

# Banking relationships during financial distress: The evidence from Japan

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## Introduction and summary

Over the last decade, the Japanese banking system has experienced a sizable deterioration in its financial condition. Commercial banks have recorded cumulative loan losses of about ¥83 trillion (16.5 percent of 2002 Japanese gross domestic product or \$690 billion) since 1992. Some ¥32 trillion of loans were deemed non-collectible and written off in full (see Kashyap, 2002).

These losses significantly reduced the banks' capitalization and led to the failure of three large banking firms.<sup>1</sup> On November 17, 1997, Japanese regulators failed and liquidated a large "city" bank for the first time since the end of World War II and on October 23, 1998, and December 14, 1998, they nationalized two of the three very large long-term credit banks.<sup>2</sup>

Coming amidst a general economic malaise and a severe banking crisis, these failures might be expected to have had significant implications for the rest of the Japanese economy. In Japan banks play a much more important role in the economy than in the U.S. In 1990, just before the collapse of the Japanese banking system, banks funded 19.4 percent of a nonfinancial firm's assets, and total claims of the deposit-taking banks on the private sector equaled 1.6 times nominal gross domestic product (GDP). In contrast, in the U.S. in 1990, bank loans funded less than 6 percent of the total assets of a U.S. firm, and commercial bank claims on the private sector were less than one-half of nominal GDP. The Japanese banks also have close ties to their business customers. They are not only a major source of funds to these firms, but also, in contrast to the United States, often own equity in them and are involved in their management, particularly when a firm is in financial distress.

There is a large literature, both theoretical and empirical, that suggests that strong banking relationships are valuable to bank clients because they enable client firms to obtain funds that would otherwise not be available to them in the public markets. In efficient

capital markets, the stock prices of bank clients would reflect this positive contribution. However, financial distress at banks can raise questions about the future viability of such valuable relationships. Because it is costly for firms to replace their existing banks and establish new relationships, the announcement of a bank failure should negatively impact the stock prices of firms that have lending relationships with the failed bank.

The announcement of the three failures might also have had spillover effects for surviving banks and their clients. The failures revealed that the losses at these institutions were much higher than previously reported publicly and marked an apparent significant shift in the attitude of Japanese regulators toward banking problems. Japanese regulators, who had been widely criticized outside Japan for their reluctance to let financial institutions fail legally, were imposing more rigorous standards on financial institutions and exposing shareholders and possibly uninsured creditors to losses for the first time since World War II. Thus, each failure announcement might have created a negative perception of the industry as a whole and thus had spillover effects beyond the failed banks. That is, the announcements could have raised questions about the long-term viability of surviving banks and the relationships maintained by them, particularly if the banks were financially weak and adversely affected by the announcements. If so, the failure announcements could also have adversely affected the stock prices of firms that were clients of surviving banks.

In this article, we summarize the results of our earlier research in Brewer, Genay, Hunter, and Kaufman (2003a and 2003b) on what the failure announcements

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of important Japanese banks signaled both for other banks and for firms that received credit from the failed or surviving banks. In particular, we focus on the following questions. What was the impact of the three failure announcements on the market value of surviving banks? Are these effects related to the characteristics of the individual surviving banks? How does the severance or modification of banking relationships due to bank failure announcements affect the market value of the bank's borrowers? Are the effects related to the characteristics of the individual borrowers, such as their financial condition or potential access to bank credit and capital markets? Are there spillover effects to other banks and borrowers at these banks, particularly when the failures occur during a financial crisis? Like previous studies for both the United States and other countries, we find that the failures were perceived to be bad news for other banks as a whole and worse news for banks in a weaker financial condition. On average, the excess returns for the surviving banks, computed around each of the three failure announcement dates, were negative and significantly different from zero. The negative effects were greater for surviving banks with weaker financial conditions and greater loan exposures to the more risky sectors of the economy (for example, the real estate, construction, and finance and insurance sectors). Thus, the three failure announcements had a significant adverse effect on surviving banks as a whole. The next question is whether these announcements affected firms that received loans from either the failed or surviving banks.

We find that the market valuations of customers of the failed banks were adversely affected at the date of the failure announcements. In addition, the effects were related to the financial characteristics of the firms and their primary bank. The adverse impact was more severe for nonfinancial firms that valued their existing banking relationships more or borrowed from a bank in weaker financial condition. However, these effects were not significantly different from the effects experienced by all firms in the economy. That is, the three bank failures represented "bad news" for all firms in the economy, not only for the customers of the failed banks. But one should be cautious about generalizing these results to other countries. Our analysis focuses on an economy that is heavily bank-dependent and was in the midst of an extended financial crisis. Nevertheless, to the extent that these results for Japan may be representative, they raise questions regarding the impact of bank failures not only on their own clients, but on the rest of the economy.

Because the potential impact of the bank failure announcements on bank clients depends on the value

of their banking relationships, in the next section we briefly review the theoretical and empirical literature on the value of banking relationships. We then present some information about the three banks that failed and discuss the potential impact of the failure announcements on the share prices of other banks and bank clients. In the following two sections, we describe our methodology and data and summarize our results with respect to the impact of the three failures on other banks, clients of the failed banks, and all bank clients.

## Banking relationships

### *Theoretical considerations*

The relationships that banks have with their customers play an important role in moving funds from savers to borrowers. Petersen and Rajan (1994, p. 5) define a banking relationship to be the "close and continued interaction" between a bank and a firm that "may provide a lender with sufficient information about, and a voice in, the firm's affairs." These interactions can occur through providing deposit services to savers, credit services to borrowers, or both. Standard money and banking textbooks indicate that a bank facilitates the movement of funds from savers to borrowers by buying financial claims with one set of characteristics from borrowers (for example, loans) and then selling its own liabilities with a different set of characteristics to savers (for example, deposits). Such financial intermediation or transformation services may involve maturity intermediation (financing assets with longer maturity than the institution's liabilities); denomination intermediation (holding assets with different unit size than the liabilities); liquidity intermediation (funding illiquid loans with liquid liabilities); and/or credit risk intermediation (holding assets with greater default risk than the institution's liabilities). As a bank provides some or all these services to its customers through time, it gains substantial knowledge about their financial condition and needs. The bank can use this knowledge to stimulate both borrowing and saving. While borrowers can gain access to savers' funds directly without the intermediation efforts of a bank, financial intermediation theory suggests that this direct channel often is less efficient and could result in financial contracts that do not allocate funds optimally and may even fail to fund some socially desirable activities (Berlin, 1987).

One problem faced by a saver lending funds directly to a commercial firm is the high cost of information collection. Before funds are lent, savers must collect, process, and interpret firm-specific information to distinguish between good firms with high expected profits and low risk and bad firms with low expected profits and high risk. Thus, by screening carefully the

pool of borrowers, savers can reduce the chances that a loan might be made to a high credit risk at too low an interest rate. However, screening can evolve transaction costs that are large relative to a household's savings, making it less profitable to fund some firms. In addition, savers are frequently unable to determine the quality of potential borrowers. These two obstacles could create enough friction in the lending process that savers may decide to make fewer loans or even not to make any loans though there are good credit risks in the marketplace. Even if a saver were able to overcome transactions costs and the lack of specialized knowledge to evaluate borrowers' initial quality, he or she must continuously monitor the actions of firms to ensure that their owners/managers do not take actions with the loan proceeds contrary to the condition specified in the loan agreement. It is probably reasonable to assume that the owners/managers of the firm know more than savers about the firm's projects and prospects. In such an atmosphere of information asymmetry, there is no assurance that the self-interested behavior of the firm will conform to that expected by savers. As a result, some profitable projects may not be funded because of substantial uncertainty.

