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## **The Impact of Greater Bank Disclosure Amidst a Banking Crisis**

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### Abstract

Banking crises have continued to emerge in recent years, contributing to severe economic contractions in Japan, Russia, and Southeast Asia. In response, international organizations have advocated enhanced market discipline, encouraging countries to improve bank disclosure policies. Despite these recommendations, most countries have failed to improve disclosure. One reason so little progress has been made is that neither the proponents nor the opponents of enhanced disclosure policies have persuasive empirical evidence to support their views on potential costs and benefits of such a policy. This paper fills that gap by examining the impact of requiring the release of supervisory information on troubled U.S. banks during a severe banking crisis. We find that improving disclosure at troubled U.S. banks during the banking crisis was not destabilizing and did provide conditions for market discipline to work more effectively. These findings support the public policy proposal of enhanced bank disclosure, even at a time when experiencing a banking crisis.

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## **The Impact of Greater Bank Disclosure Amidst a Banking Crisis**

Banking crises have played a central role in the recent financial problems affecting developed and emerging market countries (Caprio and Klingebiel 1996; Mishkin 1997). A number of studies (Kaminsky and Reinhart 1996, 1998; Miller 1996, 1998) have found that problems in the banking sector are leading indicators of impending financial crises. With the intent of reducing the likelihood of such crises, international organizations such as the G7, the Basle Committee, the World Bank, and the International Monetary Fund recommend that countries enhance the transparency of their banking systems by improving disclosure. However, despite this prompting, few countries have adopted policies to enhance disclosure of their banking institutions' financial condition, and some have actually made their banking sector less transparent during their banking crises. This paper examines the impact of requiring much greater public disclosure of supervisory information regarding troubled U.S. banks during the country's worst banking crisis since the Great Depression.

Why have repeated calls for increased transparency had so little impact? The fear is that investors and depositors might interpret disclosure of severe problems at some banks as indicating widespread banking problems. Increased disclosure could create depositor runs or a collapse of stock prices, causing widespread bank failures (Calomiris and Mason 1997; Gilbert and Vaughan 1998; Kaufman 1994). Such banking panics could distort prices, resulting in healthy institutions being impaired by their weaker brethren. In that case, rather than providing greater market discipline that would improve the efficient allocation of resources throughout the banking system, disclosure might result in strong as well as weak banks being affected adversely.

Proponents of greater disclosure have claimed that more transparency will contribute to the efficient allocation of resources in the banking system by improving market discipline. Greater transparency permits greater market discipline, whereby well-managed banks are rewarded for effectively managing risks, while poorly managed banks are penalized with increased costs of capital and deposits. Thus, market forces can encourage bank management to adopt safer bank practices, lowering the risk that market disruptions will become systemic problems.

Both proponents and opponents of greater bank disclosure have made assertions about its potential benefits and costs. However, neither have provided persuasive empirical evidence to substantiate their claims. This is unfortunate because resolution of this issue could be valuable to countries such as Japan and many of the Asian tigers now experiencing their most severe banking crises in the postwar era. Many analysts have argued that both the nature and possible solutions to the economic problems of these countries are integrally related to their extensive banking problems (Radelet and Sachs 1998). Thus, it is particularly relevant to policy to understand how improving disclosure and striving for a more transparent banking system will affect nations experiencing severe banking problems.

The paucity of empirical evidence has contributed to the dearth of progress in improving disclosure by banks. This paper fills that gap by examining the rare case of a country requiring substantial disclosure of confidential government assessments of the financial condition of its banks amidst a banking crisis. In 1989 and 1990, the U.S. Congress adopted legislation that required bank regulatory agencies to make public all formal enforcement actions imposed on banks. This action was striking both because of the severity of the banking problems at the time and because such disclosure is essentially an announcement that regulators view the bank as

having a high probability of failure. The U.S. experience can thus provide the basis for an empirical test of the impact of dramatically increasing required disclosure at problem banks. Because few countries have adopted a policy of greater disclosure, the U.S. experience is unique and provides evidence previously unavailable to policymakers about the costs and benefits of increased bank disclosure.

We find that stock market participants view the announcement of a formal enforcement action as informative. The announcement results in a large negative abnormal stock return for the bank, consistent with the announcement revealing new (adverse) information about the bank's financial condition.<sup>1</sup> While the stock market reaction is large, resulting in an average three-day price decline of 5 percent, it is not catastrophic. Furthermore, the decline is largest at banks for which the market had yet to perceive serious financial problems, while the effect is much more modest at banks whose financial problems had already been more fully revealed. Similarly, the announcement does not create bank runs. While deposits decline following the announcements, they do not fall dramatically. Despite concerns expressed by regulators that these banks had a high probability of failure, many of the banks in our sample survive, and even those that fail generally fail well after the announcement of their formal action.

Not only does disclosure provide useful information about the condition of the bank receiving the formal action, it also can provide information that is useful for evaluating competitor banks. In some instances, such as in New England, we find modest spillover effects for banks with characteristics similar to those of the troubled bank making the formal action announcement. However, the announcement has little impact on dissimilar banks in the same region or on banks outside the region. Thus, disclosure does not create a banking panic. That the spillover is

confined to similarly situated banks indicates that disclosure does enhance transparency, as investors use the information to better distinguish the financial condition of other banks. The repricing of bank stocks with similar exposures provides an inducement for bank management to take actions to prevent examiner intervention, exactly the impact desired if market discipline as a result of greater transparency is to aid in resolving banking problems (Flannery and Sorescu 1996).

