noteworthy that the coefficient of $LTCB_{i1}$ was no longer significantly positive for the smaller firms with capital less than 1 billion yen. The estimated coefficients of $LTCB_{i1}$ and $LTCB_{i2}$ were close to zero and were not statistically significant for the small-size firms. The Wald test statistic cannot reject the null hypothesis that $\gamma_1 = \gamma_2$. Increasing their profits after the new bank took over the operation of LTCB, large surviving LTCB's clients enjoyed the benefits but small clients did not even they kept the relationship with the New LTCB. Small-size firms obtain most of their external financing from banks with which they established a stable relationship. Since the relationship enhances the value of the client firm, it is straightforward to see that its instability had an adverse consequence for the small-size clients. Our result is consistent with the view that the beneficial impact of the "shock therapy" disappears for small-size firms under the adverse consequence.

In contrast, the coefficient of NCB_{i1} was never significantly positive regardless of capital sizes. The estimated coefficients of NCB_{i1} and NCB_{i2} were negative for the large-size firms, although neither of them was significant. The Wald test statistic rejects the null hypothesis that $\gamma_1 = \delta_1$ at 10 % significance level for the large-size clients. The negative coefficient of NCB_{i1} indicates that the surviving NCB's clients did not improve their profits even when they kept the banking relationship with the new NCB. Since there were no dramatic increases of bankruptcies of the NCB's clients during the same period, the result is consistent with the view that the "soft budget constraints" was not beneficial in improving the profits of the surviving

clients. The "soft budget constraints" might reduce temporary increases of adjustment costs. But when the main bank allowed insolvent firms to continue to operate, bad loan problems resulted in fewer profitable investments by firms. The insignificant coefficient of NCB_{i1} is consistent with this view.

However, the estimated coefficients of NCB_{i1} took relatively large positive value, 0.006 to 0.011, for the small-size clients, even though none of them is statistically significant. The estimated values are larger than those of $LTCB_{i1}$ for the small-size clients, although the Wald test statistic cannot reject the null hypothesis that $\gamma_1 = \delta_1$. More importantly, the coefficient of NCB_{i2} took a negative sign for all sampled firms, particularly for the small firms with capital less than 1 million yen. The estimated coefficient was about -0.031 for all sampled firms and was about -0.055 for the small-size clients. This suggests that the small-size NCB's clients, who could not keep the banking relationship with NCB, experienced larger decreases of their profits than the other firms. When the bank practices "soft budget constraints", it tends to keep the bank-firm relationship unless the customer terminates the relationship voluntarily or its performance turns out to be extremely bad. Since it is less likely that a small firm terminates the relationship voluntarily, the termination of bank-firm relationship is generally a very bad signal for the small firm. The negative sign of NCB_{i2} may reflect the bad signals.

To the extent that imperfect information and incomplete contract are important, the inability of banks to perform their intermediary role would damage the real economy by disrupting the flow of credit. In particular, small and medium firms obtain most of their external financing from banks with which they established a relationship. Under the circumstances, losses from losing the bank-firm relationship would be very large for small and medium firms even if the bank keeps practicing the soft budget constraints. The above result for the small-size firms supports this view. The costs of the soft budget constraints would be very big for large-size

firms. They may also be big for small-size firms when the banking relationship was terminated. However, the costs might not be big for small-size firms when the banking relationship persists, which is more likely under the soft budget constraints.

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 clients of the two large failed Japanese banks, and examined how the number of their bankruptcies and their profits had changed 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 large-size clients started to show significant recovery of their profits in the long-run. In contrast, as for the large-size clients of NCB, there was neither dramatic increase of bankruptcies in the short-run nor significant recovery of their profits in the long-run. The result implies that the shock therapy had more beneficial impacts on the large-size clients. However, the consequences of "shock therapy" were quite different for small-size firms. We could observe no significant recovery of the profits for the LTCB's small-size clients, while we observed significantly large decreases of the profits for the NCB's small-size clients when the bank-firm relationship was terminated. The banking relationships would enhance the value of small-size client firms that face more serious problems of asymmetric information and incomplete contract. It is natural that the shock therapy, which may make the bank-firm relationship unstable, had different impacts between large and small firms.