One solution to the information asymmetry problem is the introduction of a bank or similar financial intermediary that interacts with both savers and borrowers through time. Ongoing interaction between banks and their clients through time and across products provides banks with an opportunity to gather valuable, often confidential, information about their clients, through both lending and deposit services (Fama, 1985).<sup>3</sup>

For example, on the lending side, this information is obtained when banks provide screening (Allen, 1990; Ramakrishnan and Thakor, 1984) and monitoring services (Diamond, 1984; Winton, 1995). Screening activity involves collecting and interpreting borrower-specific, often proprietary information to help the bank assess a firm's true risk before the loan is made. A firm is more likely to reveal proprietary information to its bank than to financial market participants in general because it does not have to worry about whether the information disclosed would spill over to competitors as it likely would if it was disseminated to all financial market participants. Once banks have screened the pool of available borrowers, they know firms' credit quality and can charge them an interest rate that reflects that quality.

After a loan is made, monitoring activities involve keeping track of each firm's financial condition by auditing the firm frequently, checking on what the management is doing to ensure that they are performing under the terms of the loan agreement, and taking action on

a timely basis to protect its investment if the firm is not performing. When a firm encounters trouble making an interest payment on time, a banker's first response is to take a closer look at the firm's financial condition to determine the source of this difficulty. If after a closer inspection, the banker finds that the firm's longer-run prospects are good, the banker may offer to reschedule the interest payments or relax some of the covenants, in order to improve its chances of getting its funds back in the future. Alternatively, the bank can terminate the loan. Boot (2000) argues that the bank-borrower relationship is typically less rigid than a capital market funding arrangement because renegotiation of contract terms is easier. Boot et al. (1993) also argue that the greater flexibility that is offered by relationship banking can improve aggregate welfare because discretion has value. As with screening activities, monitoring activities provide a bank with an opportunity to gather borrower-specific information beyond that readily available from public sources.

On the deposit side, the information gained from offering checking and other deposit account services may help the bank assess a customer's repayment capability, allowing the bank to make and structure its loans based on the customer's deposit history. Kane and Malkiel (1965) argue that an incumbent bank has an information advantage over competitors by privately observing how its customers manage their deposit accounts. Deposit accounts can provide early warning of deterioration in borrowers' cash flows. By monitoring the total amount of checks clearing through the bank, the banker can gauge a client firm's revenues relatively accurately without waiting for quarterly reports from accountants. Fama (1985) points out that the proprietary knowledge of a customer that a bank gains through deposit services makes the bank unique relative to other financial institutions. Customer-specific information obtained from deposit activities may make it possible for a bank to offer its depositors loan terms that are more favorable than those offered to nondepositors.

The financial intermediation literature concludes that banking relationships provide an opportunity for more informative credit-contracting decisions based on a better exchange of information, and also increase the availability and/or reduce the price of credit to firms whose projects and prospects are difficult to evaluate by outside investors.<sup>4</sup> Thus, they create value.

### ***Empirical evidence on the benefits of banking relationships***

If, as suggested by the literature on financial intermediation, banks are better informed about their clients than investors in capital markets, then announcements of new or renewed bank lending arrangements should

provide new and useful information to financial market participants and increase security prices of affected firms. James (1987) examines whether the market value of a firm's stock is affected by a bank's announcement of a loan to that firm, and how the effect of a bank loan announcement differs from the effects of announcements of changes in other financing arrangements, such as new issues of bonds. He finds that a bank loan announcement has a positive effect on stock prices, in sharp contrast to the negative or zero effects on stock prices associated with other announcements of new capital market funding. Lummer and McConnell (1989) divide bank loan announcements into new bank loans and bank loan renewals. They find that only announcements of bank loan renewals had a positive effect on stock prices.

Billett, Flannery, and Garfinkel (1995) examine the relationship between lender quality and loan-announcement-day stock price reactions. If banks certify the creditworthiness of their client firms, then bank quality should be of importance in determining the credibility of the certification. The researchers find a statistically significant positive stock price reaction for borrowing firms to loan announcements from high-quality banks and a negative, though statistically insignificant, reaction to loan announcements from low-quality banks.

If banking relationships are valuable, as suggested by these papers, then in efficient capital markets, the stock prices of bank clients would reflect the current and future expected value of these relationships. Hence, if an event raises questions about the ability of a bank to sustain its relationships in the future and it is costly to replace that existing banking relationship, one would expect the event to have a negative impact on the share prices of the clients of the bank.

Following this logic, Slovin, Sushka, and Polonchek (1993) examine the stock price reactions of the loan client firms of the Continental Illinois National Bank (Chicago) in its period of economic insolvency and rescue by the Federal Deposit Insurance Corporation (FDIC) in 1984. They find that firms with known lending relationships with Continental Illinois sustained significantly negative excess returns during the banking firm's financial difficulties, but positive returns in response to the announcement of support by the FDIC. But, because the positive excess returns over the bailout event window were smaller than the negative excess returns over the period immediately before the bailout, on average borrowing firms suffered significant negative excess returns from Continental's financial distress.

A number of studies have extended the Slovin, Sushka, and Polonchek (1993) analysis to the failure of banks outside of the United States. Yamori and Murakami (1999) examine how the failure of a

Japanese bank (Hokkaido Takushoku Bank) affected the stock prices of client firms. They find that firms that listed the failed bank as their most important bank experienced the largest negative stock market reaction in response to the bank's failure announcement. Djankov, Jindra, and Klapper (2001) examine the stock market valuation effect on client firms of the insolvency of 31 banking organizations in East Asia. They report that insolvency announcements that precede the liquidation of banks, and thus the loss of the borrowers' banking connection, lead to a significant negative stock market reaction. On the other hand, announcements that a bank would be nationalized and recapitalized with a new management team—events that keep the bank in operation and thus do not necessarily sever existing banking relationships and can potentially improve the financial condition of the bank—are associated with positive excess returns.

Bae, Kang, and Lim (2002) examine the durability of banking relationships in Korea during that country's financial crisis in the late 1990s. They find that bank financial distress was associated with negative excess returns for client firms, and the announcement effects were greater for the bank-dependent and financially weak client firms of the weakest banks. This suggests that a combination of bank and firm characteristics determines the interpretation and the impact of bad news about a bank on its customers. Ongena, Smith, and Michalsen (2003) examine the impact of bank distress announcements in Norway on client firms. The authors find that the impact of these announcements on bank client firms was small and temporary, and did not differ statistically from the impact on nonclient firms. The authors also find that more liquid firms had higher excess returns. The overall conclusion of these empirical studies is that stockholders of publicly traded firms view relationships between firms and banks as valuable.<sup>5</sup>

### Three Japanese bank failures

We examine the stock market response to three important Japanese bank failures in 1997 and 1998: Hokkaido Takushoku Bank on November 17, 1997, the Long-Term Credit Bank of Japan (LTCB) on October 23, 1998, and the Nippon Credit Bank (NCB) on December 13, 1998.

#### *Hokkaido Takushoku Bank (November 17, 1997)*

Hokkaido Takushoku Bank was the smallest so-called "city" bank, but one of the largest 20 commercial banks in Japan, with more than ¥9.5 trillion in assets. On November 17, 1997, the bank announced that due to its difficulties in raising funds, it would close and transfer its regional operations in the Hokkaido region in northern Japan to the North Pacific Bank.

