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ABSTRACT

Since August 1995, Japanese banks have had to pay a premium on Eurodollar and Euroyen interbank loans relative to their U.S. and U.K. competitors. This so-called "Japan premium" provides a market indicator of investor anxiety about the ability of Japanese banks to repay loans. We examine the determinants of the Japan premium and find that government announcements not associated with concrete actions had little impact. On the other hand, announcements of concrete actions by the Japanese government, such as injections of funds into the banking system, tended to have an effect on the size of the Japan premium.

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Determinants of the Japan Premium: Actions Speak Louder than Words

One of the most important global financial problems to emerge in the 1990s was the crippling of the Japanese banking system. Japanese banks with large shareholdings had their capital seriously eroded by the collapse of the Japanese stock market at the beginning of the decade. The depletion of bank capital was exacerbated by the dramatic decrease in commercial real estate prices, resulting in huge increases in nonperforming loans. Not only has the banking crisis slowed the recovery of the world's second largest economy (IMF 1998), it has dramatically decreased lending by the largest global lenders.

During the early 1990s, all ten of the world's largest banks were headquartered in Japan. In addition, their aggressive international expansion during the 1980s had resulted in significant foreign penetration.[1] Much of this international expansion had been funded by heavy reliance on purchased funds. At their peak, Japanese banks were borrowing over $100 billion from other financial institutions, financed in part by Eurodollar and Euroyen borrowing. Although inadequate capital ratios had already provided an incentive for Japanese banks to shrink their international lending (Peek and Rosengren 1997, 1999), the emergence of a premium paid for interbank borrowing by Japanese banks relative to their major competitors in the United States and Europe, the "Japan premium," made much of their international lending unprofitable and further pressured Japanese banks to shrink. This development has significant ramifications for the financial health of the Japanese banking system, for the role of Japanese banks in global lending, and for the development of Japanese government programs to resolve their banking crisis.

The emergence of the Japan premium is critically important to Japanese banks because they pursued strategies contingent on exploiting cost advantages relative to U.S. and European banks. By focusing on high-volume, low-margin businesses, Japanese banks were able to rapidly expand their global penetration at a time when they had excess capital as a result of rising stock prices during the 1980s. Low-margin businesses did not require establishing lending relationships. Instead, Japanese banks relied on prices that were low relative to those of competitors. Their low borrowing costs enabled them to rapidly expand lending to blue chip U.S. companies, aggressively expand lending in offshore centers such as Hong Kong and Singapore, and have a strong presence in many off-balance-sheet activities, such as lines of credit.

The emergence of the Japan premium was a major impediment to competing for low-margin businesses. McCauley and Yeaple (1994) report that many Asian loan participations were for less than 75 basis points over LIBOR. During several periods, Japanese banks were paying a Japan premium of more than 75 basis points for their interbank borrowing for both Eurodollar and Euroyen contracts. This would result in a loss on any new loans funded by interbank borrowing, even ignoring the overhead costs involved in loan participations. With interbank borrowing at 1997 levels and a 75-basis-point premium that was maintained for an entire year, the additional funding costs for Japanese banks would amount to approximately $1 billion dollars. Such large potential losses encouraged Japanese banks to decrease activities that were originally initiated by exploiting cost advantages. Consistent with this result, Japanese banks have dramatically decreased lending in the United States, lending to off-shore markets such as Singapore and Hong Kong, and off-balance-sheet activities.

The Japan premium also has ramifications for global finance. A higher Japan premium encourages Japanese banks to significantly alter their activities, reducing their exposures in foreign credit markets and in many of the wholesale markets. The associated retrenchment by Japanese banks in specific credit markets raises costs to loan customers in those markets generally. In particular, Japanese banks will be less prepared to lend on past terms to current borrowers, providing an incentive to renegotiate or end some lending relationships. This retrenchment will be particularly significant in Southeast Asia; not only are Japanese banks the largest global lenders there, but their activities have been particularly focused in many Southeast Asian countries. Furthermore, any retrenchment will occur at a time when bank loan substitutes may be difficult to find in Southeast Asian markets.

The Japan premium is also important for government policies towards banks. The increases in the Japan premium around the time of the Hokkaido Takushoku failure were used to justify avoiding additional closures of large troubled banks, although subsequently Nippon Credit Bank (NCB) and Long-Term Credit Bank (LTCB) were nationalized. These increases have also been used to justify the infusion of government money into troubled banks, the encouragement of large, healthier banks to acquire (or financially support) their more troubled brethren (the convoy policy), and the implementation of accounting practices that improve capital ratios but reduce still further the transparency of bank accounting statements. Thus, understanding the determinants of the Japan premium may be useful in evaluating the wisdom of many of the bank reform measures that have been implemented recently or are being considered at this time.

This paper examines the factors most responsible for movements in the Japan premium since 1995. Major financial market disruptions, major government policy actions, and major changes in financial market conditions all had an impact on the size of the Japan premium. The largest movements in the Japan premium appear to be associated with announcements of large, previously undisclosed losses. For example, the announcement of the failure of Hokkaido Takushoku was not associated with an increase in the Japan premium, while the announcement of large previously unreported losses associated with the Yamaichi Securities failure caused the premium to increase substantially.

Government actions also influenced the Japan premium. Major injections of government funds directly into banks decreased the Japan premium. Such announcements would clearly indicate a desire by the government to resolve the banking crisis, and the new infusions of equity capital would reduce the probability that banks would be closed. Actions to strengthen supervision raised the premium on short-term eurodollar and euroyen borrowing, consistent with an increased probability that the weaker institutions would fail. Actions encouraging mergers of strong with weaker institutions also increased the Japan premium. Requiring healthy banks to bail out their weaker brethren would make questionable the financial health of even the strongest Japanese banks. In contrast, government statements not associated with concrete actions had little impact.

The first section of the paper discusses general movements in the Japan premium since 1995 and the recent retrenchments by Japanese banks from wholesale banking markets. The second section discusses the data and methodology. The third section investigates factors that have affected the size of the Japan premium. The final section concludes.

1. Background

The Japan premium emerged in August 1995 and was widespread, with all major Japanese banks required to pay higher interest rates on interbank Eurodollar and Euroyen borrowing than those paid by large U.S. and European banks. That this risk premium was assessed by the markets only in late 1995 is particularly striking because the precipitous declines in Japanese equity and commercial real estate prices that had resulted in a substantial deterioration in the financial health of Japanese banks had occurred much earlier.

It was a change in the perceived willingness of the Japanese government to protect unsecured creditors that altered the willingness of internationally active banks to lend to Japanese banks on roughly the same terms as to major U.S. and European banks. Prior to August 1995, no Japanese commercial bank had failed in the postwar period. While financial failures had occurred, they had been relatively small credit cooperatives that were not publicly traded, since they were privately held by their depositors. Furthermore, non-depository creditors as well as depository creditors (including those with deposits above deposit insurance ceilings) had been fully protected by the Japanese government. Thus, government policies toward financial failures had led many to believe that the Japanese government would not allow a publicly traded commercial bank to fail, but that if it did, major stakeholders would be protected.