The next section describes the adoption of the new disclosure requirements in the United States and their implications for greater transparency. The second section examines the potential problems associated with requiring greater disclosure during a banking crisis, analyzing the impact of an announcement of a formal action on stock prices and deposits. The third section examines the benefits of disclosure by considering its effect on both the announcing bank and its competitors. The final section describes the policy implications and, in particular, the applicability of our findings to banking problems in other countries. Specifically, we examine their applicability to Japan, the country with the largest troubled banks in the world, which has been widely criticized for poor disclosure and a lack of transparency.

## I. Background

Most countries disclose little, if any, of their supervisory assessment of banks. Ideally, increased transparency through the disclosure of timely and accurate information should enable a bank to access capital markets more efficiently. More broadly, market discipline based on this information should contribute to the efficient allocation of capital and provide incentives for banks to operate efficiently and to manage and control their risk exposures prudently. In particular,

increased transparency should reduce the magnitude and frequency of bank problems, insofar as enhanced disclosure allows market participants to impose market discipline earlier and more effectively.

In contrast, many fear that increased disclosure of information about troubled banks might prove destabilizing. Disclosure that a bank's health had deteriorated substantially could cause the bank to fail as the result of a bank run by depositors. Similarly, an overreaction by shareholders might cause the bank's share price to plummet, impairing the ability of the bank to raise additional capital. Furthermore, the lack of investor confidence could spread to other banks, resulting in systemic problems.

Such concerns presumably have prevented the adoption of more comprehensive disclosure, particularly in countries experiencing serious banking problems. That a country in crisis would not adopt policies to increase disclosure should not be surprising, since fear of the consequences of greater disclosure has been sufficient to prevent its adoption in most countries even in the best of times. In fact, bank examination information in the United States is viewed as so confidential that top bank management is prohibited from disseminating supervisory ratings to other employees, bank customers, or market participants (DeYoung et al. 1998).

These considerations make all the more striking the 1989 decision by the U.S. Congress, in the midst of a severe banking crisis, to substantially increase disclosure of supervisory information. The number of FDIC-insured bank failures exceeded 100 per year between 1985 and 1992, compared to the 1943-79 period when the number of bank failures per year exceeded 10 only during the 1974-75 recession years. Furthermore, the problems were particularly severe in specific geographic regions such as the Southwest, the Northeast, and California. For example,

the largest bank holding companies in Texas failed, while 20 percent of the banks in New England failed, including the second largest bank in the region.

Despite these banking problems, Congress enacted laws that required public disclosure of formal enforcement actions, a major change in the level of disclosure of information concerning troubled financial institutions in the United States.<sup>2</sup> The Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA) required that cease and desist orders signed after August 9, 1989, be disclosed by the regulator. This was the first time that regulators systematically disclosed enforcement actions against the most troubled banks.

Generally, a cease and desist order based on safety and soundness issues indicates a substantial concern by supervisors that the bank will fail.<sup>3</sup> Because this is the most drastic action available to a supervisor short of closing the bank, the announcement reveals to the market an adverse supervisory evaluation of the bank. Furthermore, the conditions specified in cease and desist orders require banks to take certain actions that affect the values of variables such as earnings, provisions for loan loss reserves, and planned loan charge-offs that provide additional information to market participants.<sup>4</sup>

A potential loophole in the disclosure requirement adopted in FIRREA was that banks could negotiate for an alternative form of formal enforcement action, a written agreement, that was not included in the FIRREA disclosure requirements. This loophole was eliminated in an amendment to the Crime Control Act of 1990, which required that written agreements signed after November 29, 1990, also must be disclosed publicly. While these two laws require disclosure by bank supervisors, some banks voluntarily disclosed their formal enforcement actions, as would be required by Securities and Exchange Commission regulations if a bank's

legal staff judged the formal action to be material information. However, bank management had substantial latitude in determining what was material, so that some banks did try to avoid disclosure.<sup>5</sup>

The announcement of formal actions not only revealed to the public that bank supervisors believed that the financial institution was deeply troubled, requiring remedial action to stem its financial problems, but also revealed the likely confidential supervisory rating of the bank. Among the 2,398 formal enforcement actions imposed by the FDIC for safety and soundness purposes from 1980 through 1995, 89 percent were imposed on banks with the two lowest supervisory ratings (Curry et al. 1997).<sup>6</sup> Prior to the disclosure of the formal actions, members of the public had no way to ascertain the supervisory evaluation of a bank, although they could observe subsequent bank responses to the formal action as the bank increased loan loss provisions, charged off loans, and reclassified problem loans. Now, however, by announcing the formal action, the bank supervisor is disclosing that remedial action has been required of the bank, and that the results of a confidential supervisory exam indicated a high probability of failure in the absence of substantial actions taken by bank management.

The announcement of the formal action institutes a much a higher degree of disclosure concerning bank health than occurs in most other countries. The conditions imposed on banks by the formal action are also made public, highlighting both the specific problems that need to be addressed and the specific actions to be taken. This new disclosure procedure provides an opportunity to test whether increased supervisory disclosure improved bank transparency. Furthermore, to the extent that transparency did improve, we can examine whether improved



transparency during a banking crisis had beneficial effects through increased market discipline or proved to be destabilizing.

## II. The Effects of Formal Action Announcements

To examine the effect of announcements of formal enforcement actions on the stock prices of banks, we created a file of all formal actions imposed on large banks (at least \$300 million in assets) during the 1989-94 period, based on information obtained from the Office of the Comptroller of the Currency, the Federal Reserve System, and the Federal Deposit Insurance Corporation. We used this size threshold because we are considering only banking organizations that are publicly traded, and banks in such organizations are generally much larger than \$300 million. We then identified the bank holding companies (BHCs) that own these banks, since it is the bank holding company that issues the stock. We used SNL Securities' Quarterly Bank Digest to reduce this set of bank holding companies to those that are publicly traded.