Its operations outside of Hokkaido were eventually sold to Chuo Trust and Banking Co. The bank's bad loans were sold to the government Deposit Insurance Corporation (DIC), and the Bank of Japan extended emergency loans to the bank during the transition period to provide liquidity to meet deposit outflows. The problems of the bank were well known, and its closure followed an aborted government-sanctioned merger attempt with the nearby Hokkaido Bank.<sup>6</sup>

#### ***Long-Term Credit Bank of Japan (October 23, 1998)***

Long-Term Credit Bank (LTCB) was one of the largest banks in Japan and was widely perceived to be in serious financial trouble prior to its failure. Despite an injection of capital from the government in March 1998, its debt was downgraded several times and its share price dropped sharply. A merger attempt with Sumitomo Trust Bank, a large bank in a stronger financial condition, failed in the summer of 1998. On October 19, 1998, news reports indicated that the newly established Financial Supervisory Agency (FSA) had informed LTCB earlier in the day that the bank was insolvent on a market-value basis as of the end of September, when it was last inspected.<sup>7</sup> The reports also indicated that LTCB was expected to be nationalized later in the week, when recently adopted banking legislation would take effect.<sup>8</sup> Four days later on October 23, 1998, LTCB applied for nationalization. The government announced that it would guarantee all obligations of LTCB, the DIC would purchase the bank's shares (last traded at ¥2, down from ¥210 on January 5, 1998), and the Bank of Japan would provide financial aid to LTCB as necessary to maintain liquidity in financial markets. According to the FSA report, at the end of September 1998, the bank had total assets of ¥24 trillion and ¥160 billion in book-value capital. It also reported ¥500 billion, or three times its book-value capital, of unrealized losses on its securities portfolio and other problem assets totaling ¥4.62 trillion, or 19 percent of its total assets and roughly 30 times its capital.<sup>9</sup>

#### ***Nippon Credit Bank (December 14, 1998)***

The semiannual public financial statements issued by all Japanese banks on November 24, 1998, for the six months ending September 30 showed that another large long-term credit bank—the Nippon Credit Bank (NCB), with assets of ¥7.7 trillion as of September 1998—had significant amounts of problem loans and that its earnings had deteriorated significantly since March 1998. However, the bank stated that it was still solvent. On December 9, 1998, it was announced that NCB was abandoning its previously announced merger

with Chuo Trust and Banking Co. The abandoned merger was perceived as a sign of further problems at NCB. Shortly thereafter, news reports indicated that the FSA's examination of the bank showed that as early as March 31, 1998, contrary to what NCB had reported, the bank actually had a capital deficit of ¥94.4 billion and was insolvent. On December 12, the federal government urged Nippon Credit to apply for nationalization, which it did on the next business day—December 14. The government provided assurances that the repayment of all of NCB's obligations would be satisfied in full and on time and that the Bank of Japan would provide loans to ensure the liquidity of the markets. The Bank injected some ¥80 billion into NCB to avoid having it default on its liabilities.

#### ***Performance of the failed institutions prior to failure***

To understand the impact of these failures on other banks and customers, it is necessary to examine the performance and financial condition of the failed institutions just prior to their failure. Figure 1, panels A–F compare the financial condition and performance of the three failed banks with surviving institutions using data published in their last full-year financial statements. The figures also report the rank of each failed institution relative to the rank of all banks in the sample for each of the performance measures.

It is apparent that the failed banks had much lower reported earnings and asset quality than the surviving banks. For instance, only 29 of the 118 banks had lower returns on assets than Hokkaido Takushoku Bank in the three years prior to its failure. Similarly, LTCB and NCB were in the bottom quartile of the sample in terms of returns on assets. These banks did not fare better with respect to asset quality. There were only three banks that had higher nonperforming loans relative to capital than Hokkaido Takushoku Bank, and LTCB and NCB had the highest ratios of risky loans. The reported capital ratios of the failed banks were close to the average ratios, however. In retrospect, this reflected a dramatic understating of losses from loans and other investments.

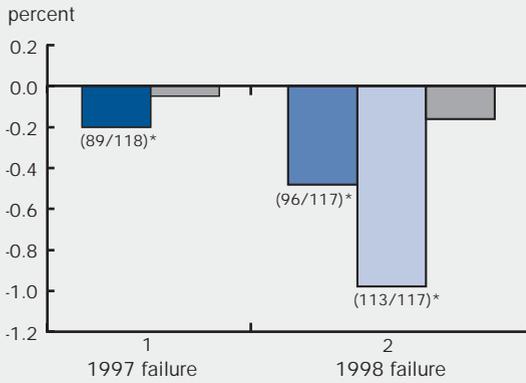
#### ***Impact of the failures on surviving banks***

This evidence suggests that the failed banks were publicly known to be in relatively poor health prior to their failure. Hence, market participants could have reasonably anticipated the three failures based on their reported financial condition. If so, the announcements should have had no measurable impact on the share prices of other firms, including surviving banks, in the economy. However, there are several reasons for believing that a failure announcement could affect the market valuation of surviving banks. A failure announcement

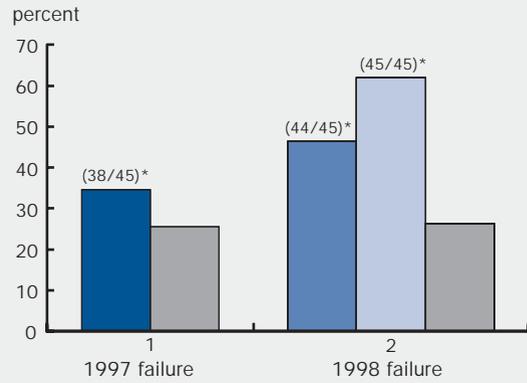
FIGURE 1

Performance comparison of failed and surviving institutions

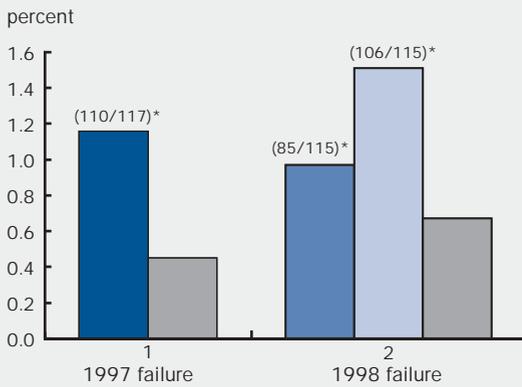
A. Return on assets



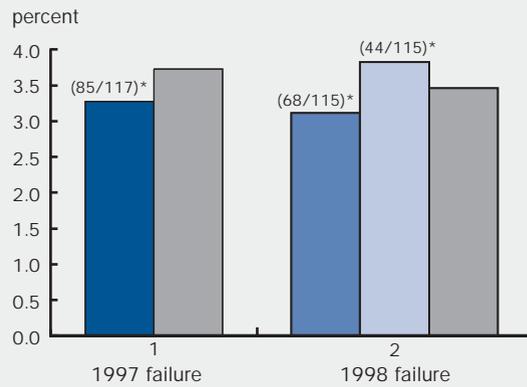
D. Risky loans ratio



B. Loan loss reserves ratio



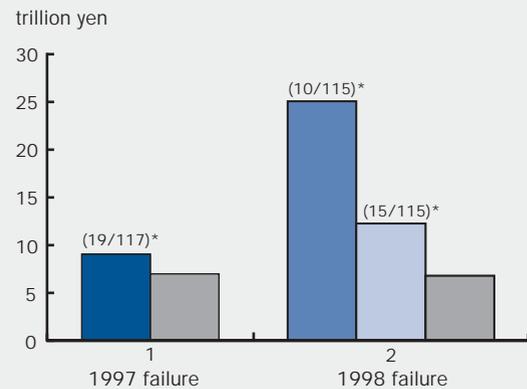
E. Capitalization ratio



C. Nonperforming loans ratio



F. Total assets



■ Hokkaido Takushoku ■ Long-Term Credit Bank ■ Nippon Credit Bank ■ Surviving Banks (N=117)

\*Rank/total in sample.