This illusion collapsed with the failure of Hyogo Bank. Hyogo was the 38th largest bank in Japan, with $37 billion in assets. Its failure marked the first time that a publicly traded commercial bank was allowed to fail (Brewer et al. 1999).[2] In addition, shareholders and large creditors of the bank suffered losses. Because the largest shareholders and creditors were other banks, this involved significant losses for many of Japan's biggest banks.

Eurodollar and Euroyen lenders would experience losses if a Japanese bank failed and the Japanese government allowed non-depository creditors to share in the losses. The failure of Hyogo and its resolution highlighted the possibility that both of these conditions might well be met. As a result, all Japanese banks borrowing in the Eurodollar and Euroyen market began to pay premiums over the interbank rates paid by U.S. and European banks. It was viewed as a "Japan premium," rather than just an individual bank risk premium, because all Japanese banks were required by the market to pay roughly the same premium, regardless of their relative financial health. That all Japanese banks had to pay this premium had significant ramifications, not only for the international banking strategy of Japanese banks, which had depended on interbank borrowing to fund their rapid global expansion, but also for the global cost of funds for borrowers in markets in which Japanese banks had been active lenders.

Figure 1 shows the Japan premium for interbank loan rates (ILRs) on one-year yen contracts. The spread is shown for two banks, Bank of Tokyo-Mitsubishi and Fuji Bank, and is calculated as the difference between the one-year rate reported by each of the Japanese banks and the average ILR for the six banks from the United States and the United Kingdom that are included in the LIBOR quote. Because Bank of Tokyo-Mitsubishi (BOTM) is one of the strongest Japanese banks and tends to pay the lowest Japan premium, the spread between its ILR and that of the U.S.-U.K. average ILR can serve as a proxy for the base "Japan premium." On the other hand, other major Japanese banks, such as Fuji Bank, have been considered to be relatively more troubled. While both banks paid essentially the same premium from August 1995 until November 1997, since that time (especially following the failure of Yamichi

Securities), the major Japanese banks have been required by the market to pay a premium larger than that paid by BOTM.

The Japan premium has been high during four distinct periods since 1995: The late summer-early fall of 1995, when the premium first emerged; after several large financial nationalizations in November 1997; a brief sharp spike in late June 1998 when LTCB first was rumored to merge with Sumitomo Trust; and in October of 1998. Because of the size of the Japan premium, particularly since November 1997, Japanese banks have suffered from a major cost disadvantage relative to their European and U.S. competitors. For example, while U.S. and British banks bought one-year Euroyen funds for 0.19 percent, on average, in October 1998, the cost to Japanese banks averaged 0.78 percent, a cost of funds four times greater than that of their competitors. The same pattern emerged in the Eurodollar market. While the average cost of one-year Eurodollar interbank loans for U.S. and British banks was 4.82 percent in October 1998, the comparable rate for Japanese banks was 5.58 percent.

Such a large (76-basis-point for the Eurodollar contract) cost disadvantage for marginal funds would likely eliminate Japanese banks from many loan participations. McCauley and Yeaple (1994) report that many of the large Asian loan participations in earlier years had been for less than 75 basis points over LIBOR. The magnitude of the premium indicates that the cost of marginal funds has made many loan participations uneconomical for Japanese banks, and it would not be surprising to observe these banks pulling back from markets characterized by low margins.

In fact, the Japan premium has become a major impediment to the global strategy of many Japanese banks. While their problems with low capital ratios and substantial

nonperforming loans had already caused many Japanese banks to pull back from U.S. markets beginning in 1992 (McCauley and Yeaple 1994 ; Peek and Rosengren 1997, 1999), the pressure to retrench was intensified to the extent that Japanese banks no longer had cost advantages. Beginning in 1995, Japanese banks began retreating from offshore markets such as Hong Kong and Singapore (Peek and Rosengren 1998), and they continued to withdraw from low-margin markets in the United States. While problems with maintaining Bank for International Settlements (BIS) capital requirements that emerged in the early 1990s caused the initial decline in Japanese lending overseas, the emergence of the Japan premium in 1995 made many of these activities unprofitable, as well as an expensive use for scarce capital.

2. Methodology for Examining the Determinants of the Japan Premium

The existence of the Japan premium indicates that creditors believe they have a higher probability of a loss of principal and interest from loans to Japanese banks than they do from loans to U.S. and European banks. Evaluating the risks from lending to Japanese banks involves making two assessments. The first is related to an economic question: What is the probability that the bank will experience losses sufficient to make it insolvent? The second is partly political and partly economic: Given the failure of one or more Japanese banks, will the government be able and willing to shield creditors from losses? If Japanese banks have a higher probability of failure or a lower probability of receiving government support, compared to their U.S. or European peers, then creditors will demand an additional risk premium to provide interbank loans to a Japanese bank. Note that even if Japanese banks had a much higher probability of

failure, if the Japanese government could credibly stand ready to guarantee all debts, Japanese banks might not be required to pay an additional premium.

The Japan premium data are based on the individual quotes from the contributor panel of banks used to calculate LIBOR. The data are from Bloomberg and represent the quotes used by the British Bankers Association (BBA) for the daily LIBOR fixing as of 11:00 a.m. London time.[3] Note that 11:00 a.m. London time would correspond to 8:00 p.m. in Tokyo, well after the financial markets had closed for the day and after most announcements in Japan that occur after the close of Japanese trading.[4]

We focus on Bank of Tokyo-Mitsubishi and Fuji Bank because they are the only Japanese participants included in the LIBOR panels for all four contracts considered in this study, and they were deemed to be sufficiently active to not be dropped in January 1999 when the BBA changed the composition of its LIBOR panel. This should obviate any concerns with the contract being an offer rate rather than a transactions price, a potential problem if we focused on banks that the BBA felt were no longer active enough to remain in the panel of banks used for the LIBOR quote.[5]

Figure 1 showed the level of the Japan premium as the difference between what BOTM and Fuji pay on a given LIBOR contract relative to the average paid by U.S. and U.K. banks. Our empirical work estimates the following equation:[6]

$$\Delta JPREMIUM_{j,t} = \alpha_0 + \alpha_1 \Delta MARKET_{t-1} + \alpha_2 EVENT_t + \varepsilon_{j,t}. \qquad (1)$$

The dependent variable, ΔJPREMIUM, is the change in the ILR quote reported for the Japanese bank on day t for a particular contract (currency and duration), minus the corresponding change in the average ILR offered by U.S. and U.K. banks for a contract with the same currency and duration. The change is calculated as the difference between two contiguous trading days.[7] The estimation uses daily data for the period February 1, 1995, through March 31, 1999.

We examine four different LIBOR contracts: the one-month U.S. dollar ILR, the one-year dollar ILR, the one-month yen ILR, and the one-year yen ILR. The average of the ILR quotes for the set of U.S. and U.K. banks that serves as the reference rate are for those banks included by the BBA in the LIBOR fixing (as reported by Bloomberg) for the particular contract on date t.[8] The individual quotes are frequently the same across these banks on any given day and they generally track each other quite well. Thus, the average would not be affected materially by the inclusion or exclusion of a particular bank from our sample.