Normally, the BHCs announce that one of their subsidiary banks will receive a formal action well before the regulator discloses the formal action, since the regulator would announce the formal action only after it has been signed by all parties. To identify the first announcement date, we used the Dow Jones News Retrieval Service. This service includes articles from The Wall Street Journal, numerous regional newspapers, and several of the major wire services. After removing from our sample those BHCs for which the sum of the assets of the subsidiaries receiving a formal action accounts for less than 25 percent of the BHC's total assets (including nonbank subsidiaries), our sample included 49 BHCs for which we were able to identify disclosure dates. Our sample was reduced to 41 when we eliminated those BHCs that had a

contaminating event (for example, the disclosure of merger intentions) within the three-day window associated with the formal action announcement. Finally, four of the remaining BHCs had share prices that had already fallen below \$2 per share by the event date, and two more traded infrequently (trades occurring on less than half of the possible trading days).<sup>7</sup> The remaining 35 BHCs were the focus of our empirical work.

To determine the impact of formal action announcements on the stock price of disclosing BHCs, we consider the standard market model as well as two versions of a two-factor model when specifying a return-generating process for the BHCs. The first version of the two-factor model adds an equally weighted bank stock index to the standard market model. The second two-factor model specification replaces the bank stock index with a stock index for all banks operating in the same geographic region as the announcing BHC.<sup>8</sup> These two-factor models are specified as:

$$r_{i,t} = \alpha + \beta_m r_{m,t} + \beta_{BI} r_{BI,t} + \varepsilon_{i,t} \quad (1)$$

where  $r_{i,t} \equiv$  the simple with-dividend return to security  $i$  on day  $t$ ,  
 $r_{m,t} \equiv$  the simple with-dividend return to the value-weighted portfolio of all New York Stock Exchange and American Stock Exchange stocks on day  $t$ ,  
 $r_{BI,t} \equiv$  the simple with-dividend return to an equally weighted national portfolio of BHCs on day  $t$ , or the simple with-dividend return to an equally weighted portfolio of BHCs in the event-BHC's region on day  $t$ , and  
 $\varepsilon_{i,t} \equiv$  the security-specific component of the return.

The two-factor model is estimated over one year of trading days, from 262 days before the announcement to 11 days before. We then calculate the cumulative abnormal return as the sum of the daily abnormal returns for the three-day event window from the day before (day = -1) to the day after (day = +1) the announcement, where the abnormal return is the estimated prediction

error from the specified model. Specifically, the abnormal return (AR) and cumulative abnormal return (CAR) are calculated as follows:

$$AR_{i,\tau} = r_{i,\tau} - (\alpha + \beta_m r_{m,\tau} + \beta_{BI} r_{BI,\tau}) \quad (2)$$

$$CAR_i = \sum_{\tau=-1,0,1} AR_{i,\tau} \quad (3)$$

## Results

Table 1 presents cumulative abnormal returns on BHC shares from the day before to the day after the announcement of a formal action. Panel A of Table 1 shows that equity market participants do react to the announcement that the bank has (or will soon have) a formal action imposed by regulators. Using the standard market model, the mean three-day return is  $-4.96$  percent, while the median is  $-5.39$  percent, and each is highly significant.<sup>9</sup> Using a two-factor model, with either the national bank index or a region-specific bank index as the second factor, reduces the size of the estimated effect somewhat, although it remains highly significant in each case. Thus, the three-day CAR associated with a formal action announcement is significantly less than zero across a variety of return-generating processes, whether a t-test or a Wilcoxon signed rank test is used.

The distribution of returns is also informative. Panel A shows the returns for the banks at the 25<sup>th</sup> and 75<sup>th</sup> percentiles. The actual return at the 75<sup>th</sup> percentile is 0.00 percent, indicating that the large majority of the sample has negative three-day returns associated with the announcement. The 25<sup>th</sup> percentile for the actual return is  $-9.09$  percent, indicating that only one-quarter of the sample exhibits a price decline in excess of 9 percent. The analysis below will address possible sources of the variation in returns across banks.

To confirm that these are not temporary reactions that are quickly reversed, a longer time horizon is also examined. Because of the potential bias from summing daily abnormal returns over longer time periods, holding period returns are used. They are calculated as follows:

$$HPR_i = \left[ \left[ \prod_t (1 + r_{i,t}) - 1 \right] - \left[ \prod_t (1 + r_{EP,t}) - 1 \right] \right] \quad (4)$$

where  $r_{i,t} \equiv$  the simple with-dividend return to security  $i$ , on day  $t$ , and

$r_{EP,t} \equiv$  the simple with-dividend return on one of three alternative equity portfolios:

- 1) all New York Stock Exchange and American Stock Exchange stocks on day  $t$
- 2) all BHC stocks on day  $t$
- 3) all BHC stocks in the event-BHC's census region on day  $t$ .

Panel B of Table 1 shows that the one-month holding period returns measured from the day before to 18 trading days after the formal action announcement, are qualitatively similar to the results in Panel A. The mean actual one-month return is  $-6.86$  percent and the median actual return is  $-8.57$  percent. Measuring this holding period return net of the market return, net of the national bank index return, or net of the region-specific bank index return, we obtain even larger declines that are highly significant, with each of the estimated impacts indicating a negative excess return exceeding 8 percent.

Although the announcement of a formal enforcement action does reveal new information concerning the announcing BHC, the results in Table 1 are not consistent with greater disclosure causing severe problems for the individual banks. Rather, the extent of the resulting repricing is consistent with market participants enforcing market discipline. The three-day and one-month abnormal returns decline on average by about 5 percent and somewhat more than 8 percent, respectively. While market participants lower, on average, the valuation of the BHCs as a result

of the new information, they do not assume that the announcement indicates imminent closure of these BHCs. The magnitude of the repricing is certainly not catastrophic for these BHCs.