It is 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.

Bank regulation and supervision policies in Japan provided banks little incentive to be strict with troubled borrowers. The problems in the banking sector could result in fewer profitable investments by firms that are highly dependent on bank financing and exacerbated macroeconomic problems by promoting the allocation of credit to many of less productive firms. Under the circumstances, "shock therapy" would be an appropriate prescription in solving the problem for large firms that can assess to alternative sources of funding. We, however, need to be more careful when applying the "shock therapy" for small-size firms. The inability of banks to perform their intermediary role would disrupt the flow of credit to small and medium firms that obtain most of their external financing from banks. It is possible that the "shock therapy" might have a perverse impact on performances of small-size firms.

References

Ahearne, A.G., and N. Shinada, (2004), “Zombie Firms and Economic Stagnation in Japan,” Hi-Stat Discussion Paper Series, No.95.

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.

Boot, A.W.A., (2000), “Relationship Banking: What Do We Know?” Journal of Financial Intermediation 9, pp. 7–25.

Brewer III, E., H. Genay, W. C. Hunter, and G. G. Kaufman, (2003), “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.

Caballero, R., Hoshi, T., and A. Kashyap, (2006), "Zombie Lending and Depresses Restructuring in Japan," NBER Working Papers 12129, National Bureau of Economic Reserch, Inc.

Dewatripont, M., and E. Maskin, (1995), “Credit and Efficiency in Centralized and Decentralized Economies,” Review of Economic Studies 62, pp.541-555.

Fukuda, S., and S. Koibuchi (2006), “The Impacts of “Shock Therapy” under a Banking Crisis: Experiences from Three Large Bank Failures in Japan,” Japanese Economic Review, Vol.57, No.2, pp.232-256.

Gibson, M. S. (1995), “Can Bank Health Affect Investment? Evidence from Japan,” Journal of Business, vol.68, no.3, pp.281-308.

Hanazaki, M., and A. Horiuchi, (2003), “A Review of Japan's Bank Crisis from the Governance Perspective,” Pacific-Basin Finance Journal 11, pp.305-325.

Hori, M., (2005), “Does Bank Liquidation Affect Client Firm Performance? Evidence from a

Bank Failure in Japan ," Economic Letters, Vol.88, Issue 3, September 2005, pp.415-420.

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.

Klein, M. W., Peek, J., and E.S. Rosengren, (2002), "Troubled Banks, Impaired Foreign Direct Investment: The Role of Relative Access to Credit," American Economic Review, 92, pp. 664-682.

Peek, J. and E.S. Rosengren (2005) "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan," American Economic Review, 95, pp.1144-66.

Sekine, T., Kobayashi, K., and Saita, Y., (2003), "Forbearance Lending: The Case of Japanese Firms," Monetary and Economic Studies 21, pp.69-92.

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: Loans outstanding by major banks

Unit: billion yen

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

Source: unconsolidated financial statements of each bank

Table 2. Transition of loan outstanding of New LTCB and New NCB

1. New LTCB (Shinsei Bank) Unit: billions of yen

	Mar.2000	End FY2000	End FY2001	End FY2002	End FY2003
Outstanding of total domestic loans	7,497.0	6,000.0	4,846.1	3,502.4	3,081.4
Changes of loan outstanding from the previous fiscal year end (A)	-	-1,497.0	-1,153.9	-1,343.7	-421.0
Disposal of NPLs (B)	-	397.6	698.4	911.4	229.5
Changes of loan outstanding except disposal of NPLs (A)+(B)	-	-1,099.4	-455.5	-432.3	-191.5
Outstanding of loans for SMEs	2,675.8	2,246.8	2,159.5	1,651.3	1126.4*
Changes of loan outstanding from the previous fiscal year end (A)	-	-429.0	-87.3	-508.2	-99.8*
Disposal of NPLs (B)	-	88.2	211.7	550.0	110.1
Changes of loan outstanding except disposal of NPLs (A)+(B)	-	-340.8	124.4	41.8	10.2

