

The Impact of Japan's Financial Stabilization Laws on Bank Equity Values

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Abstract

In the fall of 1998, two important financial regulatory reform acts were passed in Japan. The first of these acts, the Financial Recovery Act, created a bridge bank scheme and provided funds for the resolution of failed banks. The second act, the Rapid Revitalization Act, provided funds for the assistance of troubled banks. While both of these acts provided some government assistance to the banking sector, they also called for reforms aimed at strengthening the regulatory environment.

Using an event study framework, this paper examines the evidence in equity markets concerning the anticipated impact of the regulatory reforms. Our evidence suggests that the Financial Recovery Act was expected to hurt large banks, while the anticipated impact of the act by financial strength was mixed. In contrast, the anticipated impact of the Rapid Revitalization Act was expected to be unambiguously anti-reform, as news favorable to its passage disproportionately favored large and weak Japanese banks.

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1. Introduction

In the fall of 1998, the Japanese government enacted a number of laws aimed at addressing the difficulties facing their troubled financial sector. The two main laws associated with this legislation were the Financial Reconstruction Act (FRA) and the Rapid Revitalization Act (RRA). The FRA established the framework for dealing with failed Japanese banks, resulting in the voluntary nationalization of the Long Term Credit Bank, the involuntary nationalization of the Nippon Credit Bank, and the closure of five Second Regional banks in 1999. The RRA allowed for the injection of public funds for solvent Japanese banks needing assistance.

This paper examines the anticipated impact of these laws on Japan's financial system through an event study of the impact of news concerning passage of the laws on the equity values of Japanese banks. In particular, our study examines heterogeneity in the sensitivity of bank equity values to news concerning the likelihood of the laws' passage and the expected composition of the laws. We identify disparities in the pricing of this news by both bank regulatory status and financial strength. In particular, if equity values of banks with greater financial strength or poorer regulatory protection priced news favorable to the laws' passage more positively, this would indicate that the laws were expected to enhance regulatory discipline.

There are a large number of studies in the literature examining the impact of changes in United States' bank regulation on bank equity values. A number of studies have demonstrated the impact of perceived regulatory advantages due to "too-big-to-fail" policies: Ohara and Shaw (1990) find that the government's 1984 announcement that a group of large banks were "too-big-to-fail" was priced positively by banks included in the announcement. Cornett and Tehranian (1989) find a positive response by large commercial banks to the passage of the 1980 Depository

Institutions Deregulation and Monetary Control Act, but a negative response by small commercial banks and savings and loans. Cornett and Tehranian (1990) find similar heterogeneity for the passage of the 1982 Garn-St. Germain Depository Institutions Act. Madura and Bartunek (1995) find a positive response to the passage of the 1991 Federal Deposit Insurance Corporation Improvement Act for small and medium-sized banks, but a negative effect on large banks. An exception is Sundaram et al. (1992), who find that the passage of the Financial Institutions Reform, Recovery, and Enforcement Act had a positive impact on both large and small banks and savings and loans.

Other studies show heterogeneity by bank characteristics to announcements of regulatory changes. Alexander and Spivey (1994) find negative announcement effects of the passage of the Competitive Equality Banking Act for strong savings and loans and positive announcement effects for weak savings and loans. Liang et al (1996) find positive returns for well-capitalized banks to the passage of FDICIA, while poorly-capitalized firms earn negative returns. In contrast, Akhigbe and Whyte (2001) find a generally positive impact of FDICIA passage on equity values.

Event studies concerning Japanese regulatory developments include Brewer et al (1999) and Spiegel and Yamori (2001), who investigate the impact of bank failure announcements on the equity values of surviving banks. Both papers find evidence in favor of some “too-big-to-fail” protection for large banks, although Spiegel and Yamori argue that the regulatory advantages of large Japanese banks eroded over the 1990s. Peek and Rosengren (2001) investigated the effect of bank failure announcements on the “Japan premium,” the premium that Japanese banks paid relative to their U.S. and European competitors on Eurodollar loans. They find that sensitivity to

adverse news concerning the Japanese financial system was systematically related to bank financial health.

We investigate the impact of the 1998 laws in a number of different manners: First, we examine the market's pricing of portfolios of bank stocks of common regulatory class on the dates of significant events concerning the passage of the Stabilization Laws. Second, we examine the pricing of portfolios of financially weak and strong banks of a certain regulatory class to identify disparities by financial strength. Third, we turn to cross-sectional studies of individual bank equities, again searching for differences by bank regulatory status or financial strength in sensitivity to dates significant to the passage of the laws.

Our results suggest that the impact of the regulatory reforms on banks by size was mixed. The FRA was seen as disproportionately beneficial to the First and Second Regional Banks relative to the Large and Trust banks. However, financially strong First and Second Regional Banks fared better subsequent to news concerning the passage of the FRA than weak Regional Banks, while just the opposite was true for the Large and Trust Banks. These results suggest that actual closures resulting from the Act - with the exception of the immediate closures of Long Term Credit and Nippon Credit Banks – were expected to be largely be limited to Regional banks.

In contrast to the FRA, we find that news conducive to the passage of the RRA was seen as disproportionately beneficial to the Large and Trust banks, suggesting that these banks would be the primary recipients of the government funds earmarked for the assistance of problem banks. Moreover, the RRA was seen as “anti-reform,” in the sense that news concerning the RRA was disproportionately beneficial to financially weak banks within all of the banking groups studied.

