Did the Japanese Stock Market appropriately

Price the Takenaka financial reform?*

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Abstract

Using event study methodology, we study how the stock market evaluates the Japanese financial reform, so-called, "Takenaka Plan". We list up several financial events that occurred in 2002 and 2003, including the announcement of the introduction of Takenaka Plan, the release of work schedule for implementing the financial reform, the release of a package of monetary policies initiated by Fukui new governor of Bank of Japan (2003, March), and failures of Resona Bank (2003, May) and Ashikaga Bank (2003, November). We find that market participants came to perceive little by little that the government appropriately implements Takenaka Plan in an attempt to improve bank governance. The credibility to the reform drastically increases in the events that occurred in 2003. The estimations on the failures of Resona and Ashikaga reveal that bank shareholders differentiate individual banks by their financial conditions that are targeted to improve bank governance. The monetary policy also played an important role.

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1. Introduction

The Japanese financial crisis almost ended in 2005, after one decade and around since its onset. Over this interval, the Japanese government continued a policy of forbearance, and it was not until the introduction of the drastic financial reform, so-called, "Takenaka Plan", that the government effectively made an effort to combat the crisis and to accelerate the disposal of non-performing loans. Takenaka Plan that was first announced in October 2002 is remarkable in that it is the first reform that attempted to restore the confidence in the Japanese banking sector by requesting strongly banks to improve bank governance. Bank governance is virtually effective through market discipline and the government supervision. Behind the introduction of Takenaka Plan is the weak bank governance. The financial authority had poor ability of supervising banks. The government has taken a policy of regulatory forbearance to avoid the financial crisis and the consequent economic stagnation. The forbearance policy allowed banks to understate the amount of non-performing loans and to engage in accounting discretions in meeting minimum capital requirements. The stock market played little disciplinary role on bank governance. Borrowing firms and financial institutions of the same corporate group held substantial amount of equities of banks.

What the government chose is not to use market discipline but to strengthen the government supervision to banks. The government, along Takenaka Plan, strongly requested banks to accelerate the disposal of non-performing loans and to improve the transparency of financial information to stop engaging in accounting discretion in meeting minimum capital requirements. However, what makes things difficult is the behavior of stock prices. If pessimistic investors react contagiously to the financial reform, it is difficult to implement the financial reform that relies on the prudential regulation of capital requirements because Japanese banks that held substantial amounts of equities were vulnerable to declines in stock prices. The necessity for the policy coordination between the government and BOJ (Bank of Japan) became an issue. In March 2003, the new governor of BOJ, Fukui, announced a package of monetary policies to accommodate Takenaka Plan, including the continuation of the ample provision of liquidity to banks and an increase in the maximum total amount of equity holdings it purchases from banks.

The purpose of this paper is to study the market evaluation of Takenaka Plan, using event

study methodology. We list up several financial events that occurred in 2002 and 2003, including the announcement of the introduction of Takenaka Plan, the release of work schedule for implementing the financial reform, the release of a package of monetary policies initiated by Fukui new governor of BOJ, and failures of Resona Bank and Ashikaga Bank. For each of the events, we examine three hypotheses. The first hypothesis is if the impact of each event on the stock market return is positive or negative, or zero toward the banking sector as a whole. The second hypothesis is if the impact on the stock market return, if it exists, is uniform across banks, regardless of differences of the financial condition of the individual banks. The third hypothesis is that if the impact reflects more than pure contagion across banks, including financial conditions of individual banks.

Specifically, we investigate if the response of each event to the stock market reflects the improvement of financial supervisory policy and bank governance. In evaluating estimation results, how market participants changed their expectation for the implementation of the financial reform over time is interesting to examine. In addition, by comparing between results before and after the monetary policy, it is valuable to evaluate the role of the policy coordination on the financial reform. The estimation for the market reaction to each individual event that occurred after the introduction of Takenaka Plan will be a first step to evaluate the financial reform and the improvement of bank governance in Japan.

Brewer[III] et al. (2003), a paper that is closely related to ours, estimate how the stock market prices financial conditions of individual banks for the failures of four commercial banks and two securities firms that occurred for the period from 1995 to 1998. Their finding reports that to some extent the stock market incorporate information on financial conditions of individual banks in prices although the ability of the Japanese stock market to price the riskiness of financial firms was recognized to have been low due to the poor transparency of bank information. The methodology and some of financial variables used in our paper are common and comparable to theirs, and the present analysis provides a base for assessing the Japanese financial supervisory policy before and after the introduction of Takenaka Plan.

A number of papers have studied the effectiveness of the Japanese financial supervisory policy using an approach of an event-study analysis. Peek and Rosengren (2001) study the

government reaction to the Japan's premium problem that occurred from 1995 to 1998, and report that the announcement by the government was not effective to the reduction of the premium, but capital injections to banks were effective.[1] Spiegel and Yamori (2003) study the stock market response to two financial regulatory reforms passed in 1998, the Financial Reconstruction Act and the Rapid Recapitalization Act, and report that shareholders of regional banks responded favorably to the legislation of these acts, while those of large banks did adversely. Spiegel and Yamori (2004) argue that market participants perceive the financial supervisory policy as a "too-big-to-fail" policy, but that the tendency to favor large banks has been diminishing over time. Yamori and Kobayashi (2007) study the effect of the nationalization of Resona Bank on the stock market, and report that as the government announces the protection of shareholders of Resona, market participants came to regard the injection of public funds for the nationalization as a too-big-to-fail policy.

This paper is organized as follows. Section 2 surveys the financial supervisory policy in Japan since 1998. Section 3 explains the methodology. Section 4 explains data. Section 5 reports the empirical results. Section 6 examines other related events. Section 7 concludes.

2. Financial Supervisory Policy in Japan

In 1997, three large financial institutions, Sanyo securities, Hokkaido Takushoku Bank, and Yamaichi securities, failed, and in 1998 the financial supervisory policy came to the turning point.[2] In July, Financial Supervisory Agency was founded as an independent agency of the fiscal authority, (which was reorganized as Financial Services Agency in June 2000). In October, two financial regulatory reforms, the Financial Reconstruction Act and the Rapid Recapitalization Act, were passed. These two acts were aimed to rule the injection of public funds to weak banks, the nationalization of failing banks, and the protection of depositors. Soon after the legislation, two major banks, Long Term Credit Bank of Japan and Nippon Credit Bank, failed and were nationalized. The arrangement toward the effective financial supervisory policy

[1] Ito and Harada(2004), since 2001, credit derivative swaps are a good indicator of Japanese bank risk.

[2] It is now commonly recognized that the government took a policy of regulatory forbearance to help weak banks and had no well functioning supervisory policy (e.g. Ito and Sasaki (2002), Shrieves and Dahl(2003), Hosono and Sakuragawa (2003), and others) .

was formally established. In March 1998 and March 1999, the government injected public funds into the banking sector in an attempt to avoid the financial crisis and the associated economic stagnation. As Figure 1 illustrates, just after the legislation of the Financial Reconstruction Act, the stock market rapidly recovers. The stock market seems to have priced the *de facto* establishment of financial supervisory policy favorably.

In January 1999, Mr. Yanagisawa was appointed as financial supervisory minister to head financial supervisory policy. He addressed that Japanese banks were recovering, and took a stance against the drastic disposal of non-performing loans and the nationalization of failing banks. In order to accelerate the disposal of non-performing loans, under the head of Minister Yanagisawa, the financial authority started to audit the amounts of non-performing loans. In the special audit conducted by the financial authority in the period from 2000 to 2001, the total amount of non-performing loans disclosed by individual banks was 34 trillions and over, while the total amount audited by the financial authority was 47 trillions and over. The discrepancy amounted to 35 percent. This observation suggests that even after the legislation of the two acts for financial reforms, financial authority had poor ability of assessing bank assets.

