Share Repurchase Behavior of Japanese Banks

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GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

KOBE UNIVERSITY

ROKKO KOBE JAPAN

Discussion Paper Series

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May, 2006

Abstract

According to Article 210 of the Commercial Law, a bank (or a firm) with an intention of repurchasing shares has to make two decisions at the board of directors. The one is the decision about whether a bank has a tendency of repurchasing shares in the future or not and then about how many shares she repurchase if she does so. The other is the decision about how many shares she repurchases shares actually in the authorization period. In our paper we show the empirical evidence that non-performing loans and (or) the capital to asset ratio have a crucial influence on two decisions in the Japanese banking industry.

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1. Introduction

Though Japanese commercial law had banned domestic firms from repurchasing their own shares until October 1994, the revision of the commercial law made it possible for them to buy back and cancel their outstanding shares in order to distribute earnings to shareholders. As, however, there were severe obstacles which prevent them from utilizing share repurchases as a payout policy, the commercial law was more revised at frequent intervals and the Special Case Law of share repurchases was also introduced.[2] As a result, share repurchases have becoming an important method of the payout policy for corporations in Japan similar to U.S.[3]

Since October in 2001, firms with an intention of repurchasing shares have to undergo the following process at the board of directors and the shareholders' meeting. In the first place, a firm has to initiate a resolution on share repurchases at the beginning of the fiscal year. The target yen amount of a repurchase program, the target number of shares, the kind of shares, and so on are stipulated in the initiated resolution, which must be approved in the shareholder meeting. Secondly, she can be free to decide to repurchase its own shares on the ground of the approved resolution. There, thus, are two decisions about share repurchases; a planning decision and an execution decision. It,

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2 In Appendix A, we illustrate the regulatory and institutional background of share repurchases in Japan.

3 See, for example, Vermaelen (1981), Barclay and Smith (1988), Bagwell and Shoven (1989), Wansley and Sarkar (1989), Comment and Jarrell (1991), Ikenberry, Lakonishok and Vermaelen (1995), Cudd, Duggal and Sarkar (1996) Liu and Ziebart (1997), Grinblatt and Titman (1998), and Grullon and Michaely (2002). For example, Grullon and Michaely (2002) report that, over the past 20 years, stock repurchase expenditures grew at a much higher rate than cash dividends. In Japan, 48% of all firms which have been listed on the First Section of the Tokyo Stock Exchange made share repurchase announcements in the period from October, 2001 to December, 2002 (See Hatakeda (2005)).

therefore, is interesting for us to examine what factors affect two decisions on share repurchases.

This revision in 2001 was also drastic in a sense that it has made it possible for firm's managers not only to buy back their own shares without declaring the purposes but also to hold repurchased shares without canceling or reselling them at once. It seems that this revision enhances the availability of repurchasing shares. Indeed, according to aggregate data from IN Information System Ltd, the number of the repurchase announcements increased significantly from 485 over four years 1997 - 2000 to 1361 in two years of 2001 - 2002. In addition, the total number of shares which have been inscrolled in the repurchase programs in 2001 and 2002 increases 2.5 times as large as the total amount over the years of 1997 - 2000.

The purpose of our paper is to manifest what factors have a crucial influence on the planning decision and the execution decision about share repurchases in Japanese banking industry. As we have mentioned before, it is thought that the revision of the Commercial Low in 2001 have a different impact on a share repurchase behavior from before. We, therefore, focus on the repurchase behavior since October 2001 in order to isolate the structural effect due to the revision of the Commercial Law.

The distinctive feature of our paper is to shed a light on the repurchase behavior in the Japanese banking industry. The increased prominence of share repurchases in the banking industry mirrors the growth of share repurchases by non-financial firms, which has been documented by a number of studies (see, for example, Zang (2002), Hatakeda and Isagawa (2004) in Japan), so one question that arises is whether analysis of share repurchases by financial firms—in particular, banks—would offer any further insights or not. At the same time, the circumstance in

which banks operate has changed drastically in this decade. Until the early 1990s the Japanese financial system was often mentioned as having typical bank-based system in the contrast with the market-based systems in the U.S. The Japanese government was also instrumental in the development of the main bank system. Japanese banks had enjoyed monopolistic rent in a bank-based financial system until the early of 1990s (i.e. main bank system, the convoy system between banks, cross share holdings). Banks, however, have experienced the 1990s' economic stagnation and the drastic change into a market-based financial system.[4] Bank's rent has been extinguished by a huge of non-performing loans and by cutthroat competition among financial intermediations. Furthermore, the decrease in Japanese bank's latent capital gains, which is called as Fukumi Eki, has caused a lot of damage to bank's equities for this decade, so that banks suffered from the low capital asset ratio.[5][6] Accordingly, it is interesting to examine whether or not non-performing loans and bank's equities affect her decisions regarding the target for share repurchases and its execution.