The remainder of this paper is divided into seven sections. Section 2 discusses the events surrounding the passage of the FRA and the RRA and introduces the event dates in the study. Section 3 discusses our empirical methodology. Section 4 discusses our results for portfolios of banks of a certain regulatory class. Section 5 discusses the results for portfolios of sub-sample of banks of a certain regulatory class separated by financial strength. Section 6 contains the results of cross-sectional studies of the determinants of excess returns on event dates by bank characteristics. Section 7 concludes.

2. Passage of the Financial Reconstruction Act and the Rapid Revitalization Act

2.1 Details of the Acts

The Financial Reconstruction Act (FRA) was passed as a compromise mechanism for dealing with failed Japanese banks. The ruling Liberal Democratic Party (LDP) had favored a “bridge bank” system of failed bank resolution. Under a bridge bank system, regulators could close a failed bank prior to locating a suitable acquiring bank, without interrupting credit lines for healthy borrowers. The opposition party favored a “nationalization” plan, under which failed banks would be immediately nationalized and reorganized for privatization. The FRA allowed a new institution, the Financial Reconstruction Commission (FRC) to determine whether a failed bank should be nationalized or reorganized under a bridge bank program. It also allowed banks to file for nationalization early, as the Long Term Credit Bank (LTCB) did immediately after the law’s passage [Hoshi and Patrick (2000)].

The Rapid Revitalization Act (RRA) provided for the extension of government funds to troubled, but not insolvent banks. In the final version of the RRA, the LDP accepted the opposition’s demands to require all financial institutions to properly assess asset values and mark

assets to market values more promptly. The RRA also established legal penalties for managers who reported false data.

At the same time that the passage of the RRA was announced, the government announced an agreement to expand the public funds designated for financial stabilization from 10 trillion yen to 43 trillion yen. 18 trillion yen was allocated to the FRA to finance the resolution of failed banks, while 25 trillion yen was allocated to the RRA to assist solvent banks.

2.2 Events leading up to passage of the Acts

The events leading up to the passage of the FRA and the RRA are listed in Table 1. The first event took place on July 2, 1998 when the LDP government announced its plan to deal with the huge amount of problem loans at Japanese banks. The plan included a number of provisions that appeared to promote regulatory reform. Banks would be encouraged to foreclose on bad loans, improve their asset transparency through the introduction of new accounting standards, and to strengthen bank supervision and regulation.

However, the primary component of the plan was a scheme to stabilize the financial system through the use of a bridge-bank regulatory system. Under this system, authorities could order a failed bank to stop its operation without finding an acquiring bank in advance. Instead, a public bridge bank would be established to continue operations. The 13 trillion yen in public funds earmarked for the Financial Crisis Management Accounts of the Deposit Insurance Cooperation (DIC) were to be made available to the bridge bank.

The Nihon Keizai Shinbun (July 3, 1998) predicted that this plan would accelerate the reorganization of problem Japanese banks by expediting merger activity. The newspaper also predicted that the law would lead to stricter bank regulation, particularly in assuring that banks

make greater loan-loss provisions. However, the opposition parties criticized the plan, claiming that the bridge bank framework would allow bank managers to retain their jobs after a failure.

The second event in our study is the upper house election on Sunday, July 12, which is treated as event date July 13 in our study. The LDP suffered huge losses during the event, which was partly seen as a referendum of the LDP's management of Japan's financial crisis. The poor results for the LDP implied that the opposition would have a voice in the shape of the financial reform legislation. After the election, the LDP only held 105 of the 252 upper house seats.

The next event date in the study is the agreement of the opposition parties on counter-legislation to the LDP's bill in the evening on August 25. The opposition parties' plan called for the creation of the FRC to deal with failed banks. However, the plan also called for changes that were expected to toughen Japanese regulatory policy: The FRC was to be independent of the Ministry of Finance. The opposition plan also called for liquidation -- as opposed to nationalization -- of failed banks, except in cases where closure would lead to extreme systemic risk for the financial system. Finally, the use of public funds to support weak functioning banks was to be prohibited.

A compromise agreement was reached on the evening of Friday, September 25. Earlier tentative agreements had been reached, but had fallen apart. The final composition of the FRA was seen as a major concession to the opposition. As the government preferred, the FRA codified the establishment of the FRC, reducing the regulatory influence of the Ministry of Finance, and introduced the bridge bank system for dealing with failed banks. In addition, the Act allocated public funds for the financing of bridge banks to take over nationalized banks. However, as the opposition had demanded, the Long-Term-Credit-Bank was to be nationalized and banks were required to report bad loans twice a year. The compromise agreement is the

fourth event in our study, timed as the first trading day subsequent to the news concerning the agreement, Monday, September 28.

Two relevant events took place on October 2. First, the FRA passed the lower-house. As a compromise agreement had already been reached, the lower-house passage did not constitute very significant “news” in the sense of new information to the market. However, the LDP revealed its RRA proposal on the same day. The LDP’s proposal called for the government to acquire over 50 percent of common stocks of international banks with capital ratios less than 4 percent and domestic banks with capital ratios below 2 percent. The plan also called for the injection of public funds into troubled banks through the purchase of preferred stocks. Since the compromise agreement implied that passage of the FRA was already all but certain, we interpret market changes on that date as primarily reflecting the revelation of the LDP’s RRA proposal.