The first set of explanatory variables (ΔMARKET) controls for changes in market variables that might affect the probability of Japanese bank failures. Japanese banks have extensive cross-shareholdings with many of their major loan customers. Prior to recent accounting changes, accrued capital gains on these holdings were counted in Tier 2 capital, directly affecting their reported total capital. While reported capital has now been insulated from market movements at those banks that have chosen to report shareholdings at book rather than market values, the true economic capital of Japanese banks will still be impaired by potential losses on their shareholdings, should they need to liquidate their cross-shareholding positions. To control for sensitivity to the likelihood of Japanese banks failing based on potential capital losses on their shareholdings, we include the percent change in the Nikkei index for that day.[9]

We use the quote for the same day because the Nikkei is closed for the day prior to 11:00 a.m. London time when the LIBOR is fixed. The second variable in this set is the percentage change in the yen-dollar exchange rate for the previous trading day. The exchange rate may be important for a number of reasons. For example, a decline in the value of the yen will increase the yen value of dollar-denominated assets held by Japanese banks, putting pressure on bank capital ratios as the yen value of assets rises relative to yen-denominated bank capital. Because we use the value at the New York close for the exchange rate, this variable is lagged one day.

The second set of variables is composed of dummy variables that capture particular events that might be relevant to either the probability of Japanese bank failures or the ability or willingness of the government to protect creditors from such failures. The dummy variables are constructed to have a value of one on the event day and zero otherwise. The estimated coefficient on the dummy variable indicates the one-day change in the level of the Japan premium associated with the event.

The events are grouped into five general categories: ratings downgrades, failures of financial institutions, failures of nonfinancial firms, government announcements of concrete actions, and government announcements representing statements unaccompanied by concrete actions (words). Table 1 provides a chronological list of the events used in the study with the date and event category identified, as well as a brief description of each event.

For all but the actual failures of financial institutions, we create a one-day event window for each event. We include a two-day event window for a failure of a financial institution, in order to capture the uncertainty surrounding the nature of the resolution of financial failures during this period. It is possible to so narrow the event window because Japanese markets have

already closed by the 11:00 a.m. London fixing of the LIBOR quotes. All events are verified to ensure that the announcement was available at 11:00 a.m. London time.[10] This enables us to avoid the wider windows employed in most studies, which often cannot verify whether, on the day of the event, the announcement occurred before the market opened, while the market was open, or after the close. Because the events often occur in clusters, wider event windows would complicate the estimation and the interpretation of the results, and in many instances the event windows would include dates that overlapped with those for other events.

The first set of events relates to the role of outside monitors. Rating agencies may have less information than the government about the condition of banks, but they may be more objective in assessing the information they do have. The rating agencies are worried about the risk that creditors will experience losses. Thus, their evaluations include assessments of the financial health of the firm as well as of the likelihood that the government will arrange an exit for the bank that does not result in losses to creditors.[11] We include announcements of actual downgrades of Japanese banks. We include only announcements in which at least two Japanese banks are mentioned and at least one of the banks being downgraded is one of the nine Japanese banks active in the dollar or yen LIBOR markets.[12] This permits a focus on major downgrades and eliminates the numerous downgrades associated with scandals or problems at individual banks.

The second set of events focuses on failures of Japanese financial institutions. We include failures of banks and of other financial firms that might alter the probability of failure of individual banks or of all banks. We limit the set of failure events to those of firms with at least 1 trillion yen in assets, as of 1994.[13]

The third set of events contains failures of nonfinancial firms with assets exceeding 250 trillion yen. Large nonfinancial failures are potentially important, insofar as they reveal either a larger volume of nonperforming loans at banks than previously reported or a lower probability of recovery for previously declared nonperforming loans.

The next two sets of events include government announcements. Because of the large number of government announcements made during this period, we limited this set to those announcements deemed to be major, in order to keep the set of events manageable. To ensure objectivity in the selection, we restricted the set of government announcements considered to those reported in The Wall Street Journal in a long or medium-length article directly related to the banking industry, plus those events highlighted by the Bank of Japan in the Chronology of Events for each fiscal year reported in its Annual Review. The Wall Street Journal articles were identified using the Japan section of The Wall Street Journal Index. Once the announcements were identified, they were checked on Bloomberg to obtain a definitive time for the announcement, so that the correct day for the event dummy variable could be identified.

Government announcements were further subdivided into announcements of concrete actions and announcements with no concrete actions. Announcements of concrete actions include four subcategories: those related to the infusion of government funds into banks, actions to strengthen supervision, actions taken to relax regulations, and government actions encouraging healthy banks to acquire the weaker banks (the convoy system). We include five subcategories of statements unaccompanied by concrete actions (words): statements of intentions to resolve the nonperforming loan problem, statements that banking problems had been resolved, statements concerning the need to expand disclosure, and announcements of changes in the total

amount of nonperforming loans at banks. We also include as control variables a set of events related to resolving the Jusen problems and five miscellaneous announcements that are less specific to banking problems. These include the announcement of Daiwa's failure to reveal banking problems to the Federal Reserve, the transfer of Kizu Credit assets and liabilities to Tokyo Kyodou Bank, the resignation of the finance minister over bank-related scandals, the adoption of tax breaks for resolving bad loans at banks, and the first report on the Total Plan. While each of these events potentially could be important, neither the set of Jusen events nor any of the five announcements in the miscellaneous category produced significant effects and thus are not reported in the tables.

3. Empirical Results

The Japan Premium for BOTM

Table 2 presents the results from estimating equation 1 for each of the four LIBOR contracts over the period February 1, 1995, through March 31, 1999, for the change in the Japan premium paid by BOTM, deemed to be the "base" Japan premium. Because both one-year contracts exhibited significant negative serial correlation, these two equations have been corrected for serially correlated errors. Each equation includes control variables not reported in the table including the percent change in the Nikkei index, the percent change in the yen-dollar exchange rate, the set of Jusen announcements and the five miscellaneous events.

The ratings changes over this period are all downgrades. Of the 29 downgrades, only two have significant effects for at least two of the contracts. We report these two events separately, and constrain the remaining 27 downgrades to have the same (average) effect.[14] For these 27

downgrades, the average estimated effect is positive for each contract, but never statistically significant. The magnitudes of the estimated coefficients indicate that while announcements of ratings downgrades tend to raise the Japan premium, the average effect is quite modest (only about 1 basis point). The two events for which at least two of the equations indicate a positive and significant event are the Fitch IBCA (IBCA) downgrades on 12/2/97 and the announcement by Moody's on 4/3/98 of a change to negative in the outlook for Japan's currency ceiling. Presumably, Moody's announcement that it was changing the outlook for Japan's currency ceiling would affect the borrowing costs of Japanese companies generally, and this likely accounts for it having a larger impact on the Japan premium than announcements that were downgrades of individual banks. While public policy announcements have sometimes emphasized the role of outside monitors in contributing to the large size of the Japan premium, only two ratings downgrades were associated with significant changes in the magnitude of the Japan premium.