Table 2 examines whether an announcement of a formal action creates a bank run. The table shows the percentage changes in selected deposit categories at BHCs with formal actions during the quarter of the formal action announcement. While we are using quarterly data that prevent precise timing of deposit flows, the quarterly data make clear that no precipitous decline in total deposits occurs during the quarter of the formal action announcement. The table shows that, on average, total deposits tend to decline only slightly during the quarter of the formal action announcement.<sup>10</sup> Transaction deposits and small time deposits actually increase, while savings deposits decline modestly and large time deposits more substantially. In part, this pattern likely reflects the effect of deposit insurance. Fully insured depositors have little incentive to leave a troubled bank, and indeed they do not appear to flee with the announcement of a formal action. Even for the banks at the 25<sup>th</sup> percentile, the decline in transactions, savings, and small time deposits is 6.6 percent or less. Large time deposits are more responsive (an average decline of 10.3 percent), consistent with market discipline. However, large time deposits tend to be a small percentage of total deposits, so that the mean change in total deposits reflects a decline of less than 2 percent. The relatively small impact on total deposits indicates that while disclosure will instill market discipline, the response is not so severe as to create a crisis for these BHCs.<sup>11</sup>

### III. The Benefits of Disclosure

A major benefit of disclosure is that it enables investors to make a more accurate assessment of the financial condition of the firm. Banks often specialize in the collection and

evaluation of private information, and disclosure of proprietary information about their customers, as well as about their own risk management strategies, could be detrimental to their future profitability. The reluctance of bank management to disclose proprietary information about customers makes it quite difficult for outside monitors, without access to individual loan information, to fully assess the health of a bank. This is further complicated insofar as many bank loans are made to small borrowers who are bank dependent (Petersen and Rajan 1994) and typically do not publicly disclose information about their financial condition. As a result, bank analysts, investors, and depositors must rely primarily on data released by a bank to accurately portray its financial condition.

Bank examiners, alone among outside monitors, have direct access to information about a bank's individual loans and risk management strategies through their authority to conduct confidential exams. Thus, they can play an important role by validating that the financial condition of the bank is as reported (Berger, Davies, and Flannery 1998; DeYoung et al. 1998). One possible piece of information available from the announcement of a formal enforcement action is that the quality of the loan portfolio is lower than previously reported. Furthermore, the formal action may reflect concerns by bank supervisors that the ability of bank management to evaluate and monitor credit at the bank is inadequate.<sup>12</sup> Without this information, effective market discipline may be impeded. Outside monitors may not receive timely information about the deteriorating health of a bank, instead receiving the information only when bank management, possibly at the instigation of examiners, discloses emerging problems through announcements such as lower earnings or increased nonperforming loans.

The magnitude of the stock market reaction to a formal action announcement should be related to the extent to which the announcement is informative. If bank management has been slow, or unwilling, to accurately portray the bank's deteriorating financial condition, we would expect the size of the adverse stock market reaction to be larger. For example, if a bank has already signaled deteriorating financial health through increases in nonperforming loans or loan loss reserves, then an announcement that regulators are concerned about the financial viability of the bank may provide little additional information. On the other hand, a bank that has disclosed few financial problems to date might see its share price react quite strongly to an assessment by bank supervisors that is substantially more negative than had been portrayed by management. The size of the response should be related to the degree of disclosure that has already occurred.

A formal action announcement also may be interpreted by market participants as revealing information that is not idiosyncratic to the announcing bank, for example, indicating that the local economy has deteriorated more than analysts had expected. In that instance, the bank's problems may be less related to the particular practices of the bank and more reflective of the conditions of the financial markets in which the bank participates. If so, the information would be applicable to similarly situated institutions. Conversely, if the problems were bank specific, the information resulting from the formal action announcement should provide little information about rivals of the bank. For example, if examiners evaluating the bank's loan files had found serious problems emerging from its real estate loan portfolio, stock prices of other banks with similar portfolios should also be affected by the information contained in the formal action announcement. However, banks primarily engaged in non-real-estate activities should be little affected.

A third piece of information revealed by the announcement of a formal action is that bank management is now subject to much closer oversight by bank supervisors. Consistent with the overall negative stock market response, investors may feel that this oversight hurts rather than improves the chances that the troubled institution will recover. If so, one would expect rivals not under a formal action to benefit and have a positive stock price response to the announcement of a competitor's formal action, insofar as rivals would likely benefit from the announcement that a competitor has more severe internal problems than had been previously disclosed.

## Results

Table 3 examines the relationship between prior disclosures of negative earnings and the size of the cumulative abnormal returns of the banks announcing a formal action. Two interesting patterns emerge from the table. The first is that the adverse effect of the formal action announcement on the bank's stock return tends to decline as the number of prior quarters with negative earnings increases. The second is that the return in the year prior to the formal action announcement is inversely related to the three-day market reaction to the actual announcement. For example, the four banks that did not have a single quarter of negative earnings in the prior year had a mean stock return (net of a region-specific bank index) of  $-23.75$  percent in the year. These same banks had a statistically significant mean three-day cumulative abnormal return of  $-8.39$  percent associated with their formal action announcements. In contrast, the nine banks with three quarters of negative earnings in the prior year had a mean stock return (net of a region-specific bank index) of  $-72.59$  percent in the year and a mean three-day CAR of only  $-1.36$ .