The government kept a policy of regulatory forbearance in managing minimum capital requirements. In 1998, deferred tax assets were allowed to be accounted for as regulatory bank capital. Accounting for deferred tax assets provides bank managers with much discretion. The estimate of deferred tax assets depends on managers' assessment of their firms' ability to generate future taxable income, which is highly subjective. In addition, the limit on the extent to which Japanese banks can use deferred tax assets for regulatory capital was very lax. Skinner (2005) argues that since its introduction, banks have used deferred tax assets to compensate for declines in bank capital that arose from unrealized losses on the holdings of stocks. The government implicitly allowed banks to use subordinated debt as a tool of regulatory arbitrage. Fukao and JCER (2003) calculate the "true" bank capital by excluding problematic capital from the regulatory capital and reports that, as of March 2002, the true capital ratio in the BIS standard amounted only to 1.36 percent even after including public funds as bank capital. The stock market also seems to have questioned the government ability of supervising banks. Spiegel and Yamori (2003) argue that market participants perceived the Financial

Reconstruction Act as a tool of helping weak banks. These observations suggest that in the period of 1998-2002, the financial authority had poor ability of supervising banks. Stock prices begin to decline again in October 1999.

BOJ continued a stance for monetary loosing to avoid further decline in stock prices and the consequent financial crisis. Despite the huge amount of liquidity supply, however, stock prices continued to decline.

In October 2002, Minister Yanagisawa was forced to take a responsible for the possible recurrence of the financial crisis and replaced by Heizo Takenaka that released the "Financial Revitalization Program", so-called, "Takenaka Plan" to accelerate the disposal of non-performing loans. Behind this policy change is a recognition that a policy of forbearance led to huge amounts of bad loans and non-performing loans, and the prolonged stagnation of the Japanese economy. A regulatory forbearance in managing minimum capital requirements allowed Japanese banks to roll over loans to insolvent firms [e.g. Hosono and Sakuragawa (2002), Peek and Rosengren (2005), and others]. The subsidized lending consequently led to credit misallocation from manufacturing firms with high productivity to non-manufacturing firms with low productivity [e.g. Caballero et al(2003)], and became one important source of the slowdown of economic growth in the Japanese economy.

In the end of November 2002, the government announced the detailed work schedule for implementing Takenaka Plan. Takenaka Plan has mainly three contents. First, the government requested banks to disclose the amount of non-performing loans on a more rigorous standard. Second, the government took a policy against banks that engage in regulatory arbitrage to meet minimum capital requirements. Specifically, the government requested banks not to overstate deferred tax assets. Third, the government promised to arrange a scheme for injecting public funds into weak but solvent banks by adopting Deposit Insurance Law, Article 102 that is intended to help banks that are vulnerable to the financial crisis.

Although the government strongly appealed the implementation of the reform, some observers have disappointed with the announced work schedule. Before the release of work schedule, observers expected the time table of tightening of assessment rules on deferred tax assets, it remained unspecified. In addition, the rigorous rule for adopting Deposit Insurance

Law was not settled. Toward the end of this year, stock prices continued to decline.

In the early of 2003, the decline in stock prices did not stop. The government began to fear the occurrence of financial crisis triggered by the decline in stock prices. Japanese banks held substantial amounts of equities so that they are vulnerable to stock market risk. The policymakers became to recognize the necessity of policy coordination between the government and BOJ.

Mr. On 25 March, 2003, Fukui, as a new governor of BOJ, announced a package of new monetary policies New monetary policies had mainly three pillars: first, BOJ decided to continue the ample provision of liquidity to banks, secondly decided to apply the Lombard-type lending facility to the official discount rate by suspending the restriction on the maximum number of days, and thirdly decided to extend the maximum total amount of equity holdings it purchases from banks to 3 trillion yen by 1 trillion yen.[3] The third pillar is a so-called, "non-traditional policy", that aims to interrupt the transmission of risk from the stock market to the banking sector. In November 29, 2002, BOJ implemented the first-round purchase of equities held by banks. The stock market worked out the bottom in March and around that was coincident with when Fukui new governor released a package of new monetary policies.

On May, 2003, the collapse of Resona, one of the Japanese largest banks, was disclosed after its auditors did not agree to the recognition of excessively estimated deferred tax assets, and requested the write-off of part of deferred tax assets. The capital ratio on the BIS standard was disclosed to be about 2 percent at the earnings report as of March, 2003, below the minimum required for ordinary operation, 4 percent. This collapse triggered an immediate emergency meeting of the Government's Financial Service Management Council, headed by Prime Minister Koizumi, and a subsequent massive injection of public funds following the Deposit Insurance Law, Article 102-1-1.

The bankruptcy proceeding following Article 102-1-1 involves the injection of public funds and the restructuring on the government initiative, followed not by liquidation, unlike in the case of Long Term Credit Bank of Japan and Nippon Credit Bank. The article 102-1-1 is applied

[3] The governor Fukui stated before the press that BOJ was ready for purchasing all the equities held by banks if the worst scenario came.

to a failing bank whose net asset is positive, but later the audit by the financial authority exposes the possible negative net asset for Resona.

The government, however, announced the protection for the shareholders of Resona Bank not to bear the substantial costs just after two days following the announcement of nationalization. Some observers criticized this statement for the reason that this policy became the source of weakening market discipline. Although the unclear government attitude led to much controversy, stock prices apparently reversed the trend upwardly in May that was almost coincident with the period of the failure of Resona Bank.

The financial authority audited Ashikaga Bank, one of the largest regional banks, and disclosed the inappropriate loan classification, the shortage of loan loss reserves, and overstatement of differed tax assets. Taken this information into account, the net asset of Ashikaga was disclosed to be negative in the earning report as of September, 2003. This report, in 29 November, 2003, triggered an immediate emergency meeting of the Government's Financial Service Management Council and a subsequent injection of public funds following the Deposit Insurance Law, article 102-1-3.

The bankruptcy proceeding following 102-1-3 involves the acquisition of all stocks at zero by the government while protecting all deposits, the restructuring on the government initiative, and the sale of bank assets to other banks. Unlike the case of Resona, shareholders bear the substantial costs. Stock prices kept the upward trend.

From 2003 to 2004, the financial authority conducted the third-round special audit. The total amount of non-performing loans disclosed by individual banks was 34 trillions and over, while the total amount audited by the financial authority was 36 trillions and over, and the discrepancy reduced to 5.5 percent. This observation seems to reveal that the ability of supervising banks improved to some extent.

It is now widely recognized that by the introduction of Takenaka Plan the accuracy of assessing bank assets and the transparency of financial conditions seems to have improved, but the market reaction to each individual event varied over time. Below we examine the market response to Takenaka Plan using an event-study approach.

3. Methodology

First of all, we examine three impotents events that occurred in 2003, the release of a package of monetary policies initiated by Fukui new governor of BOJ, and failures of Resona Bank and Ashikaga Bank. For each of the three events, we examine three hypotheses. The first hypothesis is if the impact of each event on the stock price is positive or negative, or zero toward the banking sector as a whole. The second hypothesis is if the impact on the stock market return if it exists, is uniform across banks, regardless of differences of the financial condition or other characteristics of the individual banks. The third hypothesis is that if the impact reflects more than pure contagion across banks, and market participants differentiate the riskiness of individual banks by their financial condition.

Each of events occurred on the same day for all the banks. It is likely that the abnormal returns are correlated contemporaneously among the individual banks. This is the reason why we cannot use the typical estimation for the event study that calculates the aggregated cumulative abnormal returns (see also footnote 4 below).