2. New NCB (Aozora Bank) Unit: billions of yen

	Sept.2000	End FY2000	End FY2001	End FY2002	End FY2003
Outstanding of total domestic loans	3,062.8	3,065.4	3,270.4	3,227.2	2,927.4
Changes of loan outstanding from the previous fiscal year end (A)	-	2.6	205.0	-43.2	-299.8
Disposal of NPLs (B)	-	960.0	124.3	238.1	472.8
Changes of loan outstanding except disposal of NPLs (A)+(B)	-	962.6	329.3	194.9	173.0
Outstanding of loans for SMEs	1,160.7	1,081.0	1,141.6	1,040.0	797.5*
Changes of loan outstanding from the previous fiscal year end (A)	-	-79.7	60.6	-101.6	-241.1*
Disposal of NPLs (B)	-	862.4	36.7	148.2	254.1
Changes of loan outstanding except disposal of NPLs (A)+(B)	-	782.7	97.3	46.6	13.0

Notes:

1). New LTCB started its operation on March 1, 2000, and new NCB started its operation on September 1, 2000. Fiscal Year (FY) in Japan is ended on March 31.

2). Total domestic loans and loans for SMEs exclude foreign currency lending for domestic citizens (called "impact loan" in Japan).

3). Small and medium size enterprises (SMEs) are defined as firms with capital of less than 300 million yen (100 million yen for wholesalers, and 50 million yen for retailers and service sector) or 300 full-time employees (100 for wholesalers and service sector, and 50 for retailers). Loans for the bank's consolidated subsidiaries and affiliates accounted for by the equity method are excluded from the figures in FY2003 (*). Resulting discontinuities between FY2002 and FY2003 are corrected by aouthers according to information in the FY2003 reports .

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

Table3: Sample summary for the clients of three long term credit banks

1. LTCB clients

	Number of clients (percentage of total clients)	Amount of Paid-in Capital as of 1998 (million yen)		Amount of Sales as of 1998 (million yen)		Before-tax profit / sales averaged from FY1996 to FY1998	
		sample mean	sample median	sample mean	sample median	sample mean	sample median
LTCB clients as of FY1998	3,169 (100%)	4,521	200	51,057	6,963	-0.012	0.006
Clients that had LTCB as a Top5 lender as of FY1998	2,259 (71%)	3,302	160	38,892	5,451	-0.014	0.006
Clients that had LTCB as a Top3 lender as of FY1998	1,298 (41%)	2,790	115	25,407	4,075	-0.029	0.005
Clients that had LTCB as a Top1 lender as of FY1998	248 (8%)	1,763	107	17,403	3,058	-0.107	0.002

2. NCB clients

	Number of clients (percentage of total clients)	Amount of Paid-in Capital as of 1998 (million yen)		Amount of Sales as of 1998 (million yen)		Before-tax profit / sales averaged from FY1996 to FY1998	
		sample mean	sample median	sample mean	sample median	sample mean	sample median
NCB clients as of FY1998	1,503 (100%)	3,875	150	41,895	5,691	-0.018	0.005
Clients that had NCB as a Top5 lender as of FY1998	1,040 (69%)	2,610	100	27,953	4,307	-0.020	0.004
Clients that had NCB as a Top3 lender as of FY1998	605 (40%)	1,727	98	17,815	3,237	-0.039	0.004
Clients that had NCB as a Top1 lender as of FY1998	125 (8%)	951	60	11,281	2,677	-0.072	0.002