Notes: This figure presents a comparison of the performance of the three banks with the performance of their surviving peer groups. The financial condition and performance of banks are measured by their profitability (return on equity and return on assets), their asset quality (loan loss reserves/equity capital, nonperforming loans/equity capital, and risky loans/total domestic loans), equity capital/total assets, and size (total assets). Risky loans are defined as loans to the real estate, finance, and construction sectors. The profitability measures are averaged over the previous three years, whereas all the other measures are reported as of the last financial statement of the failed institution prior to its failure. The measures for the surviving institutions are dated similarly.

Source: Authors' calculations from data in Brewer, Genay, Hunter, and Kaufman (2003a).

could be viewed as positive news for the industry as a whole, generating positive excess returns for the surviving banks. This would occur if uncertainty regarding the condition of the banking system or the regulators' failure to resolve insolvencies before the failure imposed costs on surviving banks. Thus, the resolution of the uncertainty or a stronger regulatory posture removes these costs. A positive reaction to a failure announcement could also occur if the resolution of insolvencies implied that the financially stronger banks in Japan would no longer be called upon by the regulators to assist the weaker institutions, as they had been in the past. Lastly, the exit of weak firms may also improve the competitive conditions for surviving banks, increasing their earnings and share prices (Lang and Stulz, 1992; and Kaufman, 1994).

Alternatively, a failure announcement could have a significant negative impact on the share prices of surviving banks by signaling higher operating and regulatory costs. A failure might reveal previously undisclosed or understated problems in the banking system. In addition, banks that were perceived to be similarly insolvent could be seen as the next victims of the regulatory failure resolution process, or could face increased surveillance and various regulatory actions to restrict their activities (Grammatikos and Saunders, 1990).

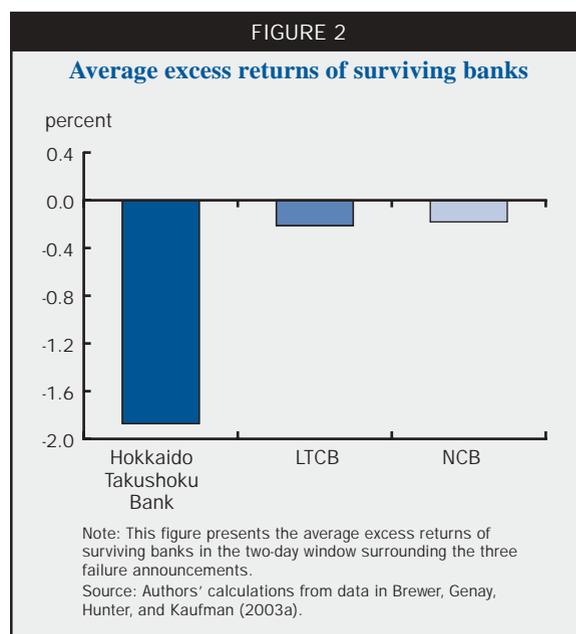
It is also possible that a failure announcement could affect all surviving bank stocks similarly, regardless of differences in the financial condition or other characteristics of the individual banks. The ability of the market to differentiate among banks is affected by the quality and timeliness of the information that is publicly disclosed. The less accurate, precise, or timely the information, the less likely are security prices to fully reflect the actual financial and risk characteristics of the individual banks. In such an environment, even if the failures revealed new information and had a significant impact on the banking sector as a whole, their impact on individual bank share prices would not be correlated with the reported condition of the banks.

In contrast, if accurate and timely information were available, investors could assess the relevance of the failure announcements to the operation of individual banks. The responses of shareholders would then be related to financial and other characteristics of the surviving banks. For example, if the failures increased the likelihood that regulators would allow weak institutions to fail without relying on financial support from stronger banks or revealed previously undisclosed problems in certain sectors of the economy, one would expect banks in weaker financial condition or with greater exposure to the problem institutions to be more adversely affected.

Evidence in Brewer, Genay, Hunter, and Kaufman (2003a) suggests that, despite the well-known problems

at these banks, their failures were not fully anticipated. Figure 2 shows some of the key results from our earlier research on the impact of the three failures on the stock market valuations of surviving Japanese banks. The stock market valuation effects are computed for each individual surviving bank using a single factor market model as discussed in box 1. In particular, daily bank stock returns are correlated with a return index of the overall stock market and a binary variable that is equal to one on or around each failure announcement date and zero otherwise. This model measures excess returns by the coefficients of the binary variable in each equation for the individual banks. The mean excess returns for these banks were negative around the failure announcement of each of the three banks, although they were significant only around the failure of Hokkaido Takushoku Bank.

Nevertheless, even if an announcement has a significant impact on the individual surviving bank returns, it is still possible to find that the mean excess returns for all banks are not statistically different from zero if the excess returns of individual surviving banks have opposite signs and offset each other. Table 1 provides several tests to determine whether the event parameter of each bank jointly equals zero on a failure announcement and whether the event parameter is equal across all banks on a failure announcement. The first row of the table reports the F-statistic test for the hypothesis that the excess returns for each bank jointly equal zero. We can reject this hypothesis for each of the three failure announcements. This suggests that the failure announcements had a significant negative impact on most individual surviving bank stock returns,



as well as on all banks as a whole, and supports the contention that the failure announcements were viewed as “bad news” for surviving banks.

The second row of the table tests the hypothesis that the impact of the announcements was equal across all banks. This test allows rejection in two of the three failures. Taken together, these results indicate that the shareholder responses to the events varied across individual banks.

Moreover, the cross-sectional variation in the responses of individual surviving banks depended systematically on a bank’s financial condition. In particular, surviving banks in weaker financial condition suffered more negative excess returns than those in stronger financial condition. Figure 3 summarizes the relationship

between excess returns of individual banks and a set of variables that reflect their financial condition, as estimated in Brewer, Genay, Hunter, and Kaufman (2003a). In all three of the failures, excess returns of surviving banks were inversely related to their ratio of loan loss reserves to equity capital. In two of the failures, the excess returns of surviving banks were more negative for banks with higher ratios of nonperforming loans to equity capital, although statistically significant for only one of the failures. Similarly, surviving banks with greater loan exposure to the riskier real estate, construction, and finance and insurance sectors were more adversely affected by all three failures and significantly so by one. In all three failures, banks with larger equity cushions suffered less from the failure announcements than other banks, but again the differences were statistically significant for only one failure.