The remainder of our paper is organized as follows. In section 2, we discuss the data set used in our study and present the descriptive statistics. In section 3 and 4, we

[4] Large firms that had ever had a close relationship with banks changed from bank financing to capital-market financing. It is supposed that A great decline in bank's share prices makes banks reduce the share of the bank-shareholding and the number of board members accepted from banks. According to Hoshi and Kashyap (2001), in the period between 1975 and 1997, the average bank-borrowing to sales ratio declined from 35 % to 22 %, the average ratio of firms for which a bank is the largest equity holder declined from 13 % to 9 %, and the average ratio of firms with any bankers on their Boards declined from 55 % to 51 %. As a result, Japanese banks could not help but increase the share of assets allocated to lending to small and medium firms.

[5] In 1998-1999 and 2001 the Japanese economy has experienced the most serious recessions. Standard & Poor's Rating Service reports the average rating have deteriorated by BBB since 1998, compared to AA minus in 1990.

[6] Latent capital gains are defined as the difference between the low book value and the market value of shares which have been held by banks. The Japanese banks traditionally have held a large amount of stocks of other companies as a part of long-term business relationship, keiretsu.

estimate our models that relate various factors to bank's decisions regarding the target for repurchase shares and regarding its execution, and then discuss our results obtained, respectively. Finally, in section 5, we contain summary and conclusions.

2. Data and Univariate Analysis of Repurchases

Using the *Nikkei Needs Financial Quest*, we extract all the commercial banks that appear on the files in the fiscal years of 2000-2002. Our sample consists of 95 banks that were traded in the 1st and 2nd Section of the Tokyo, Osaka, Fukuoka, Nagoya Stock Exchange, and over the counter market (OTC) in the periods from April 1, 2000 to March 31, 2003. They are composed of City banks (5 banks) and Regional banks (90 banks).[7] We delete commercial banks with missing or inconsistent data and those that experienced large mergers and acquisitions. In Japan, the removal of a ban on financial holding companies in March 1998 led to large mergers and acquisitions in City banks and some of regional banks by March 2002. Consequently, our sample ultimately consists of 85 Regional banks without a financial holding company structure.

Table 1 reports summary statistics in the fiscal years of 2000-2002 for the full sample and for the two subsamples of Japanese banks: Total, Repurchase Group[RG],

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7 City banks have now adopted a financial holding company structure and have been extending their business to the various areas. Although they primarily have played a role of the suppliers of short-term funds to large corporations, they have recently begun to focus on developing the longer-term end of their business. Additionally, they have been forced to cultivate clients from amongst the smaller corporate fry and from the personal sector. The top four city banks, by assets size, are some of the largest banks in the world. Regional banks are smaller in scale than City banks, and usually confine their operations to the principal cities of the prefectures in which their head offices are located. Accordingly, their local ties are strong, with the bulk of their lending going to small and medium-sized companies in the locality.

and Non-Repurchase Group[**NGR**]. Here, **RG** consists of 45 banks with an intention of repurchasing shares. On the other hand, **NRG** consists of 40 banks with no intention.[8]

On average, banks with a large asset size ($SIZE$), current low-profitability (ROA) and stable investment opportunities (M/B) tend to repurchase their own shares. Additionally, banks with a low nonperforming loan ratio (NPL/L)[9], a low loan ratio for the small and medium firms ($SMALL$), and a high capital-asset ratio (ECR[10])

[8] According to Article 210 of the Commercial Law, a bank with an intention of repurchasing its own shares has to pass through the following steps. First of all, the board of directors decides to initiate a repurchase program at the beginning of the fiscal year. And then the board sends a notice to the stock change and makes a public announcement of the repurchase plan through mass media (TV, newspapers, radio, and so on) without delay. Secondly, the proposed resolution to repurchase shares has to be approved at shareholder meeting. Until the next year's shareholders meeting, the bank can be free to carry out share repurchases based on the approved resolution.

[9] There are three measures of non-performing loans (NPL/L) in Japan. The first measure is risk management loans, which is published by each bank on its financial statement. The second is self-classified loans, which is based on the classification of loans that the Financial Supervisory Agency uses in bank examinations. The third is classified loans by the Financial Reconstruction Commission. Though risk management loans have been made available beginning with the year ended March 1993, its definition has changed by March 1999. Although the definition by the second measure is substantially broader than that of the first and third measures, a majority of non-performing loans defined by the second measure are considered recoverable. The third measure is slightly broader than that of risk management loans (For further details of three definitions of non-performing loans, see Hoshi and Kashyap (1999, 2001)). We use risk management loans which are published by each bank on its financial statement as non-performing loans. Risk management loans consist of loans to failed enterprises, loans on which payments are suspended for more than three months, and loans with relaxed conditions (restructured). As of March 2002, risk management loans totaled just over ¥42 trillion, or 7.9% of Real GDP.