When the abnormal returns in the individual banks have contemporaneous correlation with one another, there are two different approaches: The first is the "portfolio approach" in which the bank level analysis can be applied to a portfolio into which the abnormal returns are aggregated using event time. This approach has an advantage of allowing for cross correlation of the abnormal returns. The second is an application of a multivariate regression model with dummy variables for the event date. Comparing between the two approaches, the latter methodology has an advantage of testing the null hypothesis that the event has no impact using individual bank data.

The estimation, following Brewer[III] et al. (2003), takes the form;

$$R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{k=0}^{1} \gamma_{ik} D_k + \varepsilon_{it} \qquad (1)$$

where R_{it} is the stock return of bank i on day t; α_i is the intercept coefficient for bank i; R_{mt} is the market index for day t; β_i is the market risk coefficient for bank i; D_k is a binary variable that equals 1 if day t is equal to the event day or window $k(k \in [0,+1])$, zero otherwise; γ_{ik} is the event coefficient for bank i; and ε_{it} is a random error. Thus, the

estimated parameters γ_{ik} capture any daily intercept shifts on event day (window) k and provide an estimate of abnormal (excess or unexpected) returns associated with the event announcement on day (window) k.

We do not estimate each of individual equations independently, but estimate equation (1) as a system of separate equations in the sample using generalized least squares (GLS). To permit the variance of the residuals to vary across banks, we apply SUR (seemingly unrelated regression).[4]

The values of the parameters in Equation (1) are estimated using daily data before and after each event date over an observation period sufficiently long to obtain meaningful results. However, because the three events that occurred in 2003 are reasonably close to one another, we have to be careful to the possible effects of specific events on subsequent events. To avoid this problem, following Brewer Illet al.(2003), Equation (1) is modified so as to permit a shift in both the intercept (α) and the market index coefficient (β) after the first event:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \alpha_i P + \beta_i P R_{mt} + \sum_e \sum_{k=0}^{1} \gamma_{ik,e} D_{ke} + \varepsilon_{it} \qquad (2)$$

where e is the number representing each of events, the announcement of new monetary policy (e=1), the failure of Resona(e=2), and the failure of Ashikaga (e=3), and $\gamma_{ik,e}$ is the coefficient for bank i for the event $e(=1,2,3)$, and P is a binary variable that is equal to 1 for the period after the first event window, the announcement of new monetary policy, and zero otherwise. We do so because the event days are close to each other.

First, in order to access the impact of each event on the stock market return as a whole in the

[4] Because the events occurred on the same day for all the banks, it is likely that the residuals in the individual bank equations are correlated contemporaneously. Thus, we adjust for contemporaneous correlation. The methodology used in this article makes the standard assumptions that the residuals are independent and identically distributed within each equation and independent of the market return and the binary event variables; the noncontemporaneous correlation of residuals across banks is zero; and there is no event-induced heteroskedasticity. Thus the covariance matrix of the residuals in equation(8) has following structure:

$$E(\varepsilon\varepsilon') = \begin{bmatrix} \sigma_1^2 I & \sigma_{12} I & \cdots & \sigma_{1n} I \\ \sigma_{21} I & \sigma_2^2 I & \cdots & \sigma_{2n} I \\ \vdots & \vdots & \ddots & \vdots \\ \sigma_{n1} I & \sigma_{n2} I & \cdots & \sigma_n^2 I \end{bmatrix}$$

where I is the identity matrix and N is the number of banks in the sample.

banking industry, we test the following hypothesis using the estimated coefficients in (2);

$$H_0^{mean} : \frac{1}{N}\left(\gamma_{1k,e} + \gamma_{2k,e} + \cdots + \gamma_{Nk,e}\right) = 0 \qquad (3)$$

Equation (3) represents the hypothesis that the simple average of the coefficients of the daily abnormal stock market return in the sample is zero. If market participants perceive the impacts of each event favorably on the banking industry as a whole, the average will be positive, while otherwise, it will be negative. Note that large banks may have a great impact on the market price for the banking industry as a whole. To take into account the possible impacts of large banks, we test also the hypothesis with asset-weighted coefficient.

$$H_0^{Wmean} : v_1\gamma_{1k,e} + v_2\gamma_{2k,e} + \cdots + v_N\gamma_{Nk,e} = 0 \qquad (4)$$

where v_i is the weight on bank i that is calculated by dividing the total market value of bank i by the sum of total market values of all banks. Additionally, we compute the cross-sectional median of abnormal returns and test the hypothesis that the number of banks with positive abnormal returns is greater than 50 percent in the sample.

$$H_0^{median} : median = 0 \qquad (5)$$

If market participants perceive the impacts of each event favorably, the median is expected to positive, while otherwise, it is expected to be negative. For this hypothesis test, we compute the t test statistic and check the sign test.

Secondly, we test the pure contagion hypothesis by accessing if the impact of each of the events is equal across all banks. We examine the following hypothesis

$$H_0^{AR} : \gamma_{1k,e} = \cdots = \gamma_{Nk,e} \qquad (6)$$

Equation (6) represents the hypothesis that the coefficients of the daily abnormal stock market return in the sample are equal across all banks. If shareholders differentiate the riskiness of individual banks, the hypothesis is rejected, whereas if otherwise, the pure contagion hypothesis will not be rejected. For hypothesis test, we compute the standard asymptotic χ^2 test statistic and the *F*-statistic.

Third, given that the pure contagion hypothesis is rejected, we test if the evidence of cross-sectional variation in the responses of the surviving banks reflects their own financial

condition. To do this, we expand Equation (2) to include a number of conditioning variables that reflect the financial characteristics of each bank and two control variables;

$$R_{it} = \alpha_i + \beta_i R_{mt} + \alpha_i P + \beta_i PR_{mt} + \sum_e \bar{\gamma}_{ke} D_{ke} + \sum_e \phi_e D_{ke} COND_i + \sum_e \theta_e D_{ke} SH_i + \sum_e \lambda_e D_{ke} TA_i + \mu_{it} \quad (7)$$

where $\bar{\gamma}_{ke}$ is the coefficient for all banks for the event $e(=1,2,3)$, $COND_i$ is a variable that describes the financial condition of bank i at the time of the event, TA_i is the log of total assets for bank i at the time of the event, and controls for bank size, and SH_i controls for the exposure of bank i to the failed bank through equity investments.[5] The Positive coefficient of TA_i may reveal the evidence of a too-big-to-fail policy. If the response of the stock market to the event reflects individual bank conditions, coefficients of either $COND_i$ or SH_i are statistically different from zero. We test the following hypotheses;

$$H_0^{cond} : \phi_e = 0 \quad (8)$$

$$H_0^{SH} : \theta_e = 0 \quad (9)$$

for each of the three events and a number of measures of $COND_i$ and SH_i. The coefficient of SH_i, θ_e, may capture the government attitude toward the shareholders of the failed bank. If shareholders receive nothing in the event of failure, the coefficient of SH_i is expected to be negative.

We list up nine descriptive variables as representing the financial condition of banks; 1) the ratio of nonperforming loans to total loans outstanding (NPL); 2) the ratio of reported loan loss reserves to risk-weighted regulatory capital (LLR); 3) the ratio of domestic loans to firms in the construction industry, real estate, and finance and insurance, (which are typically assumed to be riskier than other loans) to total domestic loans (RISKY); 4) the ratio of bank capital to total bank assets calculated based on either international or domestic standard (CAPITAL); 5)the ratio of subordinated debt to risk-weighted regulatory capital (SUB); 6) the ratio of deferred tax assets debt to risk-weighted regulatory capital(DEF); 7) the ratio of liquid assets to total bank

[5] SH_i is defined as $SH_i = \rho_i TA_j / TA_i$, where ρ_i is the percent of outstanding shares of the failed institution j that was owned by bank i, TA_j is the total assets of the failed institution j, and TA_i is the total assets of the surviving bank i.

assets(LIQ); 8) the ratio of the market value of stocks to total bank assets(STO), and 9); the ratio of the latent gains (losses) of stocks to total bank assets(GAIN).