On October 12, the FRA passed the upper house and became law. Again, as in the case of the lower-house passage, this did not constitute particularly significant news to the market. However, we include it as the sixth event in our time series.

On the evening of October 12, agreement was reached between the LDP and the opposition Heiwa-Kaikaku Party concerning the RRA. The agreement implied that the LDP now had sufficient votes to get the law passed. Under the compromise agreement, the LDP’s plans to use public funds were retained in return for several concessions, including stricter accounting standards and legal penalties for bank managers who falsify data. In addition, the funds set aside for public assistance of problem banks were increased from the 10 trillion yen initially sought by the LDP to 43 trillion yen, which consisted of an 18-trillion-yen Financial Reconstruction Account for failed banks and a 25-trillion-yen Rapid Restoration Account for problem banks.

This is the seventh event in our time series. Since this event took place after the market closed, it is timed as occurring on October 13. In addition, on the morning of October 13, the RRA was passed by the lower-house. The seventh event date therefore constitutes both of these events. However, the compromise agreement again already implied that passage was all but certain. We therefore interpret market changes on that date as primarily reflecting the terms of the compromise.

Finally, on Friday, October 16, the RRA was passed by the upper house and became law. Again, this event is unlikely to be extremely important on its own as a compromise agreement had already been reached, but we include it for completeness.

3. Methodology and Data

3.1 Event study methodology

We examine the impact of news concerning the events listed above on portfolios of banks of common regulatory class and on subsets of these groups that exhibit similar financial strength. We follow the event study methodology used in Aharony and Swary (1996). For each bank portfolio, we estimate the following equation

$$R_{pt} = \alpha_p + \beta_{mp} R_{mt} + \beta_{ip} \Delta i_t + \sum_{e=1}^8 \gamma_{pe} D_e + \varepsilon_{pt} \quad (1)$$

where R_{pt} represents the return on the bank portfolio on day t , α_p represents the constant term, β_{mp} represents the bank portfolio's market beta, R_{mt} represents the market return on day t measured as the daily return on the TOPIX index, β_{ip} represents the portfolio's sensitivity to changes in the interest rate, Δi_t represents changes in the overnight call rate, γ_{pe} represents the sensitivity of the bank stock portfolio to event e , D_e is a dummy variable for event e , equal to one

when $t=e$ and 0 otherwise, and ε_{pt} is a random disturbance term. Under this methodology, γ_{pe} represents the abnormal return of the bank portfolio on day t .

As in Akhigbe and Whyte (2001), we use the unorthogonalized two-index model. While other studies have used an orthogonalized framework [e.g. Flannery and James (1984)], these procedures have been shown to produce biased standard error estimates [Giliberto (1985), Kane and Unal (1988)].

Our specification estimates events within a single-day “event window.” Our estimation methodology is ordinary least squares (OLS). Given that our error terms are i.i.d. and normal, OLS should give unbiased estimates in event studies [MacKinlay (1997)]. Without normality, our results would not be exact in finite samples, but Brown and Warner (1985) have demonstrated that convergence to the asymptotic results is likely to be relatively fast. To ensure that our results are not driven by heteroscedasticity, we use White’s general standard error correction for heteroscedasticity.

Previous studies have also used SUR estimation techniques [e.g. Grammatikos and Saunders (1990) and Aharony and Swary (1996)] to gain efficiency by estimating different event study specifications jointly. However, as noted by Kane and Gibson (1996), SUR regression is identical to OLS in our specification because all of the portfolios have the same set of regressors.² Kane and Gibson use SUR regression to test the cross-equation restrictions in their specification. However, we introduce no such cross-equation restrictions here.

3.2 Data

² See Kennedy (1998) for more details.

Daily closing equity values for 114 Japanese banks were obtained from the Toyo-Keizai Kabuka CD-ROM for 737 days from January 6, 1997 to December 30, 1999. When a stock was not traded on a single day, it was assigned the previous day's closing price. Many Japanese banks list their stocks on several exchanges, such as Tokyo and Osaka. We adopt the convention of using the stock prices on the exchanges where the stock was most actively traded. Newly listed or de-listed banks whose equity values were not available were dropped from the sample. We also dropped thinly traded banks, defined as those who reported no transactions on more than 40 days in our sample period. This left us with 92 banks in our sample. Interest rate data was obtained from the Federal Reserve's FAME database.

As the bank failure announcements affected all banks in the sample on the failure date, we cannot assume that the residual returns are independent across banks. A standard response in the event study literature [e.g., O'Hara and Shaw (1990)] is to use the returns on a portfolio of banks. We therefore first construct several portfolios of banks based on their administrative category. The bank portfolios included in the study are *All*, a portfolio of all 92 banks in our sample, *Large*, a portfolio of the nine city banks and the Industrial Bank of Japan, *Trust*, a portfolio of seven trust banks, *First Regional*, a portfolio of the 55 First Regional banks; and *Second Regional*, a portfolio of the 20 Second Regional banks. In general, the *First Regional* banks are larger than *Second Regional* banks and have a higher probability of receiving favorable regulatory treatment.