[10] Unlike other industries, in order to support safe and sound banking system, the banking industry is required to keep a flat minimum percent of capital against risk-weighted assets, which are the sum of the total weighted assets where weights are set larger for the riskier assets. (See Hall (1993)). In Japan, there are two types of banks: international and domestic banks. They are held to different standards respectively. The Basel Accord requires internationally active banks to maintain a capital to risk-weighted asset ratio of at least 8%. On the other hand, Japanese regulators allowed banks with purely domestic business the option of maintaining the capital ratio of at least 4%. We defined ECR as the risk-based capital ratio reported in bank's financial statement less the international standard (8%) or the domestic standard (4%).

do so. Finally the percent of equity held by 10 largest shareholders (*SHARE*) in **RG** is smaller than that in **NRG**. However, its volatility in **NRG** is relatively larger than that in **RG**.

Table 1 also reports two repurchase target ratios in **RG**; *TAR* [*Number*] and *TAR* [*Yen*] [11], and two execution ratios; *EXR* [*Number*] and *EXR* [*Yen*] [12] in the fiscal years of 2002. Banks in **RG** set up the mean target ratio to 4% and execute only 25% of the target. Both ratios are lower than those in firms excluding from financial intermediaries. For example, Hatakeda (2005) reported that the mean target ratio is 6 % and that the mean execution ratio is 40%.[13] It is considered that this low execution ratio is led to by severe environments which surround Japanese banks, such as the deterioration of share prices and land prices, a large number of accumulated non-performing loans, and the low capital asset ratio due to the economic stagnation, and then disintermediation, which large firms in Japan tend to finance funds by issuing equities rather than bank loans.

Before discussing what factors affect bank's decisions regarding share repurchases, we should examine the possibility that banks make use of cash dividends as substitutes for share repurchases in order to return banks' own profits into their

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11 TAR[Number] represents the ratio of the number of the targeted shares to the total number of outstanding shares. TAR[Yen]represents the ratio of the yen value of the targeted shares to the end-of-period value of the outstanding shares.

12 EXR[number] is expressed as a ratio of the number of shares executed to repurchase against the number of shares targeted. EXR[Yen] is expressed as a ratio of the market value of shares executed to repurchase against the yen value of the target shares .

13 Stephens and Weisbach (1998) reported the mean target ratio was 7% and that the mean execution ratio was 54% for open-market repurchase programs in US Market for the period from 1981 to 1990. In particular, the execution ratio in Japan is lower than those in U.S. Thus, although Japanese firms made a large number of repurchase announcements, they could repurchase a few shares actually. It seems that this low execution ratio is due to economic stagnation in the periods from 2001 to 2003.

shareholders. If cash dividends are substitutes for share repurchases in the Japanese banking industry, banks which pay out less cash dividends or omit cash dividends might attempt to set up the high target for share repurchases and execute to repurchase more shares.[14]

Table 2 is descriptive statistics concerning cash dividends and share repurchases across two groups in the fiscal years of 2000-2002. From Panel (1) and Panel (2), we find no evidence that share repurchases are substitutes for cash dividends.[15] Although dividend-paying banks both in RG and in NRG make the same payments per a unit share, banks which pay cash dividends tend to repurchase their own shares in order to distribute more profit to shareholders. In Panel (3), furthermore, we can obtain the evidence that there exists a significant and positive correlation between actually repurchased amounts and dividend payments.

In sum, our evidence suggests that there is no substitution between share repurchases and dividends. It, if anything, seems that banks make use of share repurchases as a complementary method of paying out profits available for distribution.

3. Decision Regarding the Repurchase Program

According to Article 210 of the Commercial Law, a bank (or a firm) with an intention of repurchasing shares has to make two decisions at the board of directors. The one is the decision about whether a bank has a tendency of repurchasing shares in

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14 Empirical results for this substitution hypothesis are mixed. For example, Bagwell and Shoven (1989), Grullon and Michaely (2002) reported the evidence that dividends and repurchases are substitute in U.S. On the other hand, Jagannathan et al. (2000), DeAngelo et al (2000), Fama and French (2001) reported the opposite evidence that there was no substitution in U.S.

15 There is a statistically significant difference in the mean (median) of the ratios across two groups

the future or not and then about how many shares she repurchase if she does so. The other is the decision about how many shares she repurchases shares actually in the authorization period. In this section we focus on the former decision. And then we discuss the latter decision in section 4.

We estimate several kinds of regression models which relate bank's individual-specific characteristics to the first decision on its repurchase plan. We construct the repurchase target ratios; TAR [$Number$] and TAR [Yen] as a observed dependent variable y_i. TAR [$Number$] represents the ratio of the number of the targeted shares to the total number of outstanding shares as of March 31, 2002. TAR [Yen] represents the ratio of the yen value of the targeted shares to the market value of the outstanding shares as of March 31, 2002. These are censored variables of which the value are larger than zero if the decision regarding the share repurchase program is made by the board of directors, zero otherwise. Therefore, our model is

$$y_i^* = \beta' \mathbf{x}_i + u_i, \tag{1}$$

$$\begin{cases} \text{if } y_i^* > 0, \ y_i = TAR_i[Number] \ \text{ or } \ TAR_i[Yen] \\ \\ \text{if } y_i^* \leq 0, \ y_i = 0. \end{cases}$$

where y_i^* denotes the latent variable, $\mathbf{x}_i$ denotes a vector of explanatory variables likely to affect the decision regarding the target for repurchase shares, and u_i denotes the error term which follows a normal distribution with mean zero and variance σ^2.