The regression results shown in Table 4 provide further support for the hypothesis that the CARs associated with the formal action announcements are related to the extent to which the market has already been able to ascertain that the bank has severe problems prior to the announcement of its formal action. Column 1 shows that the return over the prior year, measured net of the region-specific bank index, is a significant determinant of the CAR. The negative estimated coefficient indicates that the higher the return over the previous year, the lower the CAR associated with the announcement of a formal action. In column 2, we add the capital ratio of the bank, measured relative to the average capital ratio of all banks in the announcing bank's state. The estimated effect of the return over the prior year is little changed. The estimated coefficient for the capital ratio is negative and statistically significant, indicating that the stock prices of banks that have maintained a relatively high capital ratio up to the time of the formal action announcement (and thus appear to be relatively less distressed) are subjected to a more substantial negative reaction to the announcement. Alternative explanatory variables were also considered, including nonperforming loans, return on assets, return on equity, the change in the capital ratio, and the change in the ratio of nonperforming loans to assets. None of these variables had estimated coefficients that were significant when the previous year's return was included in the regression. Thus, the return over the prior year appears to incorporate most other measures of bank performance, since several were significant determinants of the return over the prior year.

Table 5 further amplifies the importance of disclosure by showing the relationship between the return in the prior year and the degree to which the bank has bolstered its loan loss reserves during the prior year. Because a bank has substantial discretion with respect to the timing of its loan loss provisions, large provisions can serve as a signal to the market of a significant

deterioration in the bank's financial health. Two patterns are clear from the table. First, the return in the prior year, net of a region-specific bank index, is inversely related to loan loss provisions in the prior year (measured relative to assets). Banks whose stock returns in the prior year place them in the lowest quartile of banks have provisions equal to 3.0 percent of their assets, whereas those banks whose returns place them in the highest quartile of banks have provisions equal to 1.4 percent of assets. This relationship persists after controlling for the median value of the provisions made by the banks in the state of the announcing bank holding company.

The second pattern that emerges in Table 5 is that the banks in the lowest stock return quartiles were relatively more aggressive in provisioning for loan losses prior to their announcement of a formal action. When total loan loss provisioning is measured over the two-year period starting one year before the announcement of a formal action through one year after the announcement, banks in the lowest return quartile had disclosed 62.1 percent of their total two-year provisions as of the time of the formal action. Conversely, banks in the highest quartile of stock returns had disclosed only 44.3 percent of their total two-year provisions. At the time of the formal action announcements, all the banks were likely aware the loan problems reflected in their loan loss provisions during this two-year period, but the banks apparently chose to time their provisions differently.

Together, Tables 3, 4, and 5 indicate that if the market had already ascertained the severe problems at a bank, a bank's stock return reacts relatively little to a formal action announcement. These tables also suggest that banks' own disclosures (earnings, capital ratios, and loan loss provisioning) play an important role in the market's ability to ascertain problems at these banks.

Thus, banks that keep the market informed of problems incur little stock price reaction when a formal action is announced, while banks that are disclosing serious problems for the first time with the announcement of a formal action are subjected to a much larger market response.

For the analysis in Tables 3, 4, and 5, banks' stock market returns were calculated net of movements in a region-specific bank index. This relative return isolates the idiosyncratic component of banks' returns by controlling for a general deterioration in economic conditions in a particular region that affects all of the region's banks. That is, a negative relative return indicates that the market has been able to distinguish the bank's performance from that of the typical bank in the region. When sufficient information had already been ascertained to enable market participants to deduce that the bank was significantly more troubled than its peers, the information gained from the disclosure of the formal action was modest. On the other hand, for those banks where the market was unable to differentiate it from its peers, or had perceived the bank to have fewer problems than its peers, the reaction to the formal action announcement was more substantial.

Formal action announcements, shown to affect the stock price performance of the announcing banks, can also affect rival banks. Table 6 examines the market reaction to rival banks at the time of a formal action announcement.<sup>13</sup> Panel A shows that stock prices of banks outside the announcing bank's census region do not react. For banks in the same census region, the response is negative, but very small and statistically insignificant. Panel B shows the spillover effects from formal action announcements in three census regions: New England, Middle Atlantic, and Pacific. We focus on these three regions because they had a cluster of failures and each

experienced substantial declines in real estate prices. However, the results are similar to those for the entire sample shown in panel A.

We next focus on the first announcement in each of these three census regions that had clusters of failures to see if most of the information content is generated when market participants first become aware of serious problems developing at banks in the region. Panel C shows that rival banks in the same region had a three-day CAR associated with the announcement of  $-1.11$  percent that is statistically significant. When we specifically consider the spillover effect of the announcement of a formal action at Bank of Boston (Panel D), the first in New England, the effect on rival banks is much larger, producing a three-day CAR of  $-2.57$  percent that was highly significant.

To better distinguish rival banks within the New England region, we investigated the pattern of CARs for rival banks based on the extent of their commercial real estate exposure, since many have attributed a large part of the banking problems in New England to the decline in commercial real estate prices. The spillover effects were more dramatic for New England banks with high commercial real estate exposures. For the third of the banks with the highest commercial real estate exposure, the spillover effect was  $-6.06$  percent and was statistically significant. For the third of New England banks with the lowest commercial real estate exposure, the effect was insignificant and only  $-0.24$  percent, a small fraction of the estimated impact on rivals with the largest exposures.

Our evidence indicates that spillover effects are generally small and occur primarily for banks that are quite similar in characteristics and location to the announcing bank. This supports the hypothesis that the release of confidential supervisory information can reveal valuable

information to market participants. Rival banks can be affected by the announcement of a formal action, but only if they are closely related. Thus, not only does supervisory disclosure provide valuable information about the financial condition of the bank making the announcement, it also provides information about economic conditions and problems in bank portfolios of similarly situated banks.