The next set of events includes announcements related to failures of major financial institutions. For actual failures, we use a two-day event window that includes the day of the announcement as well as the day after the announcement, in order to account for the fact that the initial announcement may not provide much indication of how the government is likely to resolve the failure. Information about the resolution of the failure is likely to have a major effect on the Japan premium. We include separate event dummy variables for three of the major financial failure dates. The Hyogo Bank/Kizu Credit event and the Yamaichi Securities event are shown separately because they have individual effects that are significant for at least two of the contracts. The Hokkaido Takushoku event is shown separately because it played an important

role in the discussions of the costs and benefits of bank closures. The remaining failures (Taiheiyo Bank, Crown Leasing, Japan Leasing, LTCB, and NCB) do not produce individual effects that are significant, so they are grouped together, with their average effect shown. This effect is quite small, with three of the four estimated effects being negative and none significant.

The failures of Hyogo Bank and Kizu Credit at the end of August 1995 heralded the emergence of the Japan premium. The estimated effect on the Japan premium is positive (ranging from 5 to 10 basis points per day for the two-day event window) and statistically significant for all four contracts. As was described earlier, this event shattered illusions that commercial banks would not be allowed to fail and that, if a failure did occur, all creditors would be shielded from losses.

The failure of Hokkaido Takushoku in November 1997 represented the first time a major city bank had been allowed to fail. However, the estimated effect is negative for the two one-month contracts, although none of the four estimated effects is significant. One possible explanation for the failure to find an effect could be that the information was released earlier. However, Brewer et al. (1999) do find it to be a highly significant event for share prices of both Hokkaido Takushoku and for other banks. Such evidence is not consistent with the information being fully released prior to the event. While not statistically significant, a negative impact on the Japan premium is consistent with investors being relieved that the government was taking actions against the most troubled banks and would likely use government funds to resolve the losses, and that other banks were not expected to fund the losses. Consistent with this result, on the day after the failure, the Prime Minister announced that public funds would be available (although he retracted the statement the following day).

When Yamaichi Securities failed the following week, the reaction was quite different. For this event, the estimated effect is positive (ranging from over 6 to almost 13 basis points per day for the two-day event window) and significant for each of the four contracts. The Yamaichi failure took many investors by surprise. It highlighted the fact that the extent of Japanese financial problems had not been fully disclosed, because it was announced that many of the losses had not been previously reported. Furthermore, the uncertainty about the disposition of creditor positions, and the concerns that many other financial institutions might have similar large undisclosed losses, likely resulted in a substantial reevaluation by foreign banks of their exposure to Japanese banks. The day after the failure, the finance minister and the governor of the Bank of Japan announced that there would be no more bankruptcies of financial institutions. Unlike the announcements after the Hokkaido Takushoku failure, the responses did not instill confidence in investors that the government was going to take decisive actions to clear up problem financial institutions.

The nonfinancial failure announcements include the largest during our sample period, those with assets greater than 250 million yen.[15] The average estimated effect of these nonfinancial firm failure announcements is quite small and never significant. Although these failures may have provided information on the extent and severity of the problem loan exposures of Japanese banks, any new information provided by the announcements was not sufficient to affect the magnitude of the Japan premium in a meaningful way.

Government announcements of actions to resolve banking problems frequently result in a significant reaction by the Japan premium. We report the average effect of each category of government announcements. Because the primary focus of the paper is to understand how

government words and actions influenced the Japan premium, we report additional statistics to determine the significance of specific groups of events. Underneath the estimated coefficients, we report the absolute value of the t-statistic associated with the average effect, followed by the F-statistic for the hypothesis that each of the individual coefficients for the events in the category is equal to zero. We include the F-statistic because the size of the effects of the announcements across the events in a given category can be quite heterogeneous, and the F-statistic indicates whether we can reject the hypothesis that the set of events as a group had no impact on the Japan premium. The asterisks for statistical significance for these estimated coefficients are associated with the F-statistics rather than the t-statistic.

The average estimated effect of the ten major announcements related to the infusion of funds into the banking system reduced the Japan premium for all four contracts, with three of the four estimated effects being significant. Measures to strengthen supervision increased the Japan premium in all four contracts, but were statistically significant only for the one-month contracts. Similarly, the announcement on December 29, 1997, to postpone implementation of the new capital standards and the relaxation of other accounting rules to bolster bank capital, such as allowing banks to value their extensive cross-shareholdings at book rather than market values, reduced the premium for three of the four contracts, although only the estimated effect for the one-month yen contract was significant.

Several government announcements reflected a desire by the government to resolve banking problems by transferring weak banks to stronger banks. These included the transfer of the Honshu assets of Hokkaido Takushoku to the troubled Chuo Trust, and announcements of DIC funds to encourage mergers of failed banks, as well as the series of announcements related

to attempts to merge LTCB and Sumitomo Trust. These announcements caused the Japan premium to increase for each of the four contracts, with the estimated effect significant for all except the one-year dollar contract.

Thus, the events representing concrete actions influenced the size of the Japan premium as predicted. Announcements related to equity infusions by the government into Japanese banks tended to reduce the Japan premium, consistent with reducing the likelihood of an imminent closure. On the other hand, announcements to strengthen supervision or to encourage healthy banks to acquire their weaker brethren each resulted in higher premiums. The first type of announcement increases the probability that a weak bank will be closed, while the latter increases the probability that stronger banks will be weakened.

We include four categories of statements unaccompanied by concrete actions. These include announcements that the Japanese government would resolve nonperforming loan problems, that the banking problems were resolved, that disclosure should be expanded, and announcements that aggregate nonperforming loans were higher or lower (event dummy entered as a negative one). Among these words unaccompanied by actions, only those related to statements that the problems were being resolved had a significant effect (and then only for the one-year contracts). Thus, pronouncements not backed by concrete actions tended to have an adverse effect or no effect on the Japan premium. Attempts to talk down the risk premium were, for the most part, ineffective. The only significant pronouncements were announcements that banking problems had been resolved. However, these announcements were associated with increases rather than decreases in the base Japan premium paid by BOTM.

Overall, the evidence presented in Table 2 indicates that concrete actions have significantly affected the Japan premium. The closures of Hyogo Bank and Kizu Credit, the closure of Yamaichi Securities, and actions taken by the government to inject funds into the banking system, to strengthen supervision, and to return to the convoy system altered the premium. Government statements not backed up by concrete actions appear to have had little impact on the size of the Japan premium.