4. Portfolio results

The results of estimation of equation (1) are shown in Table 2. The full portfolio did not display a statistically significant response to the first event, the government's announcement of

its plan for the FRA. Looking at the portfolios of the sub-samples, it is clear that this failure is caused by heterogeneity between the different classes of banks. The announcement was priced negatively by both the large and trust bank portfolios (with -1.40 percent and -2.25 percent returns respectively), but priced positively by both the first and second regional bank portfolios (with 0.15 and 0.66 percent returns respectively).

These results may indicate that plan had more adverse regulatory implications for large banks than had been expected. First, the plan called for the Financial Supervisory Agency to conduct extensive on-sight examinations of Large and Trust banks. These additional examinations may necessitate less profitable lending practices, such as the buildup of loan loss reserves at these banks.

In addition, the discrepancy between the pricing of the event by Large and Trust banks and that by the First and Second Regional banks may indicate that the market perceived that the announced plan for the FRA was more comprehensive than had been anticipated. In addition to the largest banks, whose difficulties would need to be addressed under any stabilization program, the program appears to have been perceived as providing assistance to the regional banks. Holding the amount of funds available for assistance constant, broadening the coverage would be bad news for the large and trust banks, as available funds would be depleted.

This hypothesis is supported by the fact that the coefficient estimate on the second regional bank portfolio is significantly greater than that on the first regional banks at a 5 percent confidence level. First regional banks were also generally privy to greater regulatory protection than their second regional bank counterparts.

The next event is the LDP's loss of majority in the Upper House of the Diet on July 13. The pricing of this event is also heterogeneous across banking portfolios, but there seems to be

little pattern to the heterogeneity. The full sample portfolio prices the event positively (with a return of 0.20 percent), as does the large bank portfolio and the first regional bank portfolio (with returns of 0.83 and 0.27 percent respectively). However the trust bank portfolio and the second regional bank portfolio price the event negatively (with returns of -0.31 and -0.06 respectively, although the estimate for the second regional bank portfolio is insignificant).

The lack of a clear pattern in the pricing of the election results probably reflects uncertainty about what the results meant for Japanese banks. Some interpreted the election results as indicating that reforms were imminent, which hasten recovery and benefit Japan's banks. On the other hand, it was also understood that the opposition would now move to block what they viewed as excessive protection of Japanese banks, particularly the treatment of large banks as being "too-big-to-fail."

This change can be clearly seen in the market's pricing of the next event, the unveiling of the opposition's alternative plan. This event was priced significantly negative by all of the portfolios, with the large bank portfolio experiencing the largest decline (a return of -3.16 percent). The announcement cast doubt on the degree of assistance banks, particularly large banks, would receive in the financial stabilization packages, as it prohibited the protection of large banks through bridge banks.

The announcement that compromise had been reached on the FRA on September 28 was priced significantly positive by the full sample portfolio (with a return of 0.35 percent). Nevertheless, there is heterogeneity by bank group similar to that found in the first event. The large and trust bank groups priced the event negatively (with returns of -2.55 and -5.72 percent respectively), while the event was priced positively by the first and second regional banks (with returns of 1.31 and 1.29 percent respectively).

The positive pricing of the compromise indicates that the FRA agreement reduced the uncertainty regarding Japanese financial system and was in net seen as positive for the banking sector. The exceptional behavior of the large and trust banks may be attributable to the details of the agreement regarding closure. The FRA allowed for nationalization to be imposed even on banks that were not yet insolvent. This type of nationalization actually took place with Nippon Credit Bank. The easing of restrictions concerning nationalization disproportionately hurt large and trust banks, as only these types of banks were considered candidates for nationalization.

On October 2, the FRA was passed in the lower house. However, the primary news was the announcement of the public funds package under the RRA. The news was unambiguously treated as positive for all of the bank portfolios. The full sample portfolio had a return of 1.16 percent. The largest single-group return was found for the large bank portfolio with an estimated return of 2.61 percent.

The upper house passage of the FRA on October 12 was also priced positively for all portfolio groups except the Second Regional banks. The full sample portfolio had a return of 5.11 percent. The largest single-group return was again found for the large bank portfolio with a return of 2.58 percent.

The compromise on the RRA was reached on October 13 and it passed the lower house. As we discussed above, the opposition exacted some concessions in the form of stricter bank supervision in return for its acceptance of the use of public funds to assist banks. It can be seen from the pricing of this event that these concessions appear to have been interpreted as bad news for the regional bank groups. Both the first and second regional bank groups priced the news negatively (with returns of -1.86 and -1.16 percent respectively). In contrast, the event appears to have represented good news for the large and trust banks, with returns of 3.09 and 3.85

percent respectively. It appears that these banks were perceived to disproportionately benefit from the provisions for capital injections to solvent banks.

Finally, the RRA passed the upper house on October 16. This event was hardly a surprise given that a compromise agreement had already been reached and the law had passed the lower house. However, the event was priced negatively by all portfolio groups except the second regional bank group. The full sample portfolio had a negative return of -0.69 percent. The steepest price decline was experienced by the large bank portfolio, which had a return of -3.23 percent.

5. Portfolio Return Differences by Financial Strength

To examine the implications of bank financial strength on the impact of the Stabilization Laws, we also constructed portfolios of subsets of the large and regional bank group portfolios examined above. These subsets are divided on the basis of financial strength.