Whether they were statistically significant or not, the cross-sectional differences in the excess returns of banks of different financial condition were economically large. For example, when Hokkaido Takushoku Bank failed, banks with loan loss reserves in the lowest one-tenth percentile had an estimated excess return of –1.41 percent. Banks with loan loss reserves in the highest one-tenth percentile, on the other hand, suffered excess returns of –1.76 percent, about 25 percent larger. The 35 basis point difference in the expected excess returns is particularly large compared with the average daily returns of –0.09 percent prior to the failure announcement. There were similarly strong, if not stronger, results when we compared the variations in expected excess returns arising from changes in the other financial condition variables for the other failure announcements.

These results suggest that the failures were not fully anticipated prior to the announcements, and the impact of the announcements on the rest of the banking system depended on the financial condition of individual banks. The statistically significant negative coefficients for the accounting variables are particularly interesting, because it is widely argued that the accounting and regulatory distortions of these variables greatly understated and possibly concealed the true deterioration in the financial condition of Japanese banks during this period. The above results suggest that shareholders of Japanese banks were, nevertheless, able to extract the information contained in these accounting measures to assess the relative impact of adverse news on individual banks.

### Impact of the failures on bank clients

As noted earlier, a defining characteristic of all three failures was that the magnitude of bad loans and valuation losses previously disclosed by the failed institutions had been significantly understated. Thus, the

#### BOX 1

##### Event study procedure to compute excess returns for surviving banks and clients

We estimate the stock price impact of each of the failure announcements by employing standard event study methodology and a Multivariate Regression Model (MVRM), similar to that used by Binder (1988), Karafiath, Mynatt, and Smith (1991), Malatesta (1986), Millon-Cornett and Tehranian (1990), and Schipper and Thompson (1983), among others. In the MVRM model, excess returns are obtained by adding a (0,1) binary variable to the right-hand side of the traditional market model to capture the impact of the announcement or “event” date. The model takes the following form:

$$1) \quad R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{k=-1}^1 \gamma_{ik} D_k + \varepsilon_{it},$$

where  $R_{it}$  is the stock return of firm  $i$  on day  $t$ ;  $\alpha_i$  is the intercept coefficient for firm  $i$ ;  $R_{mt}$  is the market index for day  $t$ ;  $\beta_i$  is the market risk coefficient for firm  $i$ ;  $D_k$  is a binary dummy variable that equals 1 if day  $t$  is equal to the event window  $k$ , zero otherwise;  $\gamma_{ik}$  is the event coefficient for firm  $i$ ; and  $\varepsilon_{it}$  is a random error term, which is assumed to be independently identically distributed normal, independent of the return on the market and the binary variables. The estimated parameters  $\gamma_{ik}$  capture any daily intercept shifts in event window  $k$  and provide an estimate of excess or unexpected returns associated with the concurrent failure announcement in window  $k$ . Since this interval in the event window is “dummied out,” the observations in the day –1 to day +1 interval do not influence the estimate of the intercept. Only those observations without dummies determine the value of the intercept.

TABLE 1

## Hypothesis tests of the excess returns

	Hokkaido Takushoku bank failure (11/17/97; N = 76)	LTCB nationalization (10/19/98; N = 80)	NCB nationalization (12/14/98; N = 80)
Hypothesis test that the excess returns jointly equal zero	5.88**	1.36*	1.30*
Hypothesis test that the excess returns are equal across banks	5.80**	1.36*	1.26

\*\* Significant at the 1 percent level.

\* Significant at the 5 percent level.

Source: Authors' calculations from data in Brewer, Genay, Hunter, and Kaufman (2003a).

banks had concealed the true extent of their problems. The release of this new information might call into question the continued availability of funds for their client firms, especially for those experiencing financial distress and/or those that use bank loans as a major source of liquidity. In addition, because the regulators had not failed major economically insolvent banks earlier, the failures might also have signaled a regulatory shift to increased probability of bank closures in the future, particularly for the riskier banks (Brewer, Genay, Hunter, and Kaufman, 2003a; Spiegel and Yamori, 2000). In either case, if banking relationships enhance the value of bank clients, we would expect clients of the announcing banks, and possibly also the surviving banks, to be adversely affected by the failures.

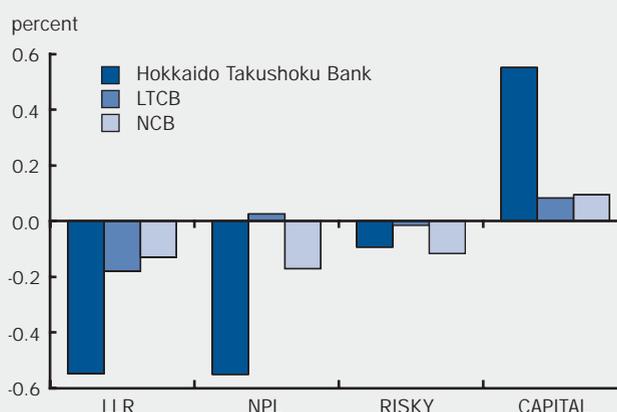
The three failures also revealed a significant change in the institutional and government support structure of Japanese financial institutions. Previously, weak or troubled institutions could rely on capital injections and loans from affiliated companies or on rescue mergers with a stronger institution. However, two of the three failed banks were not liquidated but nationalized and kept in operation, and most of the third bank was taken over by two other banks. If these changes cause the "new" banks to continue to fund their loan customers with less favorable terms than the old banks, then the stock market valuation effects should be negative, as observed by Slovin, Sushka, and Polonchek (1993) for the Continental Bank. On the other hand, if the financial markets perceive the nationalizations as an attempt by the Japanese government to ensure that the client firms have continued access to credit on

more or less the same basis, the stock market reactions of clients of the failed banks should be positive.

Lastly, previous studies suggest that the value of banking relationships is, among other factors, related to the ability of client firms to access alternative sources of funding, the degree of information asymmetry between firms and lenders, the future investment opportunities of the firms, and the firms' profitability. If the Japanese bank failures changed the value of banking relationships, we would expect the magnitude of the impact of these failures to be correlated with firm characteristics that affect the value of the relationships. In particular, we would expect firms that are heavily dependent on their existing banks and have few

FIGURE 3

## Correlation between excess returns and financial condition of surviving banks



Notes: This figure presents the association between the stock market reaction to each failure announcement and selected measures of banks' financial condition. The financial condition variables are the ratio of loan loss reserves to total book value of equity (LLR); the ratio of nonperforming loans to total book value of equity (NPL); the ratio of risky loans (defined as loans to real estate, construction, and finance sectors) to total domestic loans (RISKY); and the ratio of total book value of equity to total assets (CAPITAL).

Source: Authors' calculations from data in Brewer, Genay, Hunter, and Kaufman (2003a).

alternative sources of funding to be more adversely affected by bank failure announcements. On the other hand, firms that are clients of relatively healthy banks should suffer less from these announcements. A relationship with a bank in good financial condition is less likely to be threatened by the failure of another bank; hence, for firms whose primary bank is relatively healthy, the failure announcements should have a less adverse effect.

## Methodology and data

We obtained the announcement dates of the three failures through a search of the *Wall Street Journal*, *Reuters* news wire, *Newscast* news service, and the *Knight Ridder* business wire, which include news articles from Japan and other international news sources. If the failure announcement was made during a trading day in Japan, that date is used as the event day. If an announcement was made after the market was closed or over the weekend, we use the next trading date as the event date. For LTCB, we used the date of the first news stories that cited official government sources that the bank was in imminent danger of being nationalized.<sup>10</sup>

Our empirical analysis for measuring the impact of bank failures on bank–client relationships is conducted in two steps. First, we focus on the responses of client firms to the three bank failures and compare the responses of firms that were clients of the three failed banks to the responses of a control set of nonclient firms. The approach we used to generate the response of firms’ equity returns to the announcements is similar to that used for banks and is discussed in box 1.