Finally, we found no evidence that the stock market views the announcement of a formal action as benefiting rivals. It has been hypothesized that if the market believes that increased supervisory oversight hurts rather than improves the chances that the troubled institution will recover, rivals would benefit from such an event and have a positive stock price response to the announcement of a competitor's formal action. In such an environment, one would expect banks in close proximity to the announcing bank to be the most likely to benefit. However, the results presented in Table 6 suggest the opposite: in-region banks, on average, have a small negative stock price reaction.

#### IV. Applicability to Current Banking Problems in Asia

Even though the new disclosure policy in the United States was initiated during one of its most serious banking crises, one might still be concerned that applicability to other countries is limited, because the U.S. banking industry is more transparent than that of many of the countries experiencing crises today. The concern is that improving disclosure in these countries would cause a more severe reaction than the one we have documented for the United States.

However, the fact that disclosure is limited does not imply that investors and outside monitors in the banking sector make no attempt at uncovering the true value of banking

institutions and thus are left completely uninformed about banks' problems. Rather, market participants, such as equity investors, debt holders, rating agencies, and counterparty institutions, likely evaluate all *available* information when valuing these banks.<sup>14</sup> New firm-specific information, new information regarding the markets in which banks have significant exposure, and new information about macroeconomic conditions should each result in substantial reassessments of banks' values.

To see this, consider Japan, a country experiencing a severe banking crisis and noted for its opaque banking sector. Despite several years of criticism, in March 1998 the Japanese government announced a program that actually *reduced* transparency. Banks are now allowed to report securities at book rather than market value (thus inflating capital), they are allowed to provide their own estimates of the market value of their real estate holdings (inflating capital), and they can net loans and deposits to the same customers (reducing risk-based assets used in calculating capital ratios). More recently, Japanese banks have been allowed to conceal losses on Japanese government bonds by conducting securities trades at artificially set prices.

Nevertheless, market participants have not been fooled into believing that these stated book values are accurate representations of current market values. As Figure 1 shows, the market-to-book value for the middle two quartiles of the large city banks, long-term credit banks, and trust banks in Japan has declined substantially over the last few years. From September 1996 to September 1998, market-to-book values declined from over three to under one. In addition, even within the inner two-quartile range, a sizable variation in market-to-book values exists. Thus, substantial declines in valuations, as well as substantial variation across banking institutions, have occurred in a country that lacks a transparent banking system.

Clearly, at least in the case of Japan, more disclosure by banking institutions would not reveal for the first time that banking problems exist. However, the lack of transparency in the Japanese banking system can at times result in inaccurate relative and absolute assessments of banks. For example, Long-Term Credit Bank had a Moody's rating above those of more than half of the large Japanese banks as recently as August 1995, but nonetheless it was one of only three banks to be closed or nationalized by the end of 1998. Such inaccuracies would be substantially reduced if a more transparent system were in place. Adopting stronger disclosure policies, as was done in the United States, would enable market participants to make assessments that better reflect the true underlying condition of banks. Improved disclosure, leading to a more accurate valuation of banks, would improve the efficient allocation of resources throughout the banking system.

#### IV. Conclusion

Many countries have experienced severe banking problems over the past decade. Despite encouragement from international organizations, relatively few countries have accepted that greater disclosure and transparency can be beneficial during a banking crisis. We examine this proposition by investigating the impact on bank stock returns of disclosing of formerly confidential supervisory information during a severe banking crisis in the United States. We find that the release of the supervisory information has a significant, but not catastrophic, impact. Both share prices and deposits decline, but neither decline is destabilizing.

In addition, we find potentially useful patterns in the stock price reactions to the disclosure of formal actions. Share prices of banks for which the market has already uncovered much of the

problem react little to the announcement of a formal enforcement action. The market's ability to uncover problems, however, is at least in part a function of bank disclosure. Banks whose earnings, capital position, and loan loss provisioning have yet to fully reveal the extent of the banks' problems have a much more substantial share price reaction.

Formal action announcements also have an impact on the valuation of other similar banks. Although banks that have very different portfolios or geographic locations are little affected, banks in the same geographical region with similar portfolios have lower valuations after the formal action announcement of a rival. This evidence suggests that formal action announcements, in addition to idiosyncratic information about the announcing bank, may provide more generalized information about peer banks with portfolios similar to that of the troubled bank.

These findings support the public policy advocated by the Basle Committee, the International Monetary Fund, the World Bank, and others to increase disclosure and improve transparency in the banking sector. Revealing supervisory information about troubled banks in the United States did not have large costs and did permit market discipline to work more effectively. Given that these new disclosure policies were initiated during the most serious banking crisis in the United States since the Great Depression, this empirical examination is particularly relevant for Asian countries considering greater disclosure while their banking sectors are under considerable duress.



**Table 1**

Stock Price Reaction to the Announcement of a Formal Action

Sample: 35 BHCs that announce receipt of a formal enforcement action

**Panel A:**

Three-Day Return Trading days -1 through +1	Mean (t-statistic)	Median (Wilcoxon statistic)	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile
Actual return	-0.0516	-0.04288	-0.0909	0.0000
CAR from market model	-0.0496** (-4.43)	-0.0539** (-224.00)	-0.0866	-0.0031
CAR from two-factor model (bank index as the second factor)	-0.0451** (-4.12)	-0.0494** (-200.00)	-0.0788	0.0028
CAR from two-factor model (region- specific bank index as the second factor)	-0.0423** (-3.98)	-0.0530** (-197.00)	-0.0787	-0.0025

**Panel B:**

One-Month Holding Period Return, Trading days -1 through +18	Mean (t-statistic)	Median (Wilcoxon statistic)	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile
Actual return	-0.0686	-0.0857	-0.1482	-0.0244
Actual return – market return	-0.0818** (-2.80)	-0.0868** (-210.00)	-0.1546	-0.0104
Actual return – return on bank index	-0.0890** (-3.09)	-0.1055** (-212.00)	-0.1640	-0.0030
Actual return – return on region-specific bank index	-0.0877** (-3.11)	-0.0968** (-227.00)	-0.1529	-0.0118

\*\* Significant at the 1 percent level.