If banks disclose non-performing loans accurately, NPL and LLR are supposed to reflect the true magnitude of non-performing loans, and banks with higher values of NPL and LLR are supposed to be in weaker financial condition. The marginal impact of each event is expected to be greater in weaker banks with a higher value of NPL, and the sign is expected to be positive （$\phi_1 > 0$） for the announcement of new monetary policy, and negative （$\phi_2 < 0, \phi_3 < 0$） for two failures of banks. Loan loss reserves are, in principle, against non-performing loans, and weaker banks with higher ratio of non-performing loans should account for a higher value of LLR. The expected signs are $\phi_1 > 0,\ \phi_2 < 0, \phi_3 < 0$.

As we have discussed in Section 2, it has been commonly recognized that, before the introduction of Takenaka Plan, reported non-performing loans were undervalued. If the stock market has already incorporated this information into pricing, two variables explained above, NPL and LLR, may not appropriately reflect the soundness of banks. As a complementary variable, we use the ratio of domestic loans to firms in the construction industry, real estate, and finance and insurance (which are typically assumed to be riskier than other loans) to total domestic loans (RISKY).

A number of recent works, including Hoshi (2000), Sakuragawa (2002), and Hosono and Sakuragawa (2002), report that banks helped many of nearly bankrupt firms in these three industries by rolling over loans to these firms. Banks, in principal, should account for loan loss reserves against loans extended to almost bankrupt firms, but unless the financial authority severely inspects non-performing loans, banks will dress up their reported balance sheets by classifying these problem loans as good loans. For this reasoning, we use RISKY as a proxy to potential non-performing loans. Banks with a higher value of RISY tend to extend more bad loans, and the expected sighs are $\phi_1 > 0,\ \phi_2 < 0, \phi_3 < 0$.

We use CAPITAL as a measure of basic variable that captures the effect of minimum capital requirements. Banks with a smaller value of CAPITAL are more likely to be constrained by minimum capital requirements and affected more strongly by each of the events. The expected sighs are $\phi_1 > 0$, $\phi_2 < 0, \phi_3 < 0$.

Subordinated debt is allowed to account for as Tier 2 complementary capital in the local rule of capital requirements. However, in Japan subordinated debt is held by mainly insurance companies that are under double gearing with issuer banks（e.g. Fukao and TCER (2003)）. Ito and Sasaki (2002) and Hosono and Sakuragawa (2002) report that banks with poor capital tended to issue more subordinated debt to dress up reported balance sheets.

In 1998, the government allowed to account for deferred tax assets as bank capital up to expected earnings in future five years. Skinner (2005) argues that since the introduction of deferred tax assets, banks have used deferred tax assets to compensate for declines in bank capital that arose from unrealized losses on the holdings of stocks. He finds that, over the period of 1998- 2003, average ROA is negatively correlated with deferred tax assets among large banks, and that weaker banks with poor prospect of future earnings tended to account for greater deferred tax assets.

The government implicitly allowed banks to use subordinated debt and deferred tax assets as tools of regulatory arbitrage. Taking into account the accounting manipulation on regulatory capital, we use SUB and DEF as measures of regulatory arbitrage in capital requirements. Banks with a higher value of SUB will be identified as banks that have scarce true capital and have to rely more on subordinated debt to meet minimum capital requirements, and hence are affected more strongly by each of the events. The expected sighs are $\phi_1 > 0$, $\phi_2 < 0, \phi_3 < 0$. Similarly, banks with a high value of DTA will also be identified as weak banks. The expected signs are $\phi_1 > 0, \phi_2 < 0, \phi_3 < 0$.

LIQ is a variable that may be expected to have a great impact at the event of the package of new monetary policy released by Governor Fukui. If bank shareholders think the shortage of liquidity as a serious problem in the banking sector, an announcement for the additional supply of liquidity should affect stock prices favorably. Banks with a lower value of LIQ are more likely to suffer the liquidity shortage, and affected more strongly by the monetary loosing. The expected sign is $\phi_1 < 0$.

STO and GAIN are variables that are expected to capture the influence of the change in stock prices on banks. The policy for purchasing stocks by BOJ is supposed to weaken the adverse effect of the stock market decline on banks. Banks with a higher value of STO tend to

be more vulnerable to the stock market risk, and hence affected more favorably by this policy. The expected sign is （$\phi_1 > 0$） . Banks with greater losses on the stock holding tend to be more vulnerable to the stock market risk, and hence affected more favorably by this policy. The expected sign is（$\phi_1 < 0$）. The stock price of banks that hold a greater proportion of the stock of the failed bank is expected to decline more sharply. The coefficient of SH_i is expected to be （$\theta_2 < 0, \theta_3 < 0$） .

4. Data

Daily stock prices and returns for our sample of 80 publicly traded and surviving banks are obtained from the Toyo Keizai Kabuka CD-ROM for 307 business days from October 1, 2002 to December 30, 2003. All dates were Japanese dates. Market returns are measured by the TOPIX Index, which includes seasoned shares of over 1000 major companies including both banks and nonbanks (First Section) traded on the Tokyo Stock Exchange, from the CD-ROM of the TOYO KEIZAI Inc.'s tock price database. The data on the financial condition of individual banks are obtained from the Nikkei NEEDS financial statement database.

On financial data of individual banks, we use the earning reports released as of March, 2003. The announcement dates of new monetary policy and the two failures are obtained through a search of the statement released by BOJ and a search of the Nihon Keizai Shinbun. Actually, BOJ announced a package of new monetary policies on March 25, 2003. At this stage, earning reports as of March 2003 were not yet released, but banks usually released the prediction of their earning in the interim period. It will be conceivable to think that market participants form the almost rational expectation on this information about the financial condition of individual banks.

If each announcement was made during a trading day in Japan, that date is used as the event day .If an announcement was made after the market was closed or over the weekend, we use the next trading date as event date. Following this criterion, we set the event days of the release of a package of monetary policies initiated by Fukui new governor of BOJ, and failures of Resona Bank and Ashikaga Bank as March 25, 2003, May 19, 2003, and December 1, 2003.

The number of banks used in the analysis is 80 in which stock market data is available

except for Resona and Ashikaga, both of which are excluded from the sample to avoid the survivorship bias. Note the in this sample period a number of mega banks are established by merger. We exclude Mitsui-Sumitomo Bank that is established by the merger of Sumitomo Bank and Sakura Bank for the reason that the stock market data is available only after 29 November, 2002.

5. Empirical Results

Table 1 reports estimation results on (3), (4), and (5).The first column in the table reports the result for the estimated abnormal returns of individual banks for Day0 of each event window, the second column the results for Day+1, and the third column the results for the [0,+1] window.

For the new monetary policy announced by Governor Fukui, the first row, denoted, "Simple Mean", reports the average of the coefficients on the abnormal stock market return, and beneath the first reports *t* values.[6] The average of abnormal stock market returns are positive and significant for Day0, negative and insignificant for Day+1, and positive and significant for the [0,+1] window. The third row, denoted, "Weighted Mean", reports the asset-weighted average of the coefficients on the abnormal returns, and beneath the third reports t values. The abnormal returns are positive and significant for Day0, negative and significant at 10% level for Day+1, and positive and significant for the [0,+1] window. The two alternative estimations both seem to show that market participants perceive the BOJ new policy as favorable. The differential result of Day+1 may reveal that the new policy may have disappointed shareholders of large banks.