Second, we examine whether the cross-sectional variations in the stock market responses of the firms are related to their financial characteristics, in particular how much they valued their existing banking relationships. Box 2 provides a description of the procedure used to generate the correlations between excess returns of individual firms and their characteristics.

We identify the clients of the three failed banks from the Autumn 1997 and Autumn 1998 issues of the quarterly *Japan Company Handbook* (JCH), which lists the banks used by each company.<sup>11</sup> Firms are identified as clients of a failed bank if the failed bank appears anywhere on the bank list, irrespective of its rank. All other firms included in the University of Rhode Island’s Pacific Basin Capital Markets Research Center (PACAP) 1999 database are identified as clients of the surviving banks and are grouped in the control sample.

We obtained daily stock prices and returns for sample firms and the market index from the PACAP 1999 database for 1994 through 1997. The market returns are measured by the TOPIX index, which includes seasoned shares of over 1,000 major Japanese companies, both

banks and nonbanks (the First Section), traded on the Tokyo Stock Exchange. We obtained data on the financial condition of these firms from the PACAP database.

## Empirical results

### *Reactions of client firms to bank failure announcements*

Do the bank failure announcements affect the stock market valuation of banks’ client firms? In particular, does the severance of banking relationships due to bank failure affect the stock market valuation of the clients of failed banks? Is there a similar, perhaps smaller, indirect effect on the clients of surviving banks? Are any effects of bank failures on the market valuation of clients of failed and surviving banks related to the characteristics of firms that measure their financial strength,

#### BOX 2

#### Correlation between excess returns and financial condition of clients of failed and surviving banks

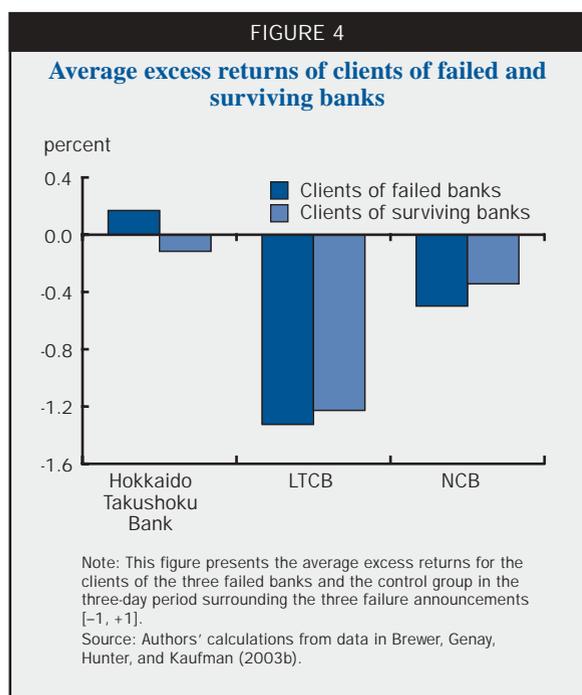
We use the following basic specification to examine the factors that are correlated with firms’ excess returns and variables capturing relationship banking:

$$\gamma_{i,[-1,+1]} = \alpha + \phi COND_i + \delta CL_i + \lambda(CL_i \times COND_i) + Others + \mu_i,$$

where  $\gamma_{i,[-1,+1]}$  is the excess return of firm  $i$  over the event window  $[-1, +1]$ ,  $CL_i$  is a binary variable that identifies the clients of the failed banks and is equal to one if firm  $i$  is a client of the failed bank, zero otherwise;  $COND_i$  is a vector of variables that describes the financial condition of firm  $i$  and the financial condition of its primary bank at the time of the event; and  $Others$  is a set of control variables. The interaction term ( $CL \times COND$ ) is included to examine whether the excess returns of clients of failed banks are more sensitive to firm characteristics than the excess returns of the clients of surviving banks. The client firm’s characteristics that are in the vector  $COND$  include four alternative measures of the financial condition of firms: the ratio of loans to total assets ( $LOANS/TA$ ); the ratio of book value of equity to total assets ( $EQUITY/TA$ ); the average return on assets over the previous five years ( $ROA$ ); and a measure of liquidity—the ratio of cash and securities to total assets. The primary bank’s characteristics that are in the vector  $COND$  are capitalization ratio (bank’s equity/total assets), the ratio of loan loss reserves to total loans (bank’s loan loss reserves/total loans), and return on assets averaged over the previous five years (bank  $ROA$ ).

potential access to credit, and future investment opportunities? In the remainder of this article, we summarize the results of our research on these questions (from Brewer, Genay, Hunter, and Kaufman, 2003b).

Figure 4 provides estimates of excess returns for two portfolios of bank customers—clients of one of the three failed banks and clients of the surviving banks—at the announcement dates of the three bank failures. Estimates reported are the mean of the individual coefficients of each firm. Of the six (three announcements times two sets of client firms) estimated mean excess returns of the bank clients, five have the expected negative signs, and all five are statistically significant. Thus, these results suggest that the stock market valuation of the failed bank clients is adversely affected at the date of the failure announcements. In addition, the figure shows that the market valuations of surviving banks' client firms are also negatively affected at the date of the failure announcements. The evidence in figure 4 suggests that the effects are not significantly different for clients of failed banks and for clients of surviving banks. These results suggest that bank failures are bad news for all firms in the economy, not just for clients of failed banks. In part, however, this may be unique to Japan. In the observation period, the whole banking sector in Japan was experiencing financial distress. Japan is also a small country, so shocks in the economy are likely to affect most if not all banks. This makes it more likely that bank dependence is costly for all Japanese firms, regardless of the identity of their primary bank (Kang and Stulz, 2000).



One could argue that the reason we do not see a significant difference in the stock price reactions of the clients of the failed and surviving banks is that the three failures were primarily signals of economy-wide bad news, which dominated any news about the value of relationships maintained by the failed banks. To explore this possibility, we grouped the firms in each sample on the basis of their stock price sensitivity to aggregate market movements (their market beta). We then compared the impact of the events on the clients of the failed and surviving banks, after adjusting for the firms' sensitivity to market- or economy-wide movements. Figure 5 shows the excess returns of failed and client firms, each grouped as low- and high-beta firms—to each of the three failures. These results indicate that the three failure announcements had a larger impact on the firms with greater sensitivity to aggregate market movements.<sup>12</sup> This suggests that the announcements affected bank clients with higher market risk more than those with relatively low market risk. However, when we compared the responses of failed and surviving bank clients for each beta group, we still did not find any statistical differences.<sup>13</sup>

#### ***Cross-section tests of relationship between firms' financial characteristics and abnormal returns***

Failure announcements need not have equal effects on all bank client firms. Indeed, theory suggests that the announcement effects should be related to the financial and other characteristics of the firms.<sup>14</sup> Brewer, Genay, Hunter, and Kaufman (2003b) employ four alternative measures to indicate a firm's dependence on banks for credit: the ratio of loans to total assets (LOANS/TA); the ratio of book value of equity to total assets (EQUITY/TA); the average return on assets over the previous five years (ROA); and a measure of liquidity—the ratio of cash and securities to total assets.