For the Large and Trust banks in the sample, direct credit ratings are available. Using the Moody's credit rating as of October 1998, the weakest Large and Trust banks in our sample are Daiwa Bank, Chuo Trust Bank, and Yasuda Trust Bank.³ These banks all received the lowest rating of Baa3 in our sample. We therefore constructed a portfolio of these banks entitled *Weak Major*.⁴ The remaining Large and Trust banks were then grouped into a portfolio entitled *Strong Major*.

For most of the regional banks, however, credit ratings were not available. Instead, we used information from bank dividends from March 1997 to identify bank financial strength. Most

³ Recall that due to their failures, the weakest large Japanese banks, Long-Term Credit Bank and Nippon Credit Bank, are not included in our sample.

⁴ The large and trust bank portfolios were pooled because Daiwa was the only weak large bank

Japanese banks traditionally set their annual dividends per share at the same level, usually greater than or equal to five yen. Nevertheless, banks that experience financial difficulties often halt dividend payments, as Hyogo Bank did in 1992. As a result, interruption of dividend payments provides a signal of financial difficulty.

We therefore specify problem regional banks as those paying dividends of less than five yen. Six of the First Regional banks and three of the Second Regional banks in our sample paid less than five yen dividends per share.⁵ These comprise the portfolio of six First Regional banks entitled *Weak First Regional* and the portfolio of three Second Regional banks entitled *Weak Second Regional*.⁶ The remaining first and Second Regional banks are formed into the *Strong First Regional* and *Strong Second Regional* portfolios.

The differences in the returns for the portfolio sub-samples separated by financial strength are shown in Table 3.⁷ Recall from Table 2 that the first event, the announcement of the LDP plan for the FRA was priced significantly negative for the Large and Trust bank portfolios and significantly positive for the two regional bank portfolios. Table 3 demonstrates that within these portfolios there were also measurable differences. In particular, the impact on the weak major banks was measurably less negative than that on the strong major banks. As a result, while the LDP plan for the FRA was priced negatively for the large and trust banks as groups, the weakest large and trust banks priced the event measurably less negatively than the stronger Major banks. The results for the regional banks, in contrast, are insignificant.

and Chuo and Yasuda were the only weak trust banks.

⁵ Nippon Trust Bank is excluded as it was a subsidiary of Bank of Tokyo-Mitsubishi. As above, we also excluded failed Regional Banks.

⁶ The banks included in the *First Regional weak* portfolio are Hokkaido Bank, Hokuriku Bank, Ikeda Bank, Kantou Bank, Kiyou Bank, and Osaka Bank, while the banks included in the *Second Regional weak* portfolio include Hanshin Bank, Kansai Bank, and Kinki Bank.

⁷ Full regression results are available upon request from the authors.

An interesting pattern also emerges for the compromise agreement on the FRA on 9/28 (event D₄). Recall from Table 2 that this event was priced measurably negatively for the Large and Trust banks, but measurably positively for the First and Second Regional banks. The results in Table 3 indicate that the event was measurably less negative for the weak Major banks than for the strong Major banks. This indicates that within the class of Major banks the compromise was perceived to provide a relatively good outcome for the weaker banks. While the increased regulation called for under the FRA would have adverse implications for all major banks, equity holders of the weakest banks would stand to benefit most from the capital injections called for under the Act. In contrast, the event was priced positively for the First and Second Regional banks, but the results in Table 3 indicate that it was priced less positively for the weakest First and Second Regional Banks than for the rest of the group.

This pattern again indicates that some degree of reform was perceived to be included in the FRA, but that it was perceived to be limited to the smaller banks in the system. While the market treated the compromise agreement as bad news for the Large and Trust banks, the news was treated as better for the weak major banks. In contrast, while the market treated the FRA compromise agreement as good news for First and Second Regional Banks, the weaker banks within each of these regulatory classes treated the agreement as less positive news than their stronger counterparts. This suggests that the market expected that the concessions granted in the agreement would be primarily applied to the First and Second Regional Banks.

Finally, the 10/13 event (D₅), in which a compromise agreement was reached for the RRA, also has an interesting pattern. Recall that the event was priced positively for the Large and Trust Banks, but negatively for the First and Second Regional banks. The results in Table 3 demonstrate that the event was priced more positively (or less negatively) for the weaker

Regional Banks, although not significantly so for the weaker Major banks. This result also provides some indication that the RRA was perceived to disproportionately benefit the weaker Japanese banks.

6. Cross-sectional evidence

Following Brewer, et al (1999) and Spiegel and Yamori (2001), we proceed in two stages: First, we estimate excess returns for each of the 92 banks in our sample for each event date. Second, we regress the estimated excess returns on each event date on several fundamental variables, including the size of each bank.

We use the natural log of total assets, *ASSETS*, as a proxy for bank size. If market participants believed that large banks benefit more from the news concerning the Stabilization laws on a given event date, the *ASSETS* variable should carry a positive sign on that date. Since our specification conditions for financial position, we would expect the primary impact of the Stabilization laws on the *ASSETS* variable to reflect changes in the relative safety net for larger banks with the passage of those laws. In particular, we would expect a negative coefficient on the *ASSETS* variable on event dates that correspond to news favorable to concessions in the FRA to the Opposition demands that too-big-to-fail policy be curtailed.