The row denoted, "Median", reports the median of the abnormal returns of individual banks. The row denoted, "Positive", reports the number of banks whose abnormal return is positive, and the row denoted, "Negative", the number of banks whose abnormal is negative. The row denoted, "sign-test", reports *z* values on the statistical significance for the median. On the event Day0, among 80 surviving banks, abnormal returns are positive for 62 banks, and the median is

[6] In November 29, 2002, BOJ implemented the first-round purchase of equities held by banks. But we do not examine this event because there were some reasons to support that some impacts of this policy were already incorporated into stock prices. For example, TOPIX shoot up 1.66% on news that BOJ first announced the stock purchasing plan in September 18, 2002 and 3.32% on news that BOJ released "Stock Purchasing Guidelines" in October 11, 2002. On the other hand, it moves up only 0.52% in November 29, 2002. On the other hand, on the second-round purchase of equities, no leak on information was not found.

positive and significant. On the event Day+1, the number of banks whose abnormal return is negative is more than a half, (46 banks), and the median is negative but insignificant. On the two-day window, the median is positive and significant. The results for the three event days suggest that stockholders of banks evaluate new monetary policy favorably to the banking industry.

For the estimation of the failure of Resona Bank, the row, denoted, "Simple Mean", reports that the average of the coefficients on the abnormal return is negative and significant in any of the three windows. The results on "Weighted Mean" also report that the average is negative and significant in any of the three. In more than a half of banks, abnormal return is negative, and the median is negative and significant in any of the three windows. Market participants seem to incorporate new information on Resona Bank as negative into stock prices.

On the other hand, for the failure of Ashikaga Bank, the row, denoted, "Simple Mean", reports that the average of the coefficients on the abnormal return is negative and significant for Day0, but positive and significant for Day+1. For the [0,+1] window, the estimated value is negative but slightly significant. The results on "Weighted Mean" report that the average is negative and significant for Day0, and negative but insignificant for Day+1. The results on the median report that the number of banks whose abnormal return is negative is more than a half on the window [0], but less than a half on the window [+1].

While the average abnormal stock returns are negative for both Day0 and Day+1 in the case of Resona, but in the case of Ashikaga it becomes positive in the second day. In addition, in the second day, the stock price of more than a half number of banks rises. Market participants seem to perceive that the failure of Ashikaga is local and does not transmit to other surviving banks. In other words, market participants may have anticipated the rapid government response by nationalization.

Table 1 reports estimation results on (6). Rows beneath "H_0 : $\gamma_1=\ldots=\gamma_{80}=0$" report χ^2 -statistic and F-statistic. In any of the events, the pure contagion hypothesis is rejected. For each of the events, market participants seem to differentiate the riskiness of individual banks by financial condition and other characteristics.

We turn to the investigation for individual financial conditions. For the event of new

monetary policy, the upper part in Table 2 reports estimation results. None of financial variables is significant. The coefficient of LIQ is especially expected to be significant, but it is insignificant. Neither STO nor GAIN is significant. Although market participants perceive the monetary package as favorable to the banking industry as a whole, they do not seem to regard it as a tool of screening banks by their conditions.

For the event of the failure of Resona, the central part in Table 2 reports estimation results. Among variables of financial conditions, RISKY, CAPITAL, DEF, and GAIN are statistically significant. The statistical significance of CAPITAL and DEF will reveal that market participants turned to perceive Takenaka Plan as an effective tool to strengthen supervisory policies. Particularly, the negative and significant coefficient of DEF reflects the fact that the government nationalized Resona by not allowing Resona to overestimate differed tax assets as bank capital. Market participants seem to perceive that banks with greater deferred tax assets will be constrained more severely by capital requirements.

Neither NPL nor LLR is significant, while RISKY is significant. Market participants do not yet seem to perceive the improvement of the supervisory assessment to non-performing loans. Indeed, the government decided to nationalize Resona by following Deposit Insurance Law, Article 102-1-1 that is meant to be applied to the bank whose net asset is positive, but later the audit by the financial authority detects the possible negative net asset for Resona. Market participants perceive that non-performing loans are still understated.

The measure of bank size, TA, is insignificant. At least this finding does not reveal the market evaluation for a too-big-to-fail policy. SH is insignificant in any of the estimations. This result will reflect the fact that the government protects shareholders of Resona Bank following nationalization.

For the event of the failure of Ashikaga, the lower part in Table 2 reports estimation results. Among variables of financial conditions, five variables, NPL, LLR, CAPITAL, DEF, and SUB are statistically significant. In terms of variables on non-performing loans, NPL and LLR are significant, while not in the case of Resona. On the other had, RISKY is insignificant, while it is significant in the case of Resona. Market participants come to perceive the supervisory assessment of non-performing loans more credible than before. In terms of variables on bank

capital, DEF and SUB are significant. Market participants seem to perceive the financial authority to force banks not to engage in accounting discretion. SH is, unlike the case of Resona, negative and significant in any of the estimations. This result seems to reflect the fact that the government adopts the bankruptcy proceeding under which the shareholders receive nothing. TA is insignificant in any of the estimations.

Brewer III et al. (2003) study the similar analysis using the failures of six financial institutions, that occurred from 1995 to 1998, including Hyogo Bank, Sanyo securities, Hokkaido Takushoku Bank, Yamaichi securities, Long Term Credit Bank of Japan, and Nippon Credit Bank. In their cases of four bank failures, among four comparable variables of NPL, LLR, RISKY, and CAPITAL, five among sixteen are significant. This figure amounts to about 31 percent in the total. Furthermore, in the case of failures of Long Term Credit Bank of Japan and Nippon Credit Bank that occurred after the legislation of the Rapid Recapitalization Act, the proportion of significant coefficients is only 12 percent. On the other hand, the percentage rises to 63 percent in the present analysis that focuses on bank failures that occurred after the introduction of Takenaka Plan. Market participants seem to perceive that the supervision policy and the bank governance considerably improved.

6. Other Related Events.

In this section we examine other three related events. The first event is on the introduction of Takenaka Plan, the second on the announcement of work schedule for implementing Takenaka Plan, and the third is on the announcement of the protection of the shareholders of Resona Bank.

We first examine the two events on the introduction of Takenaka Plan. We estimate equation (2) through (9) using the event day of the introduction of Takenaka Plan as October 30, 2002, and the event day of the release of work schedule for implementing Takenaka Plan as December 28, 2002.[7]

[7] We use daily stock prices data over 246 business days from January 4, 2002 to December 30, 2002. On financial data of individual banks, we use the earning reports released as of March, 2002.

Table 3 reports the estimation results on (3), (4), and (5). For the estimation of the introduction of Takenaka Plan, the row, denoted, "Simple Mean" reports that the average of the coefficients on the abnormal return is positive and significant in any of the three windows. The results on "Weighted Mean" also report that the average is positive and significant for Day1 and the [0,+1] windows. In more than a half of banks, abnormal return is positive, and the median is positive and significant in any of the three windows. Market participants seem to perceive the introduction of Takenaka Plan as favorable.

On the other hand, for the announcement of schedule for implementing Takenaka Plan, the row, denoted, "Simple Mean", reports that the average of the coefficients on the abnormal return is negative and significant for Day0 and [0,+1] window. The results on "Weighted Mean" also report that the average is negative and significant for Day0 and [0,+1] window. The results on the median report that the number of banks whose abnormal return is negative is more than a half on the window [0] and [0,+1] window. Market participants seem to be disappointed with the details of work schedule and be afraid of the implementation of the financial reform.