Following to a large number of literature about firm's payout policy[16], we employ the following variables as explanatory variables; a constant term, the log of total assets ($\ln(SIZE)$), the current profitability (ROA), and the market-to-book ratio (M/B). In our paper, M/B is served as a proxy for growth opportunities.

Unlike other types of industries, the bank industry is subject to the influence of some regulations and obligations which require them to carry out sound management. In order to examine these influences, we append two variables to our model. The one is the excess capital to asset ratio (ECR), which is calculated as the risk-based capital ratio reported in bank's financial statement less the required ratio which the bank has to keep (4% or 8%).[17] The other is the ratio of non-performing loans to total loans and bills discounted (NPL/L). Our prediction is that banks with low ECR and high NPL/L can not help resigning to pay back shares or setting the lower target ratio even if they have an intention with repurchases.

All of explanatory variables which we utilize are the end-of-previous-period values, since the board of directors makes a decision on the repurchase plan at the beginning of the fiscal year. Therefore, all the explanatory variables are pre-determined. We estimate the parameters β and σ by the maximum likelihood (ML) method.[18] [19]

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16 See, for example, Stephens and Weisbach(1998), Fama and French (2001), DeAngelo, et al.(2006).

17 See footnote 10.

18 The likelihood function for this model (1) is given by

$$L(\beta, \sigma \mid y_i, x_i) = \prod_{y_i = y_i^*} \frac{1}{\sigma} \phi\left(\frac{y_i - \beta' x}{\sigma}\right) \prod_{y_i = 0} \Phi\left(\frac{-\beta' x}{\sigma}\right).$$

where $\phi(\cdot)$ and $\Phi(\cdot)$ are the density function and the distribution function of the standard normal, respectively. We estimate the parameters β and σ by maximizing the log-likelihood function. For details of the censored regression model, see Wooldridge (2002).

19 We, of course, include the constant term in estimating our models.

In **Table 3** we present estimation results for the models in which either $TAR\,[Number]$ or $TAR\,[Yen]$ is used as the dependent variable. In Panel (1) and Panel (3), we present the results for our benchmark model, which the explanatory variables are a constant term, $\ln(SIZE)$, ROA, and M/B. From our result that the coefficients on $\ln(SIZE)$ and M/B is significant at the 1% level, we find the evidence that small banks with a low investment (lending) opportunity are likely to set up the higher target for repurchasing their own shares.

In Panel (2) and Panel (4) we present the results for the augmented model with ECR and NPL/L as additional explanatory variables. We find that the coefficient on NPL/L is negative and significant in both columns at the 1% level, although the coefficient on ECR is positive but insignificant in both columns. Our result suggests that an increase in non-performing loans reduces bank's available funds for repurchases because she has to increase the provisions for possible loans losses, so that banks with large nonperforming loans can not help resigning to pay back shares or setting the lower target for repurchase.

Since the early 1990s, banks have experienced a decrease in cross-share holdings, with a process of the deregulation of Japanese capital market.[20] So, some banks may attempt to make use of share repurchases in order to maintain corporate governance desirable for them. To discuss this possibility, we re-estimate the model to which we adds the change of the ratio of outstanding shares owned by the largest shareholders ($\varDelta SHARE$) as an explanatory variable.

Table 4 provides the results for $TAR\,[Number]$ and for $TAR\,[Yen]$ as a dependent variable, respectively. The coefficients on $\ln(SIZE)$, ROA, M/B, ECR, and

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20 See Okabe (2002).

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NPL / L are almost similar to the pervious results. What should be noted is that the coefficient on $\Delta SHARE$ is insignificant in the case of both $TAR\,[Number]$ and $TAR\,[Yen]$. These results indicate that, even if banks experience the decline of outstanding shares owned by large shareholders, they do not attempt to set up the high target for share repurchases in order to remain the capital structure unchanged.

4. Decision Regarding Repurchase Execution

Banks which have set the repurchase program do not necessarily have to execute repurchases until the set target. Indeed, some banks execute no repurchases at all. In this section, we discuss what factors affect a bank's decision regarding the execution of share repurchases.