The Japan Premium for Fuji Bank

One of the clearest manifestations of the convoy system operating among major Japanese banks was the ability of these banks to raise interbank Eurodollar and Euroyen funds at very similar rates prior to November 1977, despite distinctions made among these banks by the major rating agencies. For example, when Moody's first provided the Bank Financial Strength Ratings (BFSR) on August 20, 1995, Bank of Tokyo, Mitsubishi Bank, and Sanwa Bank each had C+ ratings, while Sakura had a D+ rating. Yet throughout 1995 and 1996, the ILR quotes for individual Japanese banks were very similar, with differences rarely more than a few basis points. However, starting in November 1997, and especially following the failure of Yamaichi Securities, the market began to distinguish among banks with respect to the riskiness of unsecured interbank loans. These distinctions among banks likely were the result of a realization that a far larger set of banks could fail if the market lost confidence in them, and that many of the troubled banks might have large losses hidden from the market and regulators, as had Yamaichi.

To examine the factors that have had an impact on how the premium at a representative weaker bank reacted, we have reestimated equation 1 for the premium paid by Fuji Bank, the only other Japanese bank that is on the BBA panel for all four of the LIBOR contracts. By

comparing the results for Fuji with those for BOTM, we can see whether the premium paid by lower-rated banks systematically reacted more or less to specific events than did the "base" Japan premium paid by BOTM. Table 3 presents the results using the same set of events as in Table 2.

The first clear evidence that the market was distinguishing between banks is that the Fuji premium reacted much more to the Yamaichi failure than did the BOTM premium. Although the estimated effect is the same as for BOTM for the one-month dollar contract, the response of the Fuji premium is from 5 to 10 basis points larger (on average for each day of the two-day event window) for the other three contracts.

Among the other announcements, little systematic difference is apparent. Actions to inject funds into banks does appear to reduce the Fuji premium by more for the one-month yen and one-year dollar contracts, and there is a slight tendency for actions that strengthen supervision to raise the Fuji premium by more than was the case for BOTM. Among the Words categories, statements that the problems have been resolved now have negative estimated effects for the two yen contracts, with that for the one-year contract being significant, although it is less than 1 basis point in size (on average).

4. Conclusion

The Japan premium has significantly increased the funding costs for Japanese banks since its emergence in 1995. It has also played a major role in the shaping of government policy toward the banking sector. By looking at major ratings changes, financial institution failures, and government announcements, we can obtain a better understanding of the factors contributing to the Japan premium. In effect, changes in the size of the premium provide a market indicator

of whether actions taken by the government are viewed by investors as increasing or decreasing the likelihood of repayment on unsecured interbank loans.

We find that while the Japan premium increased with the failures of Hyogo Bank and Kizu Credit, that was not the case when Hokkaido Takushoku failed. In fact, the estimated response was negative, although not statistically significant, for both of the yen-denominated LIBOR contracts considered. Thus, not all bank closures are likely to undermine confidence in Japanese banks. However, the reaction to the failure of Yamaichi Securities the following week was quite different. Over the following three days, the Japan premium rose to unprecedented levels, and the spread among the ILR quotes for major Japanese banks increased for the first time. Yamaichi Securities failed, in part, as a result of large undisclosed losses. Furthermore, the government was equivocating on how problem banks would be liquidated. Concerns with possible undisclosed losses at other institutions and concerns that the government did not have an effective plan to resolve banking problems caused investors to charge a much larger premium, particularly for some of the weaker banks.

Government announcements that occur in the absence of concrete actions appear to be ineffective. Announcements to resolve nonperforming loans had no discernible effect on the Japan premium, while the reactions to announcements that banking problems were resolved were actually perverse for BOTM. Similarly, announcements to enhance disclosure or of changes in the levels of problem loans had no effect on the premium. On the other hand, announcements of concrete actions did significantly alter the Japan premium. The injection of government funds into the banking system decreased the premium, while actions to strengthen supervision

increased the premium. There is also strong evidence that actions to return to the convoy system to resolve banking problems increased the Japan premium.

In summary, government actions have had more of an impact on the Japan premium than statements of intent. The Japan premium had decreased substantially by March 1999. The decreases have occurred after the Japanese government finally took concrete actions to address the banking problems by infusing government funds into the banking system and closing some of the more troubled institutions. For the premium to remain low, investors must remain convinced that concrete actions will be taken, if necessary, and that troubled banks that are not competitive will be resolved in a way that does not imperil the remaining healthier banks.

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Footnotes

1. For example, at their peak, Japanese banks accounted for 18 percent of commercial and industrial loans in the United States and 20 percent of commercial real estate loans by banks in the United States.

2. The Hyogo Bank failure was announced at the same time as the closure of Kizu Credit Cooperative. While Kizu was the largest credit cooperative, it had only 9 billion yen in total assets, compared to 3.7 trillion yen for Hyogo Bank.

3. Each bank is asked to report the rate at which it would borrow funds, were it to do so, by asking for and then accepting interbank offers in reasonable market size just prior to 11:00 a.m. London time. The official LIBOR rate is calculated by eliminating the top and bottom quartiles of the contributor panel quotes, and then calculating the arithmetic average of the two middle quartiles. This average rate is the LIBOR fixing for that particular currency, maturity, and fixing date.

4. The time difference between Tokyo and London is eight-hours when daylight savings time is in effect and nine hours when it is not.

5. Different sets of banks are used for the dollar and for the yen LIBOR instruments. For the dollar contracts, only three Japanese banks are used by the BBA: BOTM, Fuji Bank, and Sumitomo Trust. For the yen contracts, the eight Japanese banks that report are BOTM, Fuji,

Sanwa, Industrial Bank of Japan, Sakura, Tokai, Dai-Ichi Kangyo, and Sumitomo Bank. Because of concern that the Japan premium was disrupting the calculation of LIBOR and that some banks' offers might not reflect transactions, the BBA dropped Sumitomo Trust from the dollar panel and Tokai and Sakura from the yen panel in January 1999. Norinchukin Bank has been added to both the yen and dollar panels.

6. This specification is similar in spirit to earlier studies that look at how particular events affected municipal bond market spreads (for example, Kidwell and Trzcinka 1982, 1983).

7. Thus, data do not include weekends, or days that are either (or both) Japanese holidays for which the Japanese ILR quotes are unavailable or U.S. and U.K. holidays for which reference bank ILR data are unavailable. Furthermore, isolated days for which no quote is available for a Japanese bank are treated as missing observations. The changes in ILR rates are calculated between adjacent trading days, that is, days for which all necessary data are available.

8. The dollar panel included Citibank, Chase, Lloyds, Barclays, National Westminster, Royal Bank of Scotland, Abbey National, BOTM, Fuji, Sumitomo Trust, Westpac, Commerzbank, Deutshe Bank, Merita, Swiss Bank, and Hambros. On January 29, 1999 several banks were dropped, including Sumitomo Trust. The yen panel included Citibank, JP Morgan, Lloyds, National Westminster, Midland, Barclays, BOTM, Fuji, Sumitomo, DKB, Tokai, Sakura, IBJ, Sanwa, Bank of China and Swiss Bank. On January 29, 1999 several banks were dropped including Tokai and Sakura.

9. Some of the aggregate movement in stock prices may be hedged with derivatives contracts on stocks. Given the volatility, this would be expensive. Furthermore, the portfolio concentrations of Japanese banks may not be reflective of the broader index, making the hedge imperfect.