Table 3 reports estimation results on (6). Rows beneath "H_0 : $\gamma_1=\ldots=\gamma_{80}=0$" report χ^2 -statistic and F-statistic. In any of the events, the pure contagion hypothesis is rejected. For each of the events, market participants seem to differentiate the influence of Takenaka Plan on individual banks by financial condition and other characteristics.

We turn to the investigation for individual financial conditions. For the event of the introduction of Takenaka Plan, the upper part in Table 4 reports estimation results. The measure of bank size, TA, has positive and significant coefficient in any of the estimations. This result supports the too-big-to-fail hypothesis. In the early stage of the financial reform, market participants seem to be afraid if the financial reform is adequately implemented. Among variables of financial conditions, NPL is statistically significant but the sign is positive, contrary to the estimations on the three events examined in the previous section. On the announcement of Takenaka Plan, market participants may have evaluated banks with high NPL as "strong" banks by conjecturing that strong banks will differentiate themselves from other weak banks by revealing relatively accurate information on the amount of non-performing loans. Behind this interpretation is that, as of 2002, the disclosed amount of non-performing loans was understated.

For the event of the announcement of work schedule for implementing Takenaka Plan, the lower part in Table 4 reports estimation results. TA is negative and insignificant. Among variables of financial conditions, two variables, CAPITAL and SUB are significant. Market participants anticipate that the government will take a first step to prevent banks from engaging in regulatory arbitrage to meet minimum capital requirements. DEF is insignificant. This result will reflect the fact that at this stage the time table of tightening of assessment rules on deferred tax assets was not specified.

We have several comments by comparing to the estimation on failures of Resona and Ashikaga. First, only in the event of the introduction of the financial reform, market participants perceive the financial reform as the too-big-to-fail policy. Second, the market perception to DEF quite differs between events of 2002 and 2003. In neither of the two events that occurred in 2002, DEF is significant. As of 2002, market participants do not seem to perceive that the government requests strongly banks to stop regulatory arbitrage using deferred tax assets. Third, we find that the market evaluation on the Japanese financial reform varied over time. Among financial conditions, the number of significant coefficients monotonically increases over time, from zero (Introduction), to two (Work Schedule), further to four (Resona), and finally to five (Ashikaga). Market participants seem to change their expectation gradually over time on the implementation of the financial reform. Particularly, the credibility to the reform drastically increases in the latter two. One possible turning point may be the failure of Resona in which the government nationalized Resona by not allowing Resona to overestimate differed tax assets as bank capital. Another applicant will be the monetary policy that played a role of guaranteeing the implementation of the financial reform.

We next turn to the Resona event. There is much controversy on the government's statement for the protection of Resona shareholders following the nationalization. Some observers stress this statement as a revival of forbearance. Yamori and Kobayashi (2007) report that in their estimation for the event day of May 21, the bank size has a significant effect on the stock market return, and conclude that the government's statement for the protection of Resona shareholders seem to have induced market participants to perceive the nationalization as a too-big-to-fail policy.

We estimate equation (2) through (9) using May 21 as an event day. If market participants regard the nationalization of Resona as a too-big-to-fail policy, the log of total asset, denoted TA, should have a positive and significant coefficient.

Table 5 reports estimation results on (3), (4), (5). The first row, denoted, "Simple Mean", reports that the average of the coefficients on the abnormal return is positive and significant in any of the three windows. On the contrary, the results on "Weighted Mean" report that the average is negative in any of the three windows and significant for Day0 and the [0,+1] windows. This differential result may reveal that stock prices of small and regional banks rose, but those of large banks declined. Market participants do not perceive the statement for protection as a too-big-to-fail policy.

Table 6 reports the estimation results. SUB is positive and significant, while it is insignificant in the estimation of May 19-20 (see Table 2). Market participants seem to perceive the statement for protection as a revival of a forbearance policy. SH is positive and the t values of the coefficient improve relative to the estimation of May 19-20. This result is contrasted with the case of Ashikaga in which SH is negative and significant. The contrasting result between the two will reflect the different attitude of the government toward bank shareholders. TA is insignificant in any of the estimations. We do not find any result to support for the too-big-to-fail policy.

Our estimation differs from Yamori and Kobayashi (2007) in three respects. First, as a measure of bank size, they use a dummy variable that takes unity if the total asset of a bank is larger than that of Resona and zero otherwise, while we use the log of total asset. Second, they control for three variables as representing the financial condition of banks, CAPITAL, NPL, and DEF in our definition, while we use more variables including SUB and RISKY. Third, we use the variable SH to control for the exposure of a bank to the failed bank through equity holding.

7. Conclusion

Using event study methodology, we study how the stock market evaluates the Japanese financial reform, so-called, "Takenaka Plan". We list up several financial events that occurred in 2002

and 2003, including the announcement of the introduction of Takenaka Plan, the release of work schedule for implementing the financial reform, the release of a package of monetary policies initiated by Fukui new governor of BOJ, and failures of Resona Bank and Ashikaga Bank. We find that market participants came to perceive little by little that the government appropriately implements Takenaka Plan in an attempt to improve bank governance. The credibility to the reform drastically increases in the events that occurred in 2003. The estimations on the failures of Resona and Ashikaga reveal that bank shareholders differentiate individual banks by their financial conditions that are targeted to improve bank governance. One possible turning point may be the failure of Resona in which the government nationalized Resona by not allowing Resona to overestimate differed tax assets as bank capital. Another applicant will be the monetary policy that played a role of guaranteeing the implementation of the financial reform.

References

Brewer**III**, Elijah and Hesna Genay, Williamu C. Hunter, George G. Kaufman (2003). "Does the Japanese STOCK Market Price Bank-Risk? Evidence from Financial Firm Failures." *Journal of Money, Credit and Banking* Vol.35 No.4

Caballero, Ricardo J., Takeo Hoshi, and Anil K. Kasyap, "Zombie Lending and Depressed Restructuring in Japan," presented at the NBER/CEPR/CIRJE/EIJS Japan Project Meeting held in Tokyo(2003)

Fukao. M., and TCER (2003), *Kennsyo Ginnko Kiki-Suuti ga Simesu Keiei Jittai,* Nihon Keizai Shinbun-sya

Hoshi, T., (2000), "Naze Nihon ha Ryuudousei no Wana kara Nogareraretanoka?" in *Zero Kinri to Nihon Keizai*, edited by M. Fukao and H. Yoshikawa, Nihon Keizai shinnbun-sya

Hosono, K., and M. Sakuragawa (2002), "Soft Budget Problems in the Japanese Credit Market", Nagoya City University Discussion Papers

Ito Takatoshi and Yuri Nagataki Sasaki (2002), "Impacts of the Basel Capital Standard on Japanese Banks' Behavior", *Journal of the Japanese and International Economies* 16, 372-397

Ito. T, and K. Harada, 2004, "Credit Derivative Premium as a New Japan Premium," *Journal of Money, Credit and Banking* Vol.36 No.5, 965-8

Peek, Joe, and Eric S. Rosengren (2001). "Determinants of the Japan Premium: Actions Speak Louder than Words." *Journal of International Economics* 53, 283-305

Peek, Joe, and Eric S. Rosengren (2005), "Unnatural Selection: Pervasive Incentives and the Misallocation of Credit in Japan", *American Economic Review* 95. 1144-1166.