We also examine financial strength. If the news on the examined event date was expected to benefit weak banks more than strong ones, we would expect negative coefficient estimates on indicators of financial strength and positive coefficients on indicators of financial weakness. We introduce three bank risk measures: First, we measure leverage with *CAPRATIO* a measure of the ratio of equity to total assets. We also use the ratio of bad loans in the bank's lending portfolio to total assets, *BADLOAN*. Our definition of bad loans includes loans with

delayed or reduced payments, as well as loans to bankrupt firms. Finally, we use the returns on equity, *ROE*, as a proxy for current performance or profitability.

Because different regulatory classes of banks are treated differently, we introduce dummies for bank regulatory classes. *TRUST*, *RB1*, and *RB2* represent dummies indicating trust banks, first regional banks and second regional banks respectively. As such, the coefficient on the constant term can be interpreted as reflecting the excess returns experienced by banks in the Large group.

The results are shown in Table 4. Looking across the event dates, one can see that the event dates with the highest Adjusted R-squares are events D_4 and D_7 , the dates of the compromise agreements on the FRA and the RRA respectively. In addition, event D_2 displayed the lowest adjusted R-squared, supporting the hypothesis that this event increased the uncertainty concerning the impact of the legislation.

We organize our remaining discussion in terms of the explanatory variables. The *ASSETS* variable enters significantly on three event dates. First, the *ASSETS* variable enters measurably negative on the two event dates that would be most closely associated with passage of the FRA. These are the announcement of the LDP plan for the FRA on July 2 and the announcement of the compromise agreement on the FRA on September 28. These results are consistent with the portfolio results above that suggested that the Large and Trust banks would benefit less from the passage of the FRA than the Regional banks.

However, the announcement of the compromise agreement on the RRA has a statistically significant positive coefficient on the *ASSETS* variable. This would indicate that large banks were expected to benefit more from the RRA than small banks. This result would be intuitive if large banks were expected to disproportionately benefit from the capital injections for

solvent banks, or if the small banks were expected to face disproportionate increases in the strictness of regulatory policy.

The *BADLOANS* variable enters significantly negative on the October 12 date of the passage of the FRA in the upper house. This result sheds doubt on the hypothesis that the FRA acted disproportionately in the interest of troubled banks. However, the variable enters positively and significantly on October 13, the date of the compromise agreement on the RRA and its lower-house passage. This result indicates that the RRA was seen to disproportionately benefit weak banks.

The *CAPRATIO* variable enters significantly for three of the individual event dates. First it enters positively on September 28, the date of the compromise agreement for the FRA. This result suggests that the benefits associated with the FRA were expected to be greater for less leveraged firms. This result is probably driven by the performance of regional banks in Table 3, which demonstrated that strong regional banks performed better on this date than weak regional banks. As 75 of the 92 banks in our sample are regional banks, the cross-sectional results would disproportionately reflect regional bank results.

The *CAPRATIO* variable also enters significantly negatively on the October 3 and October 12 event dates. These dates correspond to the passage of the FRA in the lower house and the announcement of the plan for the RRA, and the passage of the FRA in the upper house respectively. If we interpret the October 3 date as primarily reflecting the RRA announcement as the FRA compromise has already been struck, the negative coefficient on the *CAPRATIO* variable can be understood as an indicator that the RRA was expected to be anti-reform. However, the negative coefficient on the *CAPRATIO* variable for the October 12 event date is

surprising in light of the negative coefficient obtained for the same date on the *BADLOAN* variable.⁸

The *ROE* variable fails to enter significantly for any of the individual event dates.

Turning to the group dummies, the *TRUST* dummy enters significantly negative on the July 2 announcement date of the LDP plan for the FRA, and on the September 28 announcement of the compromise agreement on the FRA. This supports the hypothesis that the trust banks were perceived to benefit less than other groups from the financial stabilization package.

The regional bank dummies enter significantly negative on October 12 event date (D_6), the date of the upper house passage of the FRA. This supports the evidence above that the regional banks were expected to benefit less from the FRA than the large and trust banks. The regional bank dummies also enter significantly positive at a ten percent confidence level on August 26th, the date of the unveiling of the Opposition's alternative plan for the FRA (D_3) and on October 16th, the date of upper house passage of the RRA (D_8). The August 26th results probably reflect that the Opposition's alternative plan would have worse implications for the Large and Trust banks than for the regional banks. The October 16th results probably reflect the expectation that the benefits to Large and Trust banks would be less than expected due to the growing demand for punishment of management of banks receiving public funds.

7. Conclusion

The Japanese financial reforms of 1998 included the Financial Reform Act (FRA), which determined the new framework for dealing with failed banks, and the Rapid Revitalization Act (RRA), which provided for the injection of government funds to assist weak solvent banks.

⁸ The negative coefficient on *CAPRATIO* becomes insignificant when the *BADLOAN* variable is dropped from the specification.

Because of political constraints faced by the ruling LDP Party, these acts represented a compromise in which assistance to the troubled banking sector was granted in return for regulatory reforms. As such, it was unclear whether the passage of these acts were expected to lead to true reform of the banking system or whether the injection of government funds into the system would facilitate prolonged delay in financial reform.

This paper examines the market's perception of the impact of these acts through the movement of Japanese bank equity values over the period of news concerning the passage of the Acts. We examine portfolios of banks by regulatory groups and by subsets separated by bank strength. We also examine cross sectional evidence concerning the determinants of excess returns for a bank by regulatory group and bank characteristics.