10. For S&P and Moody's ratings changes, we verified from Bloomberg the exact time of the announcement so that we could properly date the event. Many of the IBCA ratings changes do not appear on Bloomberg, so we have relied on correspondence with IBCA to date their announcements.

11. Some ratings, such as Moody's Bank Financial Strength Rating (BFSR) rating, try to focus on the probability that the bank fails, rather than mixing the probability of failure with the likelihood of government support.

12. We also include the date of the first BFSR's issued by Moody's, many of which were lower than had been expected. In addition, we include downgrades that might affect Japanese firms generally, such as Japan's long-term foreign currency rating.

13. We also examined Sanyo Securities, which was below our size threshold but had been highlighted by Brewer et al. (1999) as a significant financial event. We did not find that the Sanyo failure announcement had any statistically significant impact on the Japan premium.

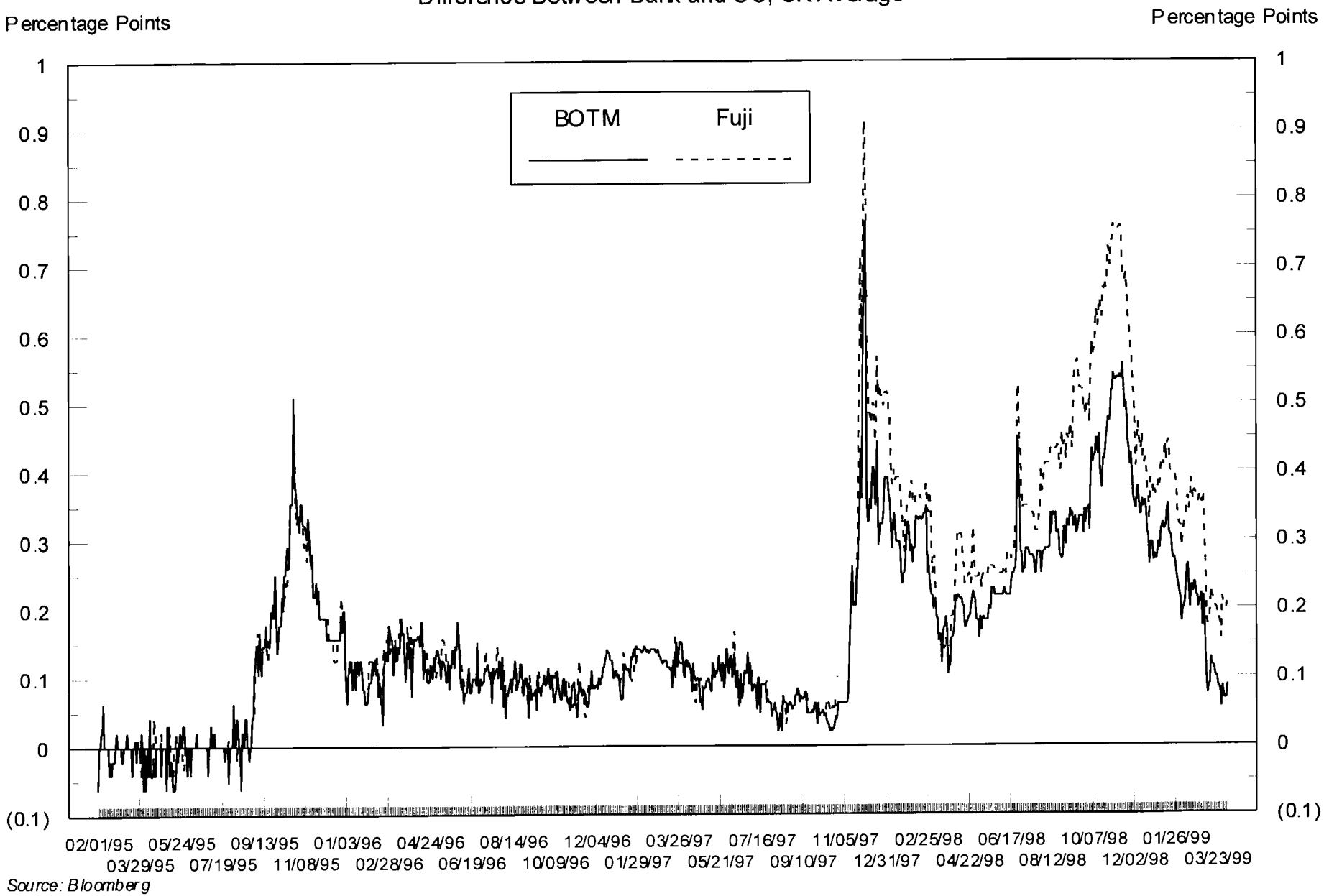
14. If a ratings downgrade coincides with another major event, we constrain its effect to be equal to the average for ratings downgrades and allow any remaining effect on that date to be attributed to the other coincident event. Only three other event dates coincide with ratings downgrades. They are the announcement on 12/22/95 of the FSRC final report, the announcement on 12/29/97 of the easing of accounting rules, and the announcement on 8/27/98 that Sumitomo Trust was delaying its decision on the merger with LTCB.

15. Two of the announcement dates coincide with other event dates, the 7/4/97 announcement of lower bad loans and the 8/21/98 announcement related to the merger of LTCB and Sumitomo Trust. For these two events, we constrain their effects to be equal to the average effect of nonfinancial failure announcements, with any additional effect on that date attributed to the coincident events.

Figure 1

One-Year Yen Interbank Loan Rate

Difference Between Bank and US, UK Average



Source: Bloomberg

Table 1
Chronology of Events (dated as of 11:00 a.m. London time)