Sakuragawa. M, (2002), *Kinnyu Kiki no Keizai Bunseki*(*The Economic Analysis of the Financial Crisis*), Tokyo Daigaku Syuppannkai Skinner, Douglas. J. (2005), "The Rise of Deferred Tax assets in Japan, The Case of the Major Japanese Banks",

Shrieves, R. E., and D. Dahl (2003), "Discretionary accounting and the behavior of Japanese banks under financial duress," *Journal of Banking and Finance* 27, 1219-43.

Spiegel Mark M., and Nobuyoshi Yamori (2003), "The impact of Japan's financial stabilization laws on bank equity values." *Journal of the Japanese and International Economics* 17,

263-282

Spiegel Mark M., and Nobuyoshi Yamori (2004), "The Evolution of Bank Resolution Policies in Japan: Evidence from Market Equity Values", *Journal of Financial Research* Vol.27, No.1, 115-132

Yamori Nobuyoshi and Ayami Kobayashi (2007), "Wealth Effect of Public Fund Injections to Ailing Banks: Do Deferred Tax Assets and Auditing Firms Matter?", *Japanese Economic Review*, forthcoming

FIGURE1.CHANGES IN STOCK PRICE INDEX AND JAPAN PREMIUM

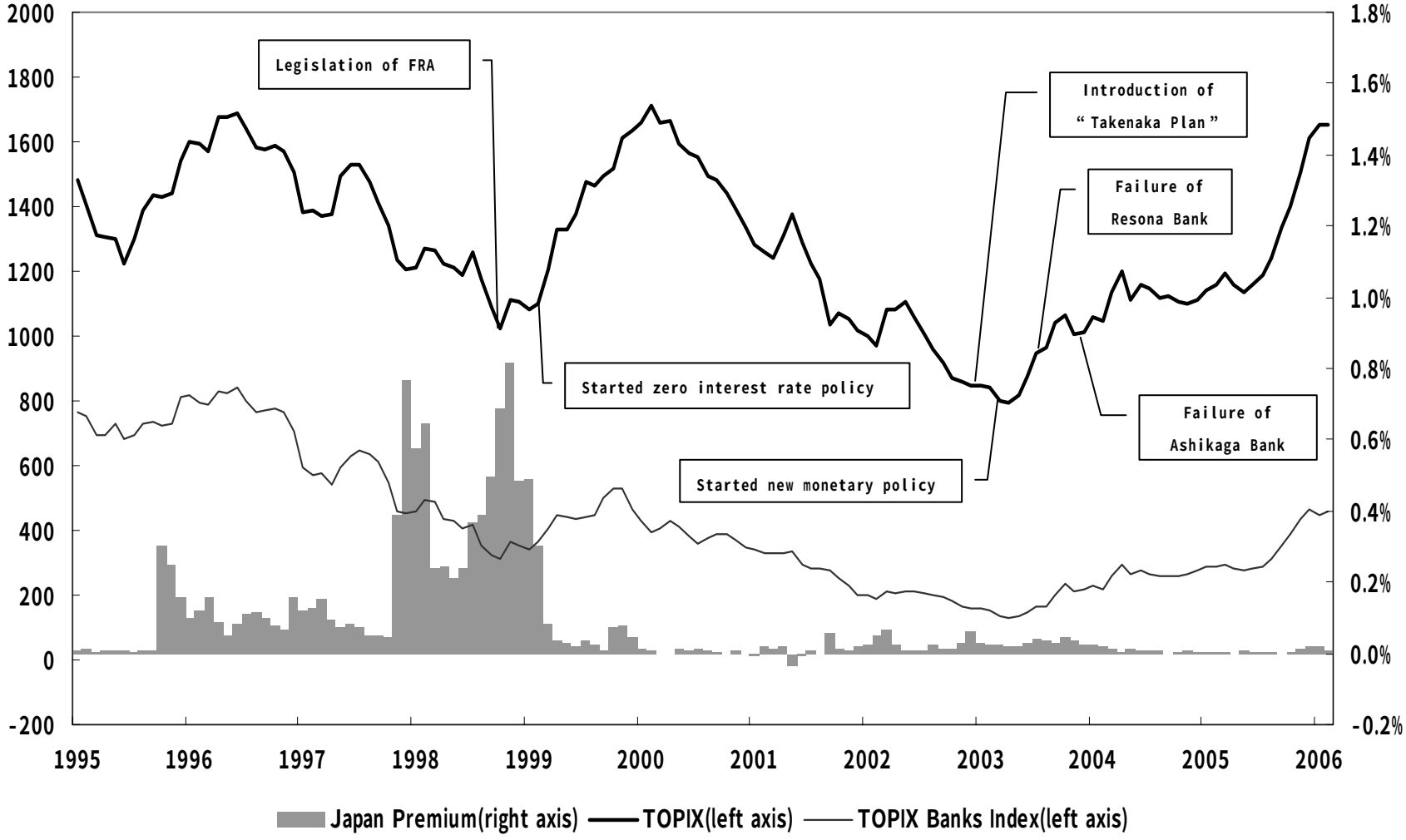

TABLE 1. ABNORMAL RETURNS OF SURVIVING BANKS

	Day 0	**Day +1**	**[0,+1]**
New monetary policy（March 25, 2003）			
Simple Mean	0.011	-0.001	0.01
t-statistic	5.55***	-0.51	4.09***
Weighted Mean	0.017	-0.004	0.006
t-statistic	2.62**	-1.41*	2.37**
Median	0.011	-0.002	0.011
Positive	62	34	60
Negative	18	46	20
Sign-test; z-statistic	5.45***	-0.79	4.56***
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	2.61***	2.60***	5.21***
χ^2-statistic	208.92***	208.07***	416.51***
Failure of Resona Bank（May 19, 2003）			
Simple Mean	-0.011	-0.004	-0.015
t-statistic	-5.95***	-2.00**	-5.10***
Weighted Mean	-0.015	-0.006	-0.011
t-statistic	3.19***	-1.46*	-2.55**
Median	-0.008	-0.002	-0.008
Positive	16	32	20
Negative	64	48	60
Sign-test; z-statistic	-5.82***	-1.91*	-5.27***
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	1.35**	1.76***	3.16***
χ^2-statistic	108.23**	141.50***	252.79***
Failure of Ashikaga Bank（December 1, 2003）			
Simple Mean	-0.013	0.008	-0.004
t-statistic	-4.64***	3.91***	-1.30*
Weighted Mean	-0.019	-0.002	-0.011
t-statistic	-2.16**	-0.33	-1.56*
Median	-0.007	0.006	0.002
Positive	25	55	45
Negative	55	25	35
Sign-test; z-statistic	-4.94***	3.78***	0.15
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	2.87***	1.89***	4.81***
χ^2-statistic	229.79***	151.75***	384.80***

Notes: ***,**,and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE2. EFFECTS OF A BANK FINANCIAL CONDITION: FOR EVENT DAY OR EVENT WINDOW k ($k \in [0,1]$)