3. IBJ clients

	Number of clients (percentage of total clients)	Amount of Paid-in Capital as of 1998 (million yen)		Amount of Sales as of 1998 (million yen)		Before-tax profit / sales averaged from FY1996 to FY1998	
		sample mean	sample median	sample mean	sample median	sample mean	sample median
IBJ clients as of FY1998	5,850 (100%)	4,332	283	56,660	8,689	-0.001	0.007
Clients that had IBJ as a Top5 lender as of FY1998	4,611 (79%)	3,941	243	49,051	7,555	-0.001	0.007
Clients that had IBJ as a Top3 lender as of FY1998	2,957 (51%)	4,334	274	40,205	7,020	-0.000	0.007
Clients that had IBJ as a Top1 lender as of FY1998	855 (15%)	5,545	400	49,756	7,970	-0.008	0.006

Notes 1). The "client" of the banks is identified if a company reported that each bank was one of the lenders as of FY1998.

2). When the data of three consecutive fiscal years was not available, we took average of one or two fiscal years.

3). The sample excludes all financial institutions and gas & electric power companies.

Source: TSR CD-EYEs

Table 4: Clients of LTCB, NCB and IBJ as of 1998 by industry

	LTCB clients as of 1998		NCB clients as of 1998		Clients having both of LTCB and NCB as major lenders as of 1998		IBJ clients as of 1998	
	Number of clients	(% of total)	Number of clients	(% of total)	Number of clients	(% of total)	Number of clients	(% of total)
All industries	3,169	(100.0%)	1,503	(100.0%)	426	(100.0%)	5,850	(100.0%)
Manufacturers	1,029	(32.4%)	472	(31.4%)	111	(26.0%)	2,274	(38.8%)
Agriculture	8	(0.2%)	3	(0.1%)	1	(0.2%)	5	(0.0%)
Fishery	4	(0.1%)	3	(0.1%)	2	(0.4%)	4	(0.0%)
Mining	25	(0.7%)	11	(0.7%)	5	(1.1%)	52	(0.8%)
Construction	172	(5.4%)	100	(6.6%)	22	(5.1%)	323	(5.5%)
Transportation &Telecommunication	304	(9.5%)	105	(6.9%)	40	(9.3%)	572	(9.7%)
Wholesale&Retail	722	(22.7%)	253	(16.8%)	50	(11.7%)	1,295	(22.1%)
Real Estate	297	(9.3%)	228	(15.1%)	74	(17.3%)	390	(6.6%)
Service	608	(19.1%)	328	(21.8%)	121	(28.4%)	935	(15.9%)

Notes 1). The "client" of the banks is identified if a company reported that each bank was one of the lenders as of FY1998.

2). The sample excludes all financial institutions and gas & electric power companies.

3). When the company belongs to multiple industries, we chose the industry that appeared first in the list.

Source: TSR CD-EYEs

Table 5: Summary for bankrupt clients borrowing from LTCB or NCB

1. The number of the bankrupt companies

	FY1999	FY2000		FY2001		FY2002		FY2003		FY2004		Total (Nov.-99 to Mar-05)
	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	
LTCB clients	13	47	27	16	36	24	14	28	9	9	3	226
(Clients having LTCB as a Top5 lender)	(12)	(46)	(22)	(14)	(30)	(15)	(10)	(19)	(8)	(8)	(2)	(186)
NCB clients	6	12	13	6	19	12	15	23	14	10	2	132
(Clients having NCB as a Top5 lender)	(5)	(12)	(6)	(5)	(14)	(9)	(11)	(19)	(14)	(10)	(1)	(106)

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

	FY1999	FY2000		FY2001		FY2002		FY2003		FY2004		Total (Nov.-99 to Mar-05)
	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	First half	Second half	
LTCB clients	210	3,694	1,368	341	1,429	501	196	334	117	255	26	8,476
(Clients having LTCB as a Top5 lender)	(202)	(3,686)	(1,276)	(264)	(1,397)	(286)	(158)	(246)	(99)	(241)	(23)	(7,882)
NCB clients	58	668	318	216	1,097	559	688	792	379	249	99	5,129
(Clients having NCB as a Top5 lender)	(48)	(668)	(177)	(202)	(589)	(227)	(261)	(746)	(379)	(249)	(97)	(3,647)

Notes 1). 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.