Event Date	Event Category	Description
5/15/95	Words: expand disclosure	Financial System Research Council (FSRC) report on expanding disclosure
6/8/95	Words: resolving NPLs	MOF indicates stance in dealing with NPLs
6/20/95	Ratings	IBCA downgrades Sakura, Daiwa
8/21/95	Ratings	Moody's assigns BFSR
8/30/95	Financial: Hyogo/Kizu	Hyogo Bank and Kizu Credit fails
9/26/95	Miscellaneous	BOJ: Daiwa Bank statement
9/27/95	Words: resolving NPLs	MOF & FSRC statement on NPLs
10/20/95	Ratings	IBCA downgrades 10 banks; Moody's downgrades 3
11/13/95	Words: NPL announcements	MOF reduces estimate of NPL to 37.4 trillion yen
11/22/95	Miscellaneous	MOF transfers Kizu credit assets and liabilities to Tokyo Kyodou Bank
12/19/95	Actions: Jusen	Cabinet: measures to address Jusen problem
12/22/95	Words: resolving NPLs	FSRC final report
	Ratings	S&P downgrades Mitsubishi, Sanwa, Sumitomo, DKB
12/27/95*	Actions: strengthen supervision	MOF: measures to improve bank supervision
1/23/96	Ratings	Moody's downgrades Sakura, LTCB, Daiwa
1/30/96	Actions: Jusen	Cabinet approves measures to address Jusen problem
2/9/96	Actions: Jusen	Cabinet bill establishing Jusen Resolution Corp.
4/1/96*	Financial	Taiheiyo Bank fails
6/18/96	Actions: Jusen	Diet passes 6 bills including Jusen liquidation
6/27/96	Ratings	IBCA downgrades Sumitomo, DKB, Sanwa
7/3/96	Actions: strengthen supervision	MOF: enhanced disclosure
7/22/96	Actions: Jusen	DIC: establish Financial Stabilization Contribution Fund
9/18/96	Words: expand disclosure	MOF: report advocating increased transparency
12/24/96	Actions: strengthen supervision	Establish Financial Inspection and Monitoring Agency
12/27/96*	Actions: Jusen	DIC: ¥680 billion to Housing Loan Admin. Corp. for Jusen
2/10/97	Words: problems resolved	Finance Minister-support largest banks in crisis
3/11/97	Actions: strengthen supervision	Cabinet adopts bill to establish FSA
4/1/97	Financial	NCB affiliates including Crown Leasing file for bankruptcy
6/30/97	Actions: relax regulations	MOF: relaxation of bank regulations regarding capital
7/4/97	Nonfinancial	Takai Kosyo, a construction contractor, to file for bankruptcy
	Words: NPL announcements	MOF reduces estimate of problem loans to ¥27.9 trillion
7/31/97	Actions: strengthen supervision	MOF: Prompt Corrective Action ordinances
10/27/97	Ratings	IBCA downgrades Sanwa, Sumitomo, DKB, BOTM
11/13/97	Ratings	IBCA downgrades Fuji, IBJ, Sakura
11/14/97	Ratings	IBCA downgrades Tokai, Asahi, Mitsui Trust, Mitsubishi Trust, Sumitomo Trust, Yasuda Trust
11/17/97	Financial: Hokkaido Takushoku	Hokkaido Takushoku closed
11/25/97*	Financial: Yamaichi Securities	Yamaichi Securities closed
11/28/97	Words: problems resolved	MOF: close banks that are insolvent
12/1/97	Words: problems resolved	Prime Minister: close banks that are insolvent

Table 1
Chronology of Events (dated as of 11:00 a.m. London time)

Event Date	Event Category	Description
12/2/97	Ratings: IBCA	IBCA downgrades LTCB, DKB, Sumitomo, Sanwa, Hokkaido Takushoku
12/3/97	Actions: strengthen supervision	Diet passes bill for stricter penalties for improper acts by financial institutions
12/8/97	Actions: inject funds	LDP Official: plan to use government funds for problem banks
12/12/97	Actions: convoy	DIC extend assistance for mergers of failed banks
12/19/97	Nonfinancial	Toshoku Ltd., a food trading company, files for bankruptcy
12/29/97*	Ratings	S&P downgrades Sakura and Sanwa
	Actions: relax regulations	MOF: postpone implementation of new capital standards and relaxation of other accounting rules
1/8/98	Actions: inject funds	MOF: provides details of government injections
1/12/98	Words: NPL announcements	MOF: classified loans jumped to ¥76.7 trillion
1/27/98	Miscellaneous	Finance Minister resigns due to banking scandals
1/28/98	Ratings	S&P downgrades DKB; IBCA downgrades Sakura
2/17/98	Actions: convoy	BOJ: transfer of Hokkaido Takushoku's businesses
2/18/98	Actions: inject funds	¥ 17 trillion government funds to DIC
2/26/98	Actions: strengthen supervision	DIC published examination criteria for funds injection
3/5/98	Actions: inject funds	Banks will apply for government funds
3/17/98	Actions: inject funds	Cabinet approves injection of funds
3/30/98*	Ratings	S&P downgrades BOTM, Asahi, LTCB, Daiwa
3/31/98	Actions: strengthen supervision	BOJ & MOF announce supervision policy
4/1/98	Nonfinancial	Daiichi Corp, a real estate company, will liquidate
4/3/98	Ratings: country ceiling negative	Moody's changes currency ceiling outlook to negative
5/21/98	Ratings	IBCA downgrades 7 banks
5/27/98	Ratings	Moody's downgrades 6 banks`
6/1/98	Miscellaneous	Tax law changed to aid bad loan removal
6/16/98	Words: expand disclosure	BOJ: remarks advocate enhanced disclosure
6/18/98	Words: resolving NPLs	Finance Minister advocates forcing banks to address bad loan problem
6/22/98	Actions: strengthen supervision	Financial Supervisory Agency established
6/23/98	Miscellaneous	First report on the Total Plan
6/26/98	Actions: convoy	Sumitomo Trust announces plans to merge with LTCB
7/2/98	Actions: inject funds	Second report on the Total Plan, includes ¥30 trillion of public funds
7/17/98	Words: NPL announcements	FSA: NPLs rose using new standards
7/23/98	Ratings	Moody's places country rating on review
7/30/98	Ratings	S&P downgrades Sumitomo Trust and Mitsubishi Trust
8/17/98*	Ratings	IBCA downgrades 6 banks
8/21/98	Nonfinancial	Okura & Co., steel and machinery trading company, files for bankruptcy
	Actions: convoy	Finance Minister promotes LTCB restructure for merger
8/24/98*	Ratings	IBCA downgrades 6 banks

Table 1
Chronology of Events (dated as of 11:00 a.m. London time)

Event Date	Event Category	Description
8/27/98	Ratings	Moody's downgrades Asahi and Tokai
	Actions: convoy	Sumitomo Trust delays merger decision
9/2/98	Ratings	IBCA long-term currency rating on review
9/17/98	Actions: convoy	LDP accepts opposition proposal to nationalize LTCB
9/21/98	Ratings	IBCA downgrades long-term foreign currency rating
9/28/98	Financial	Japan Leasing, a LTCB affiliate, files for bankruptcy
10/7/98	Actions: inject funds	LDP gains support for bank bill
10/9/98	Actions: inject funds	Increase public money in bank bill
10/12/98	Actions: inject funds	Upper House approves bank bill
10/23/98	Financial	LTCB nationalized
11/17/98	Ratings	Moody's downgrades Japan's debt
12/11/98	Financial: NCB	Nippon Credit Bank may be nationalized
12/14/98*	Financial: NCB	Nippon Credit Bank nationalized
12/24/98*	Ratings	S&P downgrades 7 banks
1/20/99	Words: resolving NPLs	Yanagisawa: write-off all bad loans by March 31
1/22/99	Ratings	Moody's downgrades IBJ and DKB
1/25/99	Actions: strengthen supervision	Strict new requirements for loan loss provisions
1/26/99	Ratings	Moody's downgrades 5 banks
2/2/99	Words: problems resolved	Sakakibara: "financial crisis will be over in two weeks"
2/8/99	Words: problems resolved	Yamagisawa: committed to wiping up the problems and will give banks the money to do it
2/10/99	Ratings	IBC downgrades 7 banks
3/5/99	Actions: inject funds	15 banks apply for public funds
3/19/99	Ratings	Moody's downgrades Tokai and Asahi

*Event date differs from actual date because markets were closed on announcement date.