Figure 6 provides correlation estimates between excess returns and each of our four measures that proxy for the value of banking relationships. If bank failure adversely affects valuable banking relationships, we would expect variables positively correlated with information problems, and hence bank dependence, to be negatively correlated with excess returns. Furthermore, we would expect the correlation to be stronger for the clients of failed banks.

The results in figure 6 are broadly consistent with the prediction that firms for which existing banking relationships are more valuable suffer more at the announcement of the failure of their bank. Clients of failed banks that had high loans relative to assets (that is, more intermediated debt), lower return on assets, or lower capitalization suffered significantly more negative reactions to the failure announcements.

Similarly, client firms of surviving banks for which existing banking relationships are likely to be more valuable experienced more negative excess returns at the announcement date of the three bank failures. In particular, firms that had high loans relative to assets, lower returns on assets, lower capitalization ratios, and lower liquidity had significantly more negative excess returns. These results are consistent with the hypothesis that bank failures threaten the viability of valuable banking relationships for weaker firms at all Japanese banks.

In addition, for firm profitability, we can reject the equality of coefficients for the clients of failed and surviving banks. The correlation between excess returns and return on assets of firms is stronger for the clients of failed than surviving banks. However, for other firm characteristics, we can not reject the equality of coefficients for the clients of failed and surviving banks. Hence, the results show little support for the prediction that the relationship between excess returns and financial characteristics is stronger for the clients of failed banks.

We also correlate excess returns with firm size and find a positive and significant correlation for failed bank clients in all models. This result is consistent with the prediction that larger clients suffered less from the failure of their banks. In addition, we can reject the hypothesis that the correlation between size and excess returns for the clients of failed and surviving banks is equal in all of these models. The magnitudes of the coefficients on firm size for the two groups indicate that the excess returns of the failed-bank clients are two to three times as large as those of the surviving-bank clients. If size proxies for access to external funds, then these results suggest that clients of failed banks that had greater access to external financing experienced less severe stock market reactions to the failure announcements than the clients of surviving banks with similar access.

Overall, the results in figure 6 support the hypothesis that the excess returns of firms at the announcement of the three bank failures are correlated with the characteristics of the client firms. Moreover, the directions of these correlations are consistent with our predictions.

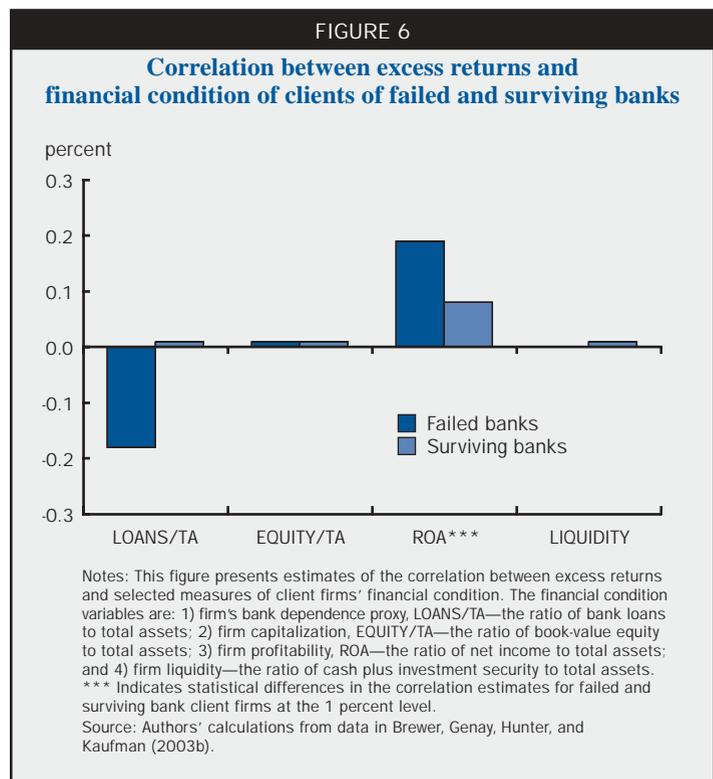
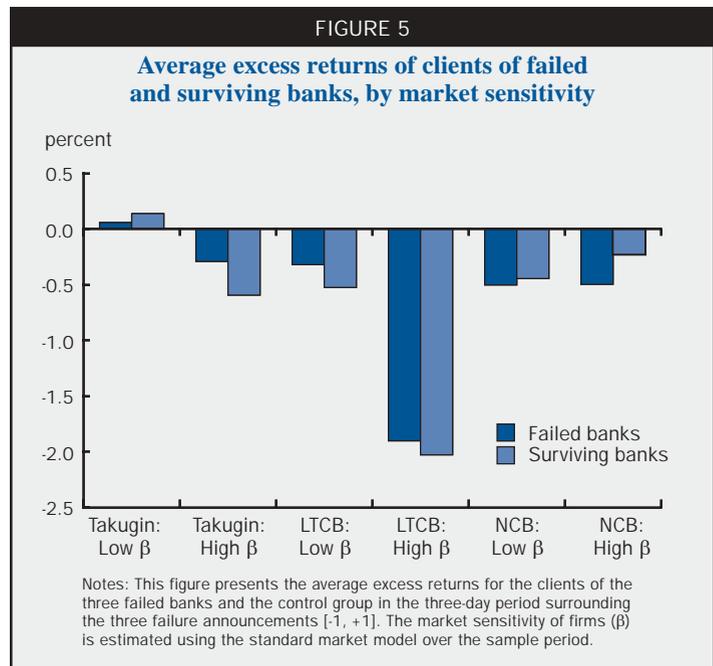


Figure 6 offers little evidence that the relationship between firm and bank characteristics and excess returns is stronger for the clients of failed banks relative to the clients of surviving banks. The three failures had more severe adverse impacts on the valuations of all firms for

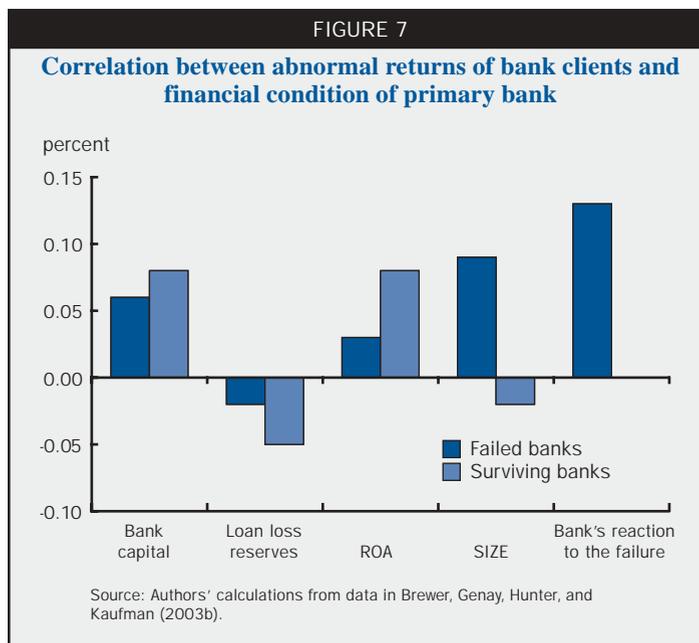
which existing banking relationships were more valuable, regardless of whether their banks failed or survived.