2). The client of the two failed banks is identified if each bank was one of the major lenders as of FY1998.

3). The sample excludes all financial institutions and gas & electric power companies.

4). The LTCB failed in October 1998 and the new LTCB started its operation in March 2000.

5). The NCB failed in December 1998 and the new NCB started its operation in September 2000.

Source: Tokyo Shoko Research (TSR)

Table 6: Status of LTCB and NCB clients as of 2004

1. Clients having LTCB as a Top5 lender

	Number of clients (percentage of total clients)
Clients that had LTCB as a Top5 lender as of 1998	2,259 (100%)
Clients that have Shinsei as a major lender as of 2004	582 (26%)
Clients that have no lending relationship with Shinsei as of 2004	1,138 (50%)
Clients merged with other companies as of 2004	350 (15%)
Bankrupt clients as of 2004	186 (8%)

2. Clients having NCB as a Top5 lender

	Number of clients (percentage of total clients)
Clients that had NCB as a Top5 lender as of 1998	1,040 (100%)
Clients that have Aozora as a major lender as of 2004	386 (37%)
Clients that have no lending relationship with Aozora as of 2004	363 (35%)
Clients merged with other companies as of 2004	184 (18%)
Bankrupt clients as of 2004	107 (10%)

Source: TSR CD-EYEs and bankrupt companies' data by TSR

Table 7-1: The impacts on profitability of all clients

Sample: All non-financial clients borrowing from the IBJ, LTCB or NCB in 1998
Dependent Variable: Before-tax profit / Sales (average between FY2001 and FY2003)

	the first sample		the second sample	
	Clients of LTCB, NCB or IBJ as a TOP10 lender		Clients of LTCB, NCB or IBJ as a TOP5 lender	
Constant Term	0.001 (0.906)	0.003 (1.186)	0.001 (0.723)	0.002 (0.914)
Before-tax Profit / Sales (average between FY1996 and FY1998)	0.260*** (17.333)	0.260*** (17.309)	0.289*** (15.848)	0.289*** (15.847)
Growth of Sales (from average FY1996-98 to FY2003)	0.001* (1.724)	0.001* (1.808)	0.000 (1.410)	0.000 (1.484)
$LTCB_{i1}$	0.010* (1.801)	0.010* (1.826)	0.009 (1.557)	0.010 (1.613)
$LTCB_{i2}$	0.001 (0.420)	0.002 (0.477)	0.001 (0.298)	0.001 (0.383)
NCB_{i1}	0.000 (0.134)	0.001 (0.477)	0.000 (0.074)	0.001 (0.234)
NCB_{i2}	-0.032*** (-4.317)	-0.030*** (-4.044)	-0.032*** (-3.988)	-0.030*** (-3.710)
Industry Dummies	No	Yes	No	Yes
Number of Observations	6,006	6,006	4,601	4,601

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). The sample firms are all non-financial clients borrowiing from the IBJ, LTCB or NCB as of FY1998 excluding gas & electric power companies. Two firms with very high befre-tax profit / sales ratio (over 1.5) are eliminated. We also restrict our sample to clients having complete financial data of three consecutive fiscal years from FY2001 to FY2003.