Table 2

Determinants of the Japan Premium for Bank of Tokyo-Mitsubishi

February 1, 1995 through March 31, 1999

	1 Month Yen	1 Month Dollar	1 Year Yen	1 Year Dollar
		Ratings		
IBCA Downgrade	.205**	.051	.150**	.174**
	(5.49)	(1.20)	(4.99)	(5.34)
Country Ceiling Negative	.127**	.042	.049	.116**
	(3.40)	(0.98)	(1.79)	(3.97)
Other Ratings (27 events)	.010	.009	.011	.006
	(1.25)	(1.05)	(1.87)	(1.07)
		Financial		
Hyogo Bank/Kizu Credit	.096**	.066*	.040*	.049**
	(3.62)	(2.17)	(2.38)	(2.73)
Hokkaido Takushoku	-.033	-.047	.012	.014
	(1.22)	(1.52)	(0.72)	(0.79)
Yamaichi Securities	.075**	.127**	.065**	.117**
	(2.85)	(4.21)	(3.84)	(6.48)
Other Financial Failures	-.010	-.005	.000	-.004
(6 events)	(0.92)	(0.38)	(0.02)	(0.46)
		Nonfinancial		
Nonfinancial Failures	.035	-.001	.009	.006
(4 events)	(1.30)	(0.04)	(0.44)	(0.28)
		Actions		
Inject Funds	-.024*	-.033	-.022**	-.032**
(10 events)	(1.86/2.171)	(2.37/1.428)	(2.45/2.420)	(3.41/5.883)
Strengthen Supervision	.051**	.034**	.009	.002
(10 events)	(3.97/15.401)	(2.50/3.812)	(0.98/1.299)	(0.16/0.415)
Relax Regulations	-.151**	-.027	.004	-.002
(2 events)	(5.20/26.179)	(0.86/0.302)	(0.19/1.240)	(0.08/0.009)
Convoy System	.059**	.078**	.042**	.009
(6 events)	(3.47/5.685)	(4.26/7.247)	(3.59/6.683)	(0.73/1.095)
		Words		
Resolving NPLs	.000	.012	.001	-.007
(5 events)	(0.02/0.034)	(0.63/1.089)	(0.11/0.335)	(0.50/0.579)
Problems Resolved	.017	.021	.021**	.032*
(5 events)	(0.91/2.150)	(1.08/0.594)	(1.70/5.430)	(2.46/2.655)
Expand Disclosure	-.000	.002	-.008	.002
(3 events)	(0.01/0.005)	(0.09/0.004)	(0.49/0.175)	(0.11/0.059)
NPL Announcements	.003	-.004	-.001	.013
(4 events)	(0.15/0.124)	(0.16/0.242)	(0.06/0.311)	(0.86/0.427)
Serial Correlation			-.323**	-.353**
Coefficient			(10.36)	(11.47)
Observations	990	993	994	990
R^2	.277	.132	.184	.202
SER	.037	.043	.029	.031
SSR	1.285	1.682	.755	0.878
D.W.	2.18	2.13		

Each equation also includes as control variables the percent change in the Nikkei index, the percent change in the yen-dollar exchange rate, the set of Jusen announcements, and the five miscellaneous announcements. Absolute values of t-statistics are in parentheses for each coefficient. In addition, for each set of Actions and Words events, the F-statistic for the set of events is reported following the t-statistic, with the asterisks in these cases referring to significance of the F-statistic rather than the t-statistic.

* Significant at the 5 percent level.
** Significant at the 1 percent level.

Table 3
Determinants of the Japan Premium for Fuji Bank
February 1, 1995 through March 31, 1999

	1 Month Yen	1 Month Dollar	1 Year Yen	1 Year Dollar
		Ratings		
IBCA Downgrade	.174**	.113*	.151**	.128*
	(4.21)	(2.01)	(5.48)	(2.15)
Country Ceiling Negative	.127**	.102	.054*	.188**
	(3.07)	(1.83)	(2.09)	(3.71)
Other Ratings (27 events)	.006	.005	.003	.016
	(0.67)	(0.45)	(0.51)	(1.50)
		Financial		
Hyogo Bank/Kizu Credit	.095**	.065	.014	.049
	(3.27)	(1.64)	(0.84)	(1.59)
Hokkaido Takushoku	-.032	-.056	.016	.013
	(1.08)	(1.40)	(0.97)	(0.41)
Yamaichi Securities	.122**	.125**	.165**	.203**
	(4.17)	(3.14)	(9.95)	(6.57)
Other Financial Failures	-.016	-.026	-.003	-.001
(6 events)	(1.29)	(1.53)	(0.48)	(0.08)
		Nonfinancial		
Nonfinancial Failures	.050	-.005	.035	.039
(4 events)	(1.69)	(0.14)	(1.86)	(1.04)
		Actions		
Inject Funds	-.031**	-.030	-.021**	-.050**
(10 events)	(2.15/2.574)	(1.65/1.000)	(2.44/3.706)	(3.08/3.837)
Strengthen Supervision	.054**	.044**	.016**	-.003
(10 events)	(3.79/16.101)	(2.40/5.623)	(1.84/2.436)	(0.20/0.610)
Relax Regulations	-.120**	-.012	-.006	-.010
(2 events)	(3.72/12.418)	(0.30/0.037)	(0.29/0.054)	(0.27/0.441)
Convoy System	.068**	.058**	.033**	.026*
(6 events)	(3.59/9.051)	(2.41/4.401)	(2.85/10.294)	(1.17/2.611)
		Words		
Resolving NPLs	.009	-.012	.000	-.027
(5 events)	(0.38/0.272)	(0.48/1.478)	(0.03/0.695)	(1.15/0.510)
Problems Resolved	-.002	.005	-.009*	.003
(5 events)	(0.12/1.035)	(0.18/0.146)	(0.73/2.654)	(0.16/0.415)
Expand Disclosure	-.011	.023	.021	.004
(3 events)	(0.41/0.243)	(0.70/0.468)	(1.30/1.528)	(0.13/0.064)
NPL Announcements	.013	.005	.005	-.007
(4 events)	(0.55/0.431)	(0.16/0.049)	(0.37/1.123)	(0.26/0.640)
Rho			-.255**	-.422**
			(8.03)	(14.09)
Observations	985	980	992	980
R^2	.275	.127	.260	.147
SER	.041	.056	.027	.055
SSR	1.560	2.870	.663	2.760
D.W.	2.12	2.29		

Each equation also includes as control variables the percent change in the Nikkei index, the percent change in the yen-dollar exchange rate, the set of Jusen announcements, and the five miscellaneous announcements. Absolute values of t-statistics are in parentheses for each coefficient. In addition, for each set of Actions and Words events, the F-statistic for the set of events is reported following the t-statistic, with the asterisks in these cases referring to significance of the F-statistic rather than the t-statistic.

* Significant at the 5 percent level.
** Significant at the 1 percent level.