We also relate the excess returns of individual firms to the characteristics of their primary bank. In general, we would expect financially stronger banks to weather a crisis better than weaker banks. Hence, a bank failure or crisis is less likely to threaten the viability of relationships maintained by healthy banks; and the clients of financially stronger banks should suffer less from bank failure announcements. We measured the financial condition of a bank by its size, capitalization, loan loss ratios, profits, and estimated excess returns at the failure announcements—the excess returns summarized in figure 2. The results of our analysis—summarized in figure 7—indicate that, if the primary bank of a firm had more capital, had fewer loan losses, was more profitable, or had a less adverse reaction to the failure announcement, the firm suffered less from the announcements.

## Conclusion

Prior to the mid-1990s, bank failures were rare events in post-World War II Japan. Then on November 17, 1997, Japanese regulators failed a large “city” bank for the first time since the end of World War II. On October 23, 1998, and December 14, 1998, they nationalized two of the three very large long-term credit banks. In this article, we summarize the results of our recent research on what these announcements meant for both surviving banks and firms that rely on the failed and surviving banks for credit and other banking services. These failures were important events that signaled information that could reasonably be expected to raise questions about the long-term viability of surviving banks and the banking relationships both failed and surviving banks maintain with their client firms. The results of our investigation are of particular interest in light of the alleged lack of poor financial transparency in Japan, the uneven behavior of the regulators, and the severity of the banking crisis in this period.

Like previous studies that use data from countries with relatively better financial transparency, our results indicate that the three failures were perceived to be bad news for surviving banks. On average, stock prices for the surviving banks declined around each of the announcement dates of the failures, and the declines were greater for surviving banks with lower capitalization and higher ratios of risky loans. This



evidence suggests that despite the alleged lack of transparency, stock market participants were able to incorporate new information relatively quickly—and by magnitudes and in directions that would be predicted by theory—and to differentiate among banks on the basis of their relative risk characteristics. The policy implication is that bank regulators in Japan can use market monitoring and discipline more extensively to supplement regulatory discipline to promote a safer and more efficient banking system.

These announcements also had spillover effects for nonfinancial clients of both failed and surviving banks. Stock market valuations of failed banks' client firms were adversely affected at the date of the failure announcements. The adverse impact was more severe for firms that valued their existing banking relationships more or borrowed from a bank in weaker financial condition. We find, however, that these effects were not significantly different from the effects experienced by all client firms in the economy. As it turns out, the three bank failure announcements represented “bad news” for all firms in the economy, not only for the customers of the failed banks. But one should be cautious about generalizing these results to other countries. Our analysis focuses on an economy that is heavily bank-dependent and in the midst of an extended financial crisis. Nevertheless, to the extent that these results for Japan may be representative, they raise questions regarding the impact of bank failures not only on their client firms, but also on the rest of the economy.

## NOTES

<sup>1</sup>Several smaller banks were also failed during this period. See Spiegel and Yamori (2000) for a list of banks failed during the 1990s.

<sup>2</sup>Japanese banks are often classified into four types—city banks, long-term credit banks, trust banks, and regional banks—according to their size, composition of assets and loans, customer base, funding sources, and regulatory requirements and treatment. See Genay (1998) for a detailed discussion of the differences in their operations.

<sup>3</sup>For recent reviews of the literature on banking relationships, see Boot (2000) and Ongena and Smith (2000a) and references therein.

<sup>4</sup>While we have emphasized their benefits, banking relationships can also impose costs by generating perverse incentives for banks in the enforcement of contracts, provision of follow-up financing, and financing of high-risk projects with positive net present value. Banking relationships can also give monopoly power to banks, imposing welfare costs. In addition, banking relationships can isolate firms, their managers, and banks from market discipline and corporate governance that would otherwise produce optimal business decisions. For an excellent discussion of these costs, see Boot (2000) and Ongena and Smith (2000a).

<sup>5</sup>Another group of studies examines the link between the strength and the value-added aspects of bank–client relationships. Petersen and Rajan (1994), Berger and Udell (1995), and Cole (1998) find the value of banking relationships to be particularly important to small businesses in the U.S.—which typically face greater information problems than larger firms and have more limited access to public capital markets. The duration of the banking relationship is positively correlated with the availability of credit (Petersen and Rajan, 1994; Berger and Udell, 1995). The contractual terms generally improve for the borrower over the life of the relationship—interest rates and collateral requirements fall. Several papers present evidence on the value and the nature of banking relationships in other countries, where banks play a greater role in firms' financing than in the United States. Hall and Weinstein (2000), Hoshi, Kashyap, and Scharfstein (1990 and 1991), Kaplan and Minton (1994), Kang and Shivdasani (1995), Morck and Nakamura (1999), Morck, Nakamura, and Shivdasani (2000), Peek and Rosengren (2003), and Weinstein and Yafeh (1998) focus on banking relationships in Japan. Degryse and Van Cayseele (2000), Detragiache et al. (2000), Elsas and Krahnert (1998), Foglia et al. (1998), and Ongena and Smith (2000b), examine banking relationships in Europe. These studies report that banking relationships enhance firm value by generating an exchange of information that facilitates finance, providing corporate governance, enabling intertemporal smoothing of loan prices, and providing liquidity insurance to borrowers during periods of financial distress.

<sup>6</sup>News articles reported that depositors began to withdraw funds from the bank after it was announced that the planned merger with Hokkaido Bank would not happen. News reports also noted that

many of the large stakeholders, for example, the life insurance companies, refused to inject additional funds into the bank's capital base in the weeks leading up to its closure. The bank's share price, which was ¥222 at the beginning of 1997, had dropped to ¥65 the day before the failure announcement on November 17, 1997. The day after the announcement, its share price declined to ¥5.

<sup>7</sup>The Financial Supervisory Agency, which assumed supervisory responsibilities for financial institutions from the Ministry of Finance, was established on June 22, 1998.

<sup>8</sup>A package of eight bills was approved by the parliament on October 12, 1998, aimed at resolving the bad loans of Japanese banks and dealing with the failure of financial institutions. The legislation allowed for recapitalization of banks with public funds and created the Financial Reconstruction Commission (FRC), to, among other duties, administer nationalized insolvent institutions.

<sup>9</sup>After the nationalization, the good assets of the bank were eventually sold to a consortium led by U.S.-based Ripplewood Holdings LLC, which paid ¥1 billion for the bank and injected an additional ¥120 billion in capital. The new bank was renamed Shinsei Bank Ltd. and received ¥240 billion of public capital from the Financial Reconstruction Commission in March 2000. According to a *Wall Street Journal* article (Singer, 2003), for the fiscal year ended March 31, Shinsei Bank posted its third straight year of profit.

<sup>10</sup>Consequently, the event dates for LTCB (October 19, 1998) and NCB (December 14, 1998) differ from the announcement dates.

<sup>11</sup>This procedure was employed by Gibson (1995 and 1997) and Yamori and Murakami (1999).

<sup>12</sup>The differences in the excess returns of high- and low-beta firms were significant at the 1 percent level for the clients of surviving banks in the Hokkaido Takushoku Bank failure and the clients of both the failed and surviving banks in the LTCB failure.

<sup>13</sup>To determine the robustness of our results, we also conducted a number of tests to determine if these results are dependent on how we identify the clients of failed banks and whether our results could be explained by how firms and banks decide to form relationships. The results of these tests, discussed in Brewer, Genay, Hunter, and Kaufman (2003b), indicate that our main results carry through under these alternative assumptions.

<sup>14</sup>In Brewer, Genay, Hunter, and Kaufman (2003b), we also examined how the announcement effects correlated with the financial and other characteristics of the firms' banks, as well as with the financial and other characteristics of the client firms.

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