The estimation procedure is almost similar to that of section 3, but is different in three respects. The first is that we use the execution ratio in place of the target ratio as a dependent variable. We utilize the financial statements in 2003 to calculate two execution ratios; $EXR\,[Number]$ and $EXR\,[Yen]$, which represent the degree of actual share repurchases. The former is defined as the number of the repurchased shares and the latter is its yen value.[21] These variables are also censored variables, whose the value are lager than zero if an execution decision is made, zero otherwise.[22]

Secondly, when a bank repurchases its own shares actually, the board of

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21 The former is expressed as a ratio of the number of shares executed to repurchase against the number of shares targeted. The latter is expressed as a ratio of the market value of shares executed to repurchase against the yen value of the target shares .

22 In our sample, max value of the execution ratio is less than 100% irrespective of the execution ratio. Additionally, 19 of 40 banks which have set the repurchase program did not execute share repurchases after all.

directors is likely to carry out timely with watching the trend of the share price performance. To allow for this factor, we use the cumulative abnormal return from the day after the shareholder's meeting to the day before the execution ($LCAR$ [23]) in place of the proxy for the profitability to our model.[24] Some banks conduct the execution of repurchases in twice or more times. In calculating $LCAR$, we focus only on the first time of the repurchase execution in order to avoid the history effect.

The third is that we use the explanatory variables are based on a bank's financial statements in 2003, because banks carry share repurchases into execution depending on the fundamental and financial situations that they face at present. Therefore, in order to allow for the endogeneity of the explanatory variables M/B, ECR, ROA, and $\Delta SHARE$, we estimate the Tobit model with endogenous variables[25] by the maximum likelihood estimation. In estimating our model, we utilize the constant term, $\ln(SIZE)$, $LCAR$ and the one-lagged and two-lagged values of M/B, ECR, and $SHARE$ as instrumental variables.

In **Table 5** we present our estimation results for $EXR\,[Number]$ and $EXR\,[Yen]$ as a dependent variable. Although the coefficient of $\ln(SIZE)$ and M/B is not significant in both models, the coefficient of $LCAR$ is negative and significant at the 1% level in both models. These results indicate that a bank attempt to repurchase her shares actually, when her share price declines.

The coefficients of ECR are positive and significant at the 5% level for the

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23 If a bank has not executed repurchase its shares in the end, $LCAR$ is defined as the cumulative abnormal return from the day after the shareholder's meeting to the day before the next shareholder's meeting.

24 US's current disclosure standards, as regulated by the FASB and the Securities and Exchange Commission (SEC), impose an obligation on firms to disclose the number of shares repurchased at quarter-end. On the other hand, in Japan Securities and Exchange Surveillance Commission (SESC) required firms to disclose repurchase detail. In particular, we can know the trading dates.

25 See Appendix B.

case of dependent variable *EXR* [*Number*] and at the 10% level for the case of dependent variable *EXR* [*Yen*]. These results indicate that banks have a positive incentive to make a decision to execute share repurchases when they have the sufficient volume of their own capital. Furthermore, NPL/L are also positive and significant at the 5% level in both models. Thus, the volume of non-performing loans has large influence on the repurchase execution as well as its plan.

In **Table 6** we present our estimation results in order to examine the effect of the share ratio by the largest shareholders (*ΔSHARE*) on the decision regarding the repurchase execution. The coefficients of *ΔSHARE* in both models are insignificant, suggesting that the decline of outstanding shares owned by the largest shareholders have less effect on the execution of share repurchases. It seems that banks do not make use of share repurchases as countermeasures against the cancellation of the cross-shareholdings.

5. Conclusions

In our paper, we examined the factors which affect a bank's decision regarding the repurchasing program and regarding the execution of repurchases. According to our results, the degree of non-performing loans has a negative effect on both decisions. Furthermore, the degree of the capital asset ratio has a positive effect on the decision regarding the execution of repurchases.

As our additional finding, we examine the possibility that, when banks experienced the decline of cross-shareholdings, they tend to set up the high target for share repurchases and execute repurchases actually in order to maintain the optimal

capital structure. However, we could not find the evidence that this possibility is supported.

Finally, we should notice that our empirical results may reflect the repurchase behavior of banks without a financial holding company structure. Large mergers and acquisitions such as a financial holding company structure may have an effect on the bank's share repurchase behavior. These issues are topics of future research.

Appendix A: Stock Repurchases of Japanese Firms

Prior to 1994, Japanese firms had been in principle prohibited to buy back their outstanding shares. The revision of the Commercial Law (Article 212-2) in October, 1994 has enabled firms to buy back their outstanding shares on the basis of the resolution which had to be approved at a regular shareholder's meeting. This resolution has been effective until the next shareholder's meeting. The funds used for repurchases have to come from the profit available for dividends. However, under Japanese accounting rules of those days, a 'presumed' dividend tax was imposed in buying back their standing shares. In fact, share repurchases were effectively nonexistent until November, 1995, when the presumed dividends for share repurchases have been frozen.

In addition to Article 212-2 of the Commercial Law, the Japanese government enforced Article 3-1 of the Special Case Law in June, 1997, Article 3-2 in March, 1998, and Article 3-3 in March, 1999. Under Article 3-1, the board of directors was allowed to execute share repurchases without approval at a regular shareholders' meeting once the agreement on repurchases was provided in the articles. Article 3-2 and 3-3 allowed firms to use capital reserves and latent capital gains on lands for business to repurchase shares.