Our results suggest that the FRA was expected to diminish the regulatory advantages enjoyed by large banks. We find the Large and Trust bank group portfolios significantly negatively priced both the July 2 government announcement of its plans for the FRA and the September 28th compromise agreement on the FRA, while these events were priced significantly positive for the First and Second Regional Bank portfolios. In addition, the cross-sectional results suggested that the abnormal returns on these event dates were significantly negatively related to bank size, as measured by total assets.

The evidence concerning the impact of the FRA by financial strength was mixed. On one hand, there was some indication that the FRA would disproportionately benefit financially stronger banks, suggesting that the Act was “pro-reform” to some extent. Portfolio results for the September 28th FRA compromise date showed strong First and Second Regional Banks performing measurably better than their financially weak counterparts. In addition, the cross-sectional evidence shows that the *CAPRATIO* variable entered significantly positive on that date,

suggesting that less-leveraged firms were expected to do better under the agreed-upon terms of the FRA. The *BADLOAN* variable is also significantly negative on the October 12 upper house passage date.

Nevertheless, portfolio results for the Large and Trust Banks separated by financial strength showed weak Large and Trust Banks performing measurably better than their financially strong counterparts on both the July 2 announcement date and the September 28th compromise date. In the case of the July 2 date, the discrepancy appears to indicate that the LDP's original plan for the FRA would have benefited weak Large and Trust banks because of the maintenance of too-big-to-fail policies through the bridge bank system. In the case of the compromise date, the disparity in results by financial strength may have reflected a reduction in the share of banks perceived as candidates for closure. In particular, it became clear that that the FRA would be invoked primarily to close Regional banks, and would not result in the closure of any Large and Trust banks.

Indeed, that is what appears to have taken place subsequent to the passage of the law, as five regional banks were closed over the following year, but no large or trust banks were nationalized following the immediate closure of Long Term Credit Bank and Nippon Credit Bank.

In contrast, our results for the RRA suggested that the Large and Trust Banks were expected to disproportionately benefit from that Act relative to their First and Second Regional Bank counterparts. The October 13th date of the compromise agreement on the RRA was priced measurably positive for the Large and Trust bank portfolios, but measurably negative for the First and Second Regional Bank Portfolios. In addition, our cross-sectional results show that

abnormal returns on that event date were significantly positively related to bank size as measured by total assets.

There also appears to be relatively robust evidence that news concerning the passage of the RRA was treated as “anti-reform,” in the sense that the act was perceived to disproportionately benefit weaker Japanese banks. In particular, with portfolio groups separated by financial strength, weaker banks in all groups priced the October 13th RRA compromise more positively than stronger banks. This disparity was significant for the First and Second Regional Banks, but insignificant for the Large and Trust banks. In addition, the cross-sectional results indicate that abnormal returns on the compromise date were significantly positively correlated with the *BADLOANS* variable.

In summary, our results suggest that while there was some perception that the FRA would lead to adverse treatment of weaker regional banks, the market expressed a healthy skepticism that the overall regulatory changes of 1998 would lead to serious regulatory reform. News concerning the passage of the laws, particularly the RRA, was treated as disproportionately beneficial to the weaker banks in the Japanese financial system. Given the performance of Japan’s banking system subsequent to the passage of the FRA and the RRA, it appears that the apparent skepticism of the market concerning the pace of reform afforded by these regulatory changes was validated.

Table 1

Events surrounding the passage of the Financial Reconstruction Act (FRA) and the Rapid Revitalization Act (RRA) (7/2/98-10/16/98)

Event	Event Date	Description
D ₁	7/2/98	Government announces plan to deal with problem loans at Japanese banks (FRA).
D ₂	7/13/98	Upper house election takes place. LDP loses its majority.
D ₃	8/26/98	Opposition unveils alternative reform plan.
D ₄	9/28/98	Compromise agreement reached on FRA.
D ₅	10/2/98	FRA passed in lower-house. Government announces plan to inject public funds into banking system (RRA).
D ₆	10/12/98	FRA passes upper house.
D ₇	10/13/98	Compromise agreement reached on RRA. RRA passes lower-house.
D ₈	10/16/98	RRA passes upper house.