**Table 2**  
 Percentage Change in Selected Deposit Categories

Sample: 35 BHCs that announce receipt of a formal enforcement action<sup>a</sup>

Deposit Category	Percent Change in Announcing Quarter			
	Mean	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile
Total Deposits	-1.708	-5.601	-1.414	1.762
Transaction Deposits	1.775	-5.768	0.532	8.262
Savings Deposits	-2.616	-6.576	-1.186	2.737
Small Time Deposits	0.362	-4.623	-1.464	3.345
Large Time Deposits	-10.318	-18.182	-12.021	-2.044
<u>Change in Large Time Deposits</u>				
Total Deposits	-1.336	-2.623	-1.463	-0.356

<sup>a</sup> One subsidiary of MNC Corporation, MBNA, was not included in calculation of MNC Corporation's total deposits because this subsidiary was "spun off" in its own initial public offering shortly after the announcement of a formal action by MNC.

**Table 3**

The Relationship between three-day CARs and the Number of Quarters in the Prior Year with Negative Earnings

Sample: 35 BHCs that announce receipt of a formal enforcement action

Number of quarters in prior year in which earnings were negative	Number of BHCs	Return in prior year less return on a region-specific bank index in prior year (mean)	Three-day CAR from two-factor model (region-specific bank index as the second factor) (mean)
0	4	-0.2375	-0.0839** (-4.14)
1	7	-0.2882	-0.0738** (-3.93)
2	14	-0.7601	-0.0391* (-2.10)
3	9	-0.7259	-0.0136 (-0.45)
4	1	-1.069	0.0433 (0.47)

t-statistics are in parentheses.

\* Significant at the 5 percent level.

\*\* Significant at the 1 percent level.

**Table 4**

Determinants of the Variation of Cumulative Abnormal Returns

Sample: 35 BHCs that announce receipt of a formal enforcement action

Dependent Variable: Cumulative abnormal return (day -1 to day 1)<sup>a</sup>

Variables	(1)	(2)
Constant	-0.0816** (3.60)	-0.1441** (-4.93)
Return in prior year less the return on a region-specific bank index	-0.0649* (-2.12)	-0.0764** (-2.76)
Capital/asset ratio less the median capital/asset ratio for all banks in announcing bank's state <sup>b</sup>		-2.6441** (-2.99)
R <sup>2</sup>	0.121	0.3125
F-statistic	4.50	7.27
Significance of F-statistic	0.041	0.003

<sup>a</sup>The cumulative abnormal returns are calculated using the two-factor model with the region-specific bank index as the second factor.

<sup>b</sup>The capital-to-asset ratio is measured using the most recently released publicly available data as of the formal action announcement date.

t-statistics are in parentheses.

\* Significant at the 5 percent level.

\*\* Significant at the 1 percent level.

**Table 5**

## The Relationship between Excess Returns in Prior Year and Loan Loss Provisions

Sample: 35 BHCs that announce receipt of a formal enforcement action

Return in prior year less a region-specific bank index (quartiles)	Provisions <sup>a</sup> in prior year (mean)	Provisions in prior year relative to banks in same state <sup>b</sup> (mean)	Share of total provisions coming in prior year <sup>c</sup> (mean)
Lowest	0.030	0.023	0.621
Second	0.024	0.020	0.598
Third	0.020	0.017	0.490
Highest	0.014	0.011	0.443

a) Provisions are defined as: 
$$\frac{\sum \text{Provisions}_{4 \text{ qtrs. prior to announcement}}}{\text{Assets}_{\text{qtr. prior to announcement}}}$$

b) Relative Provisions are defined as bank-specific provisions (as defined in footnote a) less the median bank's provisions (as defined in footnote a) in the state of the announcing BHC.

c) Share of total provisions is defined as: 
$$\frac{\sum \text{Provisions}_{4 \text{ qtrs. prior}}}{\sum \text{Provisions}_{4 \text{ qtrs. prior and 4 qtrs. after}}}$$

**Table 6**  
Impact of Formal Action Announcement on Rivals

Sample: Publicly traded BHCs meeting minimum data requirements on 33 unique event dates<sup>a</sup>

	Number of Observations	Three-day CAR from two-factor model with national bank index as the second factor (mean)
<b>A. All Events</b>		
National	7813	-0.0002 (-0.53)
Out of region	6822	-0.0000 (0.04)
In region	991	-0.0015 (-0.85)
<b>B. Events from New England, Middle Atlantic, and Pacific Regions</b>		
National	5169	-0.0001 (-0.20)
Out of region	4480	0.0002 (0.29)
In region	689	-0.0017 (-0.78)
<b>C. First Event from New England, Middle Atlantic, and Pacific Regions</b>		
National	756	0.0002 (0.23)
Out of region	655	0.0020 (1.67)
In region	101	-0.0111* (-2.54)
<b>D. Bank of Boston / Bank of New England Event</b>		
National	261	-0.0003 (-0.28)
Out of region	239	0.0020 (1.41)
In region	22	-0.0257** (-2.69)
In region – lower one-third in Commercial real estate exposure	7	-0.0024 (-0.16)
In region – next one-third in Commercial real estate exposure	8	-0.0154 (-1.29)
In region – top one-third in Commercial real estate exposure	7	-0.0606** (-2.78)