In contrast to Law Article 212-2 of the Commercial Law, Article 3 of the Special Case Law had the advantage that the board of directors was allowed to elastically execute share repurchases. It, however, had the disadvantage that the funds used for repurchases and the number of repurchased shares were restricted. A large number of firms which executed share repurchases were based on Article 3 of the Special Case for the period from 1999 to 2001.

Furthermore, the Commercial Law revised in October, 2001, so that the treasury shares were introduced and the Special Case Law was dropped. Not only the

2001's revision of the Commercial Law had the advantage of the Special Case Law, under which firms elastically execute share repurchases, but also it enabled them to hold shares repurchased for the period. This implies that firms do not have to dispose repurchased shares immediately, indicating that they also have the opportunity to wait for their shares to rise before reselling their shares.

Appendix B: The estimation of the Tobit model with endogenous variables

In estimating the Tobit model with endogenous variables, we formulate the following simultaneous model:

$$y_i^* = \gamma' x_i^1 + \delta' x_i^2 + u_i$$

$$x_i^2 = \pi^{1\prime} x_i^1 + \pi^{2\prime} z_i + v_i$$

where y_i^* denotes the latent variable, x_i^1 is a vector of predetermined variables, x_i^2 is a vector of endogenous variables, and z_i is a vector of exogenous (instrumental) variables. (u_i, v_i) is normally distributed with mean zero and variance,

$$\Sigma = \begin{bmatrix} \sigma^2 & \rho \\ \rho & \tau^2 \end{bmatrix}.$$

In our model, x^1 denotes a vector of one, $\ln(SIZE)$ and $LCAR$, x^2 denotes a vector of M/B, ECR, NPL/L, and $\Delta SHARE$, and z denotes a vector of the first and second lagged variables of M/B, ECR, NPL/L, and $SHARE$. The observed dependent variable $y_i = EXR\ [Number]$ or $y_i = EXR\ [Yen]$ is the value if $y_i^* > 0$, $y_i = 0$, otherwise. The likelihood function for this model is given by

$$L(\gamma, \delta, \pi^1, \pi^2, \sigma^2, \tau^2, \rho \mid y_i, x_i) = \prod \phi\left(\frac{y_i - \pi^{1\prime} x_i^1 - \pi^{2\prime} z_i}{\tau} \right) \prod_{y_i = y_i^*} \frac{1}{\tau_1} \phi\left(\frac{y_i - \gamma' x_i^1 - \delta' x_i^2 - \theta v_i}{\eta} \right)$$

$$\times \prod_{y_i = 0} \Phi\left(\frac{-\gamma' x_i^1 - \delta' x_i^2 - \theta v_i}{\eta} \right)$$

where $\eta^2 = \sigma^2 - \dfrac{\rho}{\tau^2}$ and $\theta = \dfrac{\rho}{\tau^2}$. We omit the estimated results of coefficients $\pi^{1\prime}$ and

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$\pi^{2}{}'$ from Table 5 and 6 for want of space.

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Table 1. Summary of Statistics

Variables	Total			Repurchase Group [RG]			Non-Repurchase Group [NRG]		
	Mean	Median	Standard Deviations	Mean	Median	Standard Deviations	Mean	Median	Standard Deviations
SIZE (Billion Yen)	2603.35	2116.39	1929.98	3135.72	2790.94	1994.63	2004.44	1727.59	1684.99
ROA (%)	0.602	0.583	0.218	0.577	0.583	0.205	0.630	0.585	0.234
M/B (%)	99.94	100.15	1.49	99.71	100.09	1.30	100.20	100.34	1.68
NPL/L (%)	7.75	6.81	2.90	6.61	5.70	2.13	9.02	8.34	2.97
SMALL (%)	81.70	83.88	8.75	76.66	77.11	8.58	87.37	90.19	5.67
ECR (%)	4.68	4.82	1.50	5.20	5.27	1.46	4.09	4.55	1.36
SHARE (%)	28.95	26.33	10.45	26.18	24.46	4.78	32.06	29.39	13.70
TAR [Number] (%)	-	-	-	3.64	2.63	2.49	-	-	-
TAR [Yen] (%)	-	-	-	4.35	3.28	3.14	-	-	-
EXR [Number] (%)	-	-	-	26.82	14.33	31.84	-	-	-
EXR [Yen] (%)	-	-	-	22.86	13.81	26.87	-	-	-
Number of Observations		255			135			120	