Table 7-2: The impacts on profitability of large-size clients

Sample: Non-financial large-size clients borrowing from the IBJ, LTCB or NCB in 1998
Dependent Variable: Before-tax profit / Sales (average between FY2001 and FY2003)

	the first sample		the second sample	
	Clients of LTCB, NCB or IBJ as a TOP10 lender		Clients of LTCB, NCB or IBJ as a TOP5 lender	
Constant Term	0.000 (0.227)	0.001 (0.486)	-0.000 (-0.077)	0.000 (0.278)
Before-tax Profit / Sales (average between FY1996 and FY1998)	0.206*** (14.325)	0.205*** (14.204)	0.239*** (13.519)	0.237*** (13.381)
Growth of Sales (from average FY1996-98 to FY2003)	0.000 (1.505)	0.000 (1.562)	0.000 (1.227)	0.000 (1.299)
$LTCB_{i1}$	0.014** (2.323)	0.013** (2.220)	0.014** (2.111)	0.014** (2.089)
$LTCB_{i2}$	0.004 (0.963)	0.004 (0.827)	0.005 (0.897)	0.004 (0.830)
NCB_{i1}	-0.006 (-0.753)	-0.006 (-0.825)	-0.005 (-0.645)	-0.005 (-0.654)
NCB_{i2}	-0.015 (-1.639)	-0.014 (-1.585)	-0.014 (-1.416)	-0.013 (-1.287)
Industry Dummies	No	Yes	No	Yes
Number of Observations	4,050	4,050	3,034	3,034

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). The sample firms are all non-financial clients borrowiing from the IBJ, LTCB or NCB as of FY1998 excluding gas & electric power companies. Two firms with very high befre-tax profit / sales ratio (over 1.5) are eliminated. We also restrict our sample to clients having complete financial data of three consecutive fiscal years from FY2001 to FY2003.

Table 7-3: The impacts on profitability of small-size clients

Sample: Non-financial small-size clients borrowing from the IBJ, LTCB or NCB in 1998
Dependent Variable: Before-tax profit / Sales (average between FY2001 and FY2003)

	the first sample		the second sample	
	Clients of LTCB, NCB or IBJ as a TOP10 lender		Clients of LTCB, NCB or IBJ as a TOP5 lender	
Constant Term	-0.001 (-0.454)	0.001 (0.308)	0.000 (0.052)	0.002 (0.342)
Before-tax Profit / Sales (average between FY1996 and FY1998)	0.745*** (13.596)	0.776*** (14.147)	0.704*** (11.028)	0.733*** (11.421)
Growth of Sales (from average FY1996-98 to FY2003)	0.001 (0.336)	0.002 (0.757)	0.001 (0.413)	0.003 (0.800)
$LTCB_{i1}$	0.000 (0.021)	0.002 (0.235)	-0.000 (-0.067)	0.001 (0.140)
$LTCB_{i2}$	-0.001 (-0.173)	0.000 (0.017)	-0.002 (-0.332)	-0.001 (-0.130)
NCB_{i1}	0.007 (0.558)	0.011 (0.903)	0.006 (0.453)	0.010 (0.754)
NCB_{i2}	-0.056*** (-4.502)	-0.052*** (-4.139)	-0.058*** (-4.242)	-0.053*** (-3.890)
Industry Dummies	No	Yes	No	Yes
Number of Observations	1,956	1,956	1,567	1,567

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). The sample firms are all non-financial clients borrowiing from the IBJ, LTCB or NCB as of FY1998 excluding gas & electric power companies. We also restrict our sample to clients having complete financial data of three consecutive fiscal years from FY2001 to FY2003.

Table 7-4: Summary of the Wald tests for coefficient restrictions

Sample	Null Hyopothesis		
	$\gamma_1 = \gamma_2$	$\gamma_1 = \delta_1$	$\delta_1 = \delta_2$
the first sample for large-size clients	1.638 (0.200)	3.825* (0.050)	0.465 (0.495)
the first sample for small-size clients	0.040 (0.840)	0.246 (0.619)	13.492*** (0.000)

Note 1). Each column reports the F-statisitics and p-values (within parentheses) for the Wald test under each null hypothesis. The asterisk, ***, **, or *, implies that the Wald test statistic rejects the null hypothesis at 1%, 5%, or 10% level, respectively.

Note 2). The results reported in the table do not depend on choice of the sample (the first or second sample) and choice of the specification (with or without industry dummies).