Table 2⁹**Bank Portfolio Results**

<u>Variable or event date</u>	<u>All Banks</u>	<u>Large Banks</u>	<u>Trust Banks</u>	<u>1st Regional</u>	<u>2nd Regional</u>
α_p	-0.0007** (0.0003)	-0.0010 (0.0006)	-0.0013 (0.0008)	-0.0006** (0.0002)	-0.0006* (0.0003)
R_{mt}	0.79922** (0.0272)	1.7798** (0.0649)	1.8906** (0.0830)	0.6112** (0.0285)	0.4439** (0.0246)
Δi_t	0.0054 (0.0138)	-0.0377 (0.0247)	-0.0467 (0.0401)	0.0176 (0.0115)	0.0115 (0.0150)
D ₁ – FRA LDP Plan	-0.0009 (0.0007)	-0.0140** (0.0013)	-0.0225** (0.0022)	0.0015** (0.0006)	0.0066** (0.0008)
D ₂ – U. House Election	0.00214** (0.0004)	0.0083** (0.0011)	-0.0031** (0.0014)	0.0027** (0.0004)	-0.0006 (0.0004)
D ₃ – FRA Opp. Plan	-0.0112** (0.0004)	-0.0316** (0.0009)	-0.0247** (0.0013)	-0.0067** (0.0004)	-0.0088** (0.0004)
D ₄ – FRA Compromise	0.0035** (0.0004)	-0.0255** (0.0011)	-0.0572** (0.0014)	0.0131** (0.0004)	0.0129** (0.0004)
D ₅ – RRA LDP Plan	0.0116** (0.0005)	0.0261** (0.0009)	0.0256** (0.0014)	0.0096** (0.0004)	0.0050** (0.0005)
D ₆ – FRA U. House	0.0051** (0.0012)	0.0258** (0.0028)	0.0178** (0.0036)	0.0029** (0.0011)	-0.0035** (0.0010)
D ₇ – RRA Compromise	-0.0073** (0.0007)	0.0309** (0.0016)	0.0385** (0.0021)	-0.0186** (0.0007)	-0.0116** (0.0006)
D ₈ – RRA U. House	-0.0069** (0.0009)	-0.0323** (0.0021)	-0.0390** (0.0028)	-0.0017* (0.0009)	0.0025** (0.0009)
R-square	0.6755	0.6452	0.5265	0.5861	0.3531
Log Likelihood	2568.15	1931.9	1708.22	2611.45	2496.31
F-Statistic	151.1686	132.03	80.751	102.8231	39.643

⁹ Whites heteroscedasticity-corrected standard errors in parentheses. * indicates significance at 10% confidence level, while ** indicates statistical significance at a 5% confidence level.

Table 3¹⁰**Bank Sub-Sample Portfolio
Return Differences**

Event	Weak Minus Strong Major	Weak Minus Strong First Regional	Weak Minus Strong Second Regional
D ₁ – FRA LDP Plan	0.006** (0.003)	0 (0.001)	0 (0.002)
D ₂ – U. House Election	0.008** (0.002)	-0.004** (0.001)	0.010** (0.001)
D ₃ – FRA Opp. Plan	0.014** (0.002)	-0.005** (0.001)	0.004** (0.001)
D ₄ – FRA Compromise	0.065** (0.002)	-0.033** (0.001)	-.018** (0.001)
D ₅ – RRA LDP Plan	-0.013** (0.002)	-0.009** (0.001)	0.01** (0.001)
D ₆ – FRA U. House	0.014** (0.006)	-0.01** (0.003)	-0.01** (0.003)
D ₇ – RRA Compromise	0.001 (0.003)	0.011** (0.002)	0.031** (0.001)
D ₈ – RRA U. House	-0.015** (0.004)	-0.010** (0.002)	0 (0.002)

¹⁰ Full regression results are available upon request from the authors. Major banks include Large and Trust banks. White's heteroscedasticity-corrected standard errors in parentheses. * indicates significance at 10% confidence level, while ** indicates statistical significance at a 5% confidence level.

Table 4¹¹
Cross-Sectional Results

Event Date	C	ASSETS	BAD LOANS	CAP RATIO	ROE	TRUST	RB1	RB2	Adj- R ²
D ₁ – FRA LDP Plan	0.145 (1.614)	-0.009* (-1.835)	0.137 (0.505)	-0.025 (-0.128)	0.007 (0.916)	-0.026** (-2.418)	-0.010 (-0.631)	-0.011 (-0.591)	0.171
D ₂ – U. House Election	-0.044 (-0.626)	0.002 (0.520)	0.170 (0.685)	0.384 (1.611)	-0.014 (-1.533)	-0.017 (-1.100)	-0.001 (-0.117)	-0.004 (-0.288)	0.026
D ₃ – FRA Opp. Plan	-0.046 (-0.712)	0.000 (0.113)	0.031 (0.155)	0.287 (1.402)	0.002 (0.218)	0.004 (0.285)	0.022* (1.918)	0.022* (1.790)	0.127
D ₄ – FRA Compromise	0.176 (1.314)	-0.010** (-1.995)	0.750 (1.633)	1.486** (3.101)	-0.011 (-0.780)	-0.091** (-3.106)	-0.016 (-0.790)	-0.020 (-0.899)	0.405
D ₅ – RRA LDP Plan	0.064 (0.768)	-0.001 (-0.221)	-0.424 (-1.486)	-0.590** (-2.401)	-0.007 (-0.832)	0.013 (0.877)	-0.010 (-0.725)	-0.018 (-1.110)	0.065
D ₆ – FRA U. House	0.178* (1.668)	-0.006 (-1.100)	-1.286** (-4.086)	-0.594** (-2.224)	0.009 (0.893)	0.015 (0.716)	-0.040** (-2.051)	-0.040** (-2.070)	0.174
D ₇ – RRA Compromise	-0.260** (-2.614)	0.015** (2.843)	1.247** (3.581)	0.301 (1.025)	0.007 (0.890)	0.007 (0.305)	-0.011 (-0.632)	0.002 (0.075)	0.371
D ₈ – RRA U. House	-0.079 (-0.621)	0.002 (0.267)	-0.254 (-0.692)	0.648 (1.643)	-0.012 (-1.134)	-0.008 (-0.586)	0.0280* (1.7567)	0.037* (1.714)	0.221

¹¹ Whites heteroscedasticity-corrected t-statistics are in parentheses. * indicates significance at 10% confidence level, while ** indicates statistical significance at 5% confidence level.

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