Notes: SIZE is defined as the sum of the book value of debt and the market value of equity. Here, the market value of equity is defined as the product of the share price and the number of outstanding shares. The share price is the end of the fiscal year. If the price is not available for the last day of the fiscal year, the next earliest available price is used. M/B is defined as the percentage of (the sum of the book value of debt and the market value of equity)/(the sum of the book value of debt and the book value of equity). NPL is defined as the percentage of risk management loans (the sum of loans to bankrupt borrowers, non-accrual delinquent loans, loans past due for 3 months or more, and restructured loans) / total loans and bills discounted. ECR is defined as the risk-based capital to asset ratio minus the international standard (8%) or the domestic standards (4%). SHARE is defined as the percentage of outstanding shares owned by the largest shareholders. SMALL is defined as the percentage of loans for medium and small firms / total loans and bills discounted. TAR[Number] and TAR[Yen] are defined as the percentages of the announced target shares and yen value for repurchase, respectively. TAR[Number] represents the percentage of the number of shares targeted for repurchase to the total number of outstanding shares. TAR[Yen] represents the percentage of the yen value of shares targeted for repurchase to the market value of outstanding shares as of March 2002. EXR[Number] and EXR[Yen] are defined as the percentage of the actually repurchased shares and yen value up to the date of the next shareholder meeting. EXR[Number] represents the percentage of the number of actual repurchased shares to the number of the target shares. EXR[Yen] represents the percentage of the yen value of shares repurchased actually to the yen value targeted for repurchase.

Table 2. Descriptive Statistics Concerning Cash Dividends and Share Repurchases: The Period form 2000 and 2002

	Repurchase Group [RG] (N=45)	Non-Repurchase Group [NRG] (N=40)
Panel (1) Number of Banks		
(i) Dividend payments	135	91
(ii) Interim dividend payments	135	76
Either (i) or (ii)	135	92
Panel (2) Dividends(per a unit of share)		
Mean	5.30	3.38
Median	5.00	5.00
Standard Deviations	0.55	2.16
Panel (3) Correlation		
Between Executed amount and Dividend payments	0.54 ***	

Note: ***, **, and * present significant at the 1%, 5%, and 10% levels, respectively.

Table 3. Tobit Estimates Predicting the Target for Share Repurchases

The table provides estimates of the relation between the target for share repurchases and variables likely to affect the repurchase decision. Our dependent variables are TAR[Number] and TAR[Yen]. These are censored variables of which the value are larger than zero if the resolution regarding the target for share repurchases is made by the board of directors, zero otherwise. We estimate the one-tailed Tobit model truncated at 0%. As explanatory variables, we utilize the constant term, the logarithm of SIZE, which is defined as the book value of Total Assets minus Equity plus the market value of Equity, the market to book value ratio M/B, the excess capital to asset ratio ECR, which is defined as the risk-based capital ratio reported in bank's financial statement less the required capital ratio, and the ratio of non-performing loans to total loans NPL/L. Sigma denotes the standard deviation of the disturbances in the Tobit model.

Independent Variables	Dependent Variable = TAR[Number]				Dependent Variable = TAR[Yen]			
	Panel (1)		Panel (2)		Panel (3)		Panel (4)	
	Coefficients	t-ratios	Coefficients	t-ratios	Coefficients	t-ratios	Coefficients	t-ratios
ln(SIZE)	1.773	2.77 ***	1.282	2.08 **	2.213	2.83 ***	1.620	2.15 **
ROA	-0.023	-1.20	-0.015	-0.73	-0.028	-1.18	-0.017	-0.70
M/B	-0.906	-2.58 ***	-0.713	-2.01 **	-1.115	-2.60 ***	-0.867	-2.01 **
ECR			0.409	1.23			0.536	1.32
NPL			-0.559	-2.77 ***			-0.683	-2.78 ***
Sigma	3.850	8.63 ***	3.588	8.73 ***	4.695	8.66 ***	4.363	8.76 ***
Pseudo-R²	0.224		0.230		0.275		0.275	

Notes: ***, **, and * present significant at the 1%, 5%, and 10% levels, respectively. The estimate of the intercept term is omitted for want of space.

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Table 4. Tobit Estimates Predicting the Target for Share Repurchases

The table provides estimates of the relation between the target for share repurchases and variables likely to affect the repurchase decision. Our dependent variables are TAR[Number] and TAR[Yen]. These are censored variables of which the value are larger than zero if the resolution regarding the target for share repurchases is made by the board of directors, zero otherwise. We estimate the one-tailed Tobit model truncated at 0%. We append the difference of SHARE, $\triangle$SHARE, to the vector of explanatory variables.

Independent Variables	Dependent Variable = TAR[Number]			Dependent Variable = TAR[Yen]		
	Panel (1)			Panel (2)		
	Coefficients	t-ratios		Coefficients	t-ratios	
ln(SIZE)	1.386	2.20	**	1.728	2.25	**
ROA	-0.016	-0.83		-0.019	-0.79	
M/B	-0.650	-1.80	*	-0.798	-1.81	*
ECR	0.432	1.29		0.561	1.37	
NPL	-0.576	-2.89	***	-0.699	-2.86	***
$\triangle$SHARE	-0.159	-0.95		-0.165	-0.82	
Sigma	3.573	8.74	***	4.355	8.77	***
Pseudo-R^2	0.270			0.277		

Notes: ***, **, and * present significant at the 1%, 5%, and 10% levels, respectively. All equations include the intercept term.