	NPL	LLR	RISKY	CAPITAL	SUB	DEF	LIQ	STO	GAIN
New monetary policy（March 25, 2003）									
Cond	-0.045	0.002	-0.002	0.011	0.02	-0.005	-0.028	-0.121	-0.058
	(1.09)	(0.19)	(0.20)	(0.16)	(1.03)	(0.82)	(1.25)	(1.12)	(0.26)
TA	-0.002	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001
	(0.87)	(0.71)	(0.67)	(0.70)	(0.87)	(0.58)	(0.72)	(0.72)	(0.70)
Failure of Resona Bank（May 19, 2003）									
Cond	-0.048	0.001	-0.035	0.146	-0.009	-0.02	0.01	-0.108	0.508
	(1.15)	(0.14)	(2.96)***	(2.09)**	(0.46)	(3.11)***	(0.44)	(0.99)	(2.25)**
TA	-0.002	-0.002	-0.002	-0.003	-0.002	-0.001	-0.002	-0.001	-0.002
	(1.27)	(1.02)	(0.95)	(1.43)	(0.91)	(0.62)	(1.07)	(0.77)	(0.92)
SH	-0.017	0.042	0.065	0.051	0.04	0.084	0.035	0.036	0.056
	(0.11)	(0.27)	(0.41)	(0.32)	(0.25)	(0.53)	(0.22)	(0.23)	(0.35)
Failure of Ashikaga Bank（December 1, 2003）									
Cond	-0.139	-0.038	-0.006	0.346	-0.053	-0.031	0.012	-0.075	-0.058
	(3.35)***	(4.01)***	(0.38)	(4.95)***	(2.79)***	(4.87)***	(0.50)	(0.69)	(0.26)
TA	-0.002	-0.002	-0.001	-0.003	0.000	0.001	-0.001	0.000	-0.001
	(0.94)	(0.83)	(0.42)	(1.37)	(0.14)	(0.28)	(0.43)	(0.23)	(0.51)
SH	-1.928	-2.219	-1.995	-1.904	-1.948	-1.645	-2.073	-1.983	-1.965
	(3.68)***	(4.22)***	(3.82)***	(3.65)***	(3.70)***	(3.13)***	(3.80)***	(3.79)***	(3.76)***
Number of observations	24560	24560	24560	24560	24560	24560	24560	24560	24560
Number of banks	80	80	80	80	80	80	80	80	80

Notes: *** and ** indicate significance at the 1% and 5% levels, respectively.

TABLE 3. ABNORMAL RETURNS OF BANKS FOR FIRST ANNOUNCEMENT OF TAKENAKA PLAN AND WORK SCHEDULE

	Day 0	**Day +1**	**[0,+1]**
Introduction of "Takenaka Plan" (October 30, 2002)			
Simple Mean	0.005	0.003	0.008
t-statistic	2.36**	1.64*	2.33**
Weighted Mean	0.010	0.019	0.015
t-statistic	1.00	1.76**	1.59*
Median	0.002	0.001	0.002
Positive	50	43	50
Negative	30	37	30
Sign-test; z-statistic	1.86*	0.79	2.25**
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	1.81***	2.17***	3.99***
χ^2-statistic	145.08***	174.12***	319.20***
Release of "Takenaka Plan" Work Schedule (November 28, 2002)			
Simple Mean	-0.018	0.002	-0.016
t-statistic	-13.04***	0.93	-6.46***
Weighted Mean	-0.016	0.000	-0.008
t-statistic	-5.00***	0.13	-3.16***
Median	-0.018	0.003	-0.013
Positive	5	49	16
Negative	75	31	66
Sign-test; z-statistic	-7.37***	1.89*	-5.92***
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	1.88***	2.68***	4.76***
χ^2-statistic	151.16***	214.46***	381.24***

Notes: ***,**,and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE 4. EFFECTS OF INTRODUCTION OF TAKENAKA PLAN AND RELEASE OF WORK SCHEDULE

FOR EVENT DAY OR EVENT WINDOW k ($k \in [0,1]$)

	NPL	LLR	RISKY	CAPITAL	SUB	DEF	LIQ	STO	GAIN
Introduction of "Takenaka Plan" (October 30, 2002)									
Cond	0.065	-0.047	0.003	0.000	-0.724	0.002	0.021	0.015	-0.106
	(2.62)***	(0.15)	(0.21)	(0.25)	(0.74)	(0.54)	(1.30)	(0.26)	(1.18)
TA	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
	(3.92)***	(3.96)***	(4.47)***	(4.18)***	(4.74)***	(4.28)***	(4.53)***	(4.34)***	(4.63)***
Release of "Takenaka Plan" Work Schedule (November 28, 2002)									
Cond	0.026	0.325	-0.028	0.001	-2.768	-0.002	0.008	0.009	0.041
	(0.98)	(0.97)	(1.75)	(1.96)**	(2.71)***	(0.62)	(0.46)	(0.14)	(0.43)
TA	-0.001	-0.001	-0.002	-0.003	-0.001	-0.002	-0.002	-0.002	-0.002
	(0.84)	(1.06)	(1.95)	(2.17)**	(1.23)	(1.34)	(1.53)	(1.71)	(1.58)
Number of observations	11680	11680	11680	11680	11680	11680	11680	11680	11680
Number of banks	80	80	80	80	80	80	80	80	80

Notes: *** and ** indicate significance at the 1% and 5% levels, respectively.

TABLE 5. ABNORMAL RETURNS OF SURVIVING BANKS
FOR THE STATEMENT FOR PROTECTION OF RESONA SHAREHOLDERS

	Day 0	**Day +1**	**[0,+1]**
The Government announcement to protect shareholders of Resona （May 21, 2003）			
Simple Mean	0.011	0.007	0.009
t-statistic	1.43*	1.75**	1.68**
Weighted Mean	-0.018	-0.001	-0.010
t-statistic	-2.15**	-0.27	-1.54**
Median	-0.004	0.002	-0.004
Positive	25	45	25
Negative	55	35	55
Sign-test; z-statistic	-2.93**	2.24**	-4.37***
H_0 : $\gamma_1=\ldots=\gamma_{80}$			
F-statistic	1.34**	2.06***	3.41***
χ^2-statistic	107.22**	165.34***	272.77***

Notes: ***,**,and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6. EFFECTS OF THE GOVERNMENT ANNOUNCEMENT TO PROTECT SHAREHOLDERS OF RESONA

FOR EVENT DAY OR EVENT WINDOW k ($k \in [0,1]$)

	NPL	LLR	RISKY	CAPITAL	SUB	DEF	LIQ	STO	GAIN
The Government announcement to protect shareholders of Resona (May 21, 2003)									
Cond	-0.061	-0.016	-0.026	0.084	0.040	-0.004	-0.003	0.163	-0.295
	(1.62)	(1.70)	(1.33)	(1.23)	(2.10)**	(0.62)	(0.12)	(1.52)	(1.31)
TA	0.000	0.000	0.000	-0.001	0.000	0.000	0.000	0.000	0.000
	(0.17)	(0.96)	(0.57)	(1.63)	(1.58)	(0.86)	(0.77)	(1.96)**	(1.22)
SH	0.305	0.278	0.328	0.291	0.277	0.302	0.292	0.294	0.285
	(1.96)	(1.78)	(2.08)**	(1.87)	(1.78)	(1.93)	(1.87)	(1.88)	(1.82)
Failure of Ashikaga Bank (December 1, 2003)									
Cond	-0.138	-0.038	-0.003	0.338	-0.050	-0.030	0.012	-0.069	-0.100
	(3.32)***	(4.02)***	(0.13)	(4.90)***	(2.55)**	(4.73)***	(0.52)	(0.62)	(0.44)
TA	-0.002	-0.001	-0.001	-0.002	0.000	0.001	-0.001	0.000	-0.001
	(0.89)	(0.74)	(0.46)	(1.29)	(0.21)	(0.31)	(0.35)	(0.13)	(0.42)
SH	-1.932	-2.223	-1.965	-1.902	-1.952	-1.647	-2.077	-1.984	-1.970
	(3.69)***	(4.23)***	(3.75)***	(3.64)***	(3.70)***	(3.13)***	(3.80)***	(3.78)***	(3.77)***
Number of observations	24560	24560	24560	24560	24560	24560	24560	24560	24560
Number of banks	80	80	80	80	80	80	80	80	80

Notes: *** and ** indicate significance at the 1% and 5% levels, respectively.