Table 5. Tobit Estimates Predicting the Execution of Share Repurchases

This table provides estimates of the relation between the execution of share repurchases and variables likely to affect the repurchase decision. We use 45 share-repurchasing banks, which have announced their repurchase program at the shareholder's meeting in the fiscal year of 2002, to construct the two percentages of shares that firms actually repurchase; EXR[*Number*] and EXR[*Yen*]. These are censored variables of which the value are larger than zero if banks actually repurchase their own shares, zero otherwise. There are no banks of which the execution ratio reaches 100% within one year. We, therefore, estimate the one-tailed Tobit model truncated at 0%. As the explanatory variables affecting bank's execution of share repurchases, we use the constant term, LCAR, ln(SIZE), M/B, ECR, and NL/L. In the no execution group, LCAR is defined as the cumulative abnormal return from the date of the shareholder's meeting to the date when banks actually repurchased their own shares for the first time. On the other hand, in the no execution group, LCAR is defined as the cumulative abnormal return from the date of the shareholder's meeting to the date of the next shareholder's meeting. The explanatory variables M/B, ECR, and NL/L are based on a bank's financial statements in 2003. Therefore, allowing for the endogeneity of the explanatory variables M/B, ECR, and NL/L, we estimate the Tobit model with endogenous variables by maximum likelihood estimation. We utilize the constant term, LCAR, and the one-lagged and two-lagged values of ln(SIZE), M/B, ECR, NL/L, and SHARE as instrumental variables in estimating our model. Sigma denotes the standard deviation of the disturbance in the Tobit model.

Independent Variables	Dependent Variable = TAR[Number]		Dependent Variable = TAR[Yen]	
	Coefficients	t-ratios	Coefficients	t-ratios
LCAR	-1.943	-3.26 ***	-1.725	-3.51 ***
ln(SIZE)	14.351	1.54	11.592	1.52
M/B	-2.625	-0.40	-1.847	-0.34
ECR	9.404	1.85 *	8.580	2.05 **
NPL	-8.676	-2.10 **	-7.371	-2.17 **
Sigma	38.393	5.81 ***	31.468	6.61 ***
Pseudo-R²	0.224		0.238	

Notes: ***, **, and * present significant at the 1%, 5%, and 10% levels, respectively. All equations include the intercept term.

Table 6. Tobit Estimates Predicting the Execution of Share Repurchases

This table provides estimates of the relation between the execution of share repurchases and variables likely to affect the repurchase decision. We use 45 share-repurchasing banks, which have announced their repurchase program at the shareholder's meeting in the fiscal year of 2002, to construct the two percentages of shares that firms actually repurchase; EXR[*Number*] and EXR[*Yen*]. These are censored variables of which the value are larger than zero if banks actually repurchase their own shares, zero otherwise. There are no banks of which the execution ratio reaches 100% within one year. We, therefore, estimate the one-tailed Tobit model truncated at 0%. As the explanatory variables affecting bank's execution of share repurchases, we use the constant term, LCAR, ln(SIZE), M/B, ECR, NL/L, and △SHARE. In the no execution group, LCAR is defined as the cumulative abnormal return from the date of the shareholder's meeting to the date when banks actually repurchased their own shares for the first time. On the other hand, in the no execution group, LCAR is defined as the cumulative abnormal return from the date of the shareholder's meeting to the date of the next shareholder's meeting. The explanatory variables M/B, ECR, NL/L, and △SHARE are based on a bank's financial statements in 2003. Therefore, allowing for the endogeneity of the explanatory variables M/B, ECR, NL/L, and △SHARE, we estimate the Tobit model with endogenous variables by maximum likelihood estimation. We utilize the constant term, LCAR, and the one-lagged and two-lagged values of ln(SIZE), M/B, ECR, NL/L, and SHARE as instrumental variables in estimating our model. Sigma denotes the standard deviation of the disturbance in the Tobit model.

Independent Variables	Dependent Variable = TAR[Number]		Dependent Variable = TAR[Yen]	
	Coefficients	t-ratios	Coefficients	t-ratios
LCAR	-1.996	-3.13 ***	-1.788	-3.41 ***
ln(SIZE)	14.767	1.56	12.103	1.56
M/B	-2.801	-0.43	-2.042	-0.38
ECR	9.480	1.86 *	8.682	2.08 **
NPL	-8.718	-2.12 **	-7.414	-2.20 **
△SHARE	-3.051	-0.26	-3.508	-0.36
Sigma	38.166	6.58 ***	31.258	6.51 ***
Pseudo-R²	0.225		0.239	

Notes: ***, **, and * present significant at the 1%, 5%, and 10% levels, respectively. All equations include the intercept term.