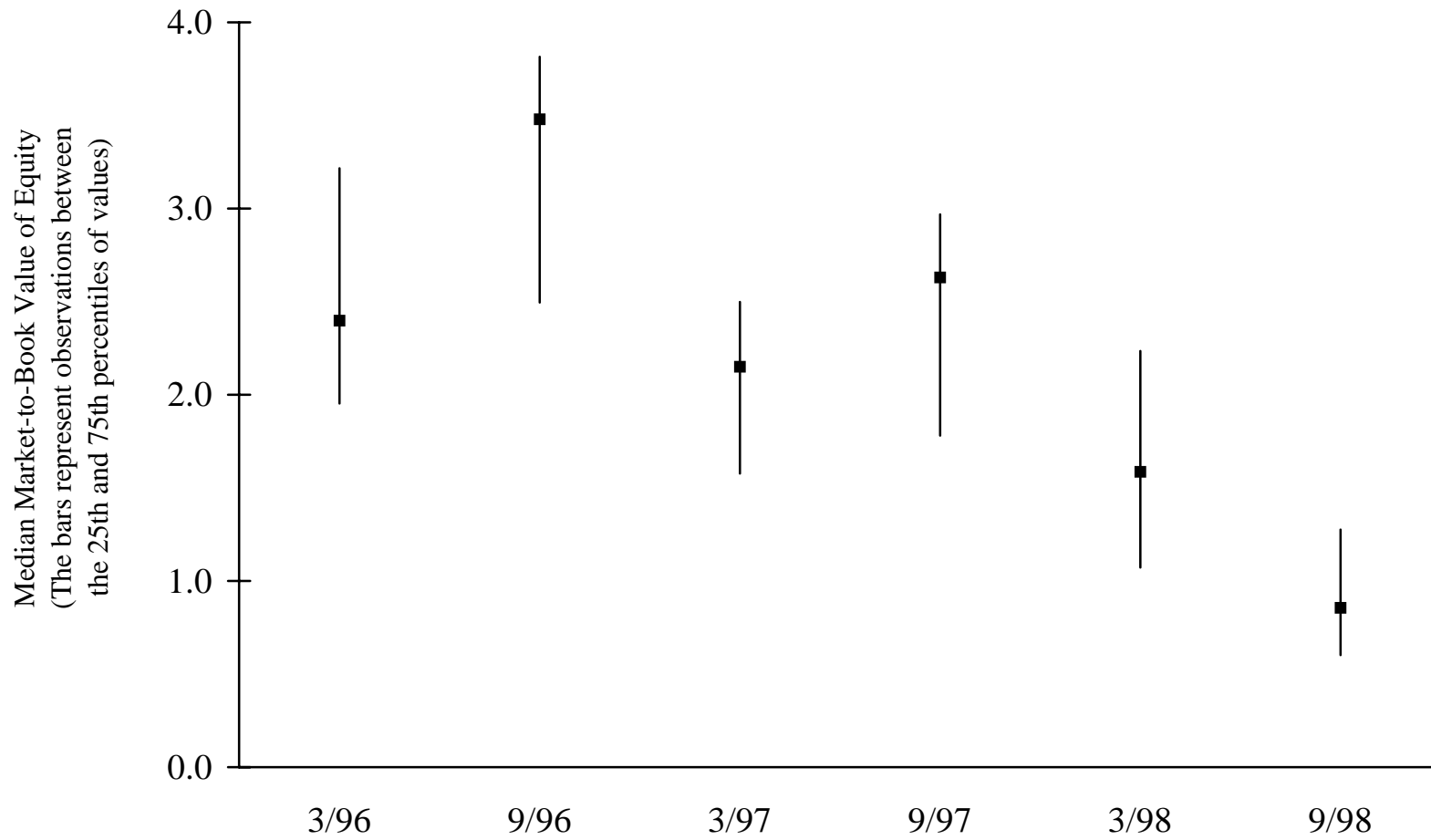
<sup>a</sup> Since the formal action announcements of the Bank of Boston and Bank of New England come one day apart, these two events are treated as a single event in this part of the analysis. Similarly, Citizens First Bancorp and Multibank Financial Corp announce their formal actions on the same day and thus are treated as a single event.

t-statistics are in parentheses.

\* Significant at the 5 percent level.

\*\* Significant at the 1 percent level.

**Figure 1**  
Market-to-Book Ratios for Japanese Banks  
March 1996 - September 1998



Sample: The 19 largest banks in Japan. They include city banks, long-term credit banks,

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1. For convenience, we use the terms “bank” and “bank holding company” interchangeably. All the institutions in our sample operate under a bank holding company structure and, thus, except where noted, when we refer to a “bank” we are referring to the bank holding company.
  2. Formal enforcement actions include cease and desist orders and written agreements. These are legally enforceable agreements between the bank regulator and bank management with civil penalties for noncompliance.
  3. Roughly one-third of problem banks that receive a formal action from the FDIC fail (Curry et al. 1997).
  4. Cease and desist orders normally include specific recommendations for management actions to turn around the bank. They can include replacement of top management, approval of promotions and new hires for senior positions, greater oversight of management information systems, changes in reserving procedures, and greater control of credit risks. They often also include specific quantitative objectives to be met regarding capital ratios and nonperforming loans. The most common quantitative goal is for the bank to attain a specified capital ratio, which during the 1990s typically was a 6 percent leverage ratio (Peek and Rosengren 1995).
  5. For example, Bank of Boston announced in October 1989 that it was negotiating a written agreement, although the agreement had not yet been signed and disclosure was not required. In contrast, Bank of New England was forced to disclose its earlier written agreement as a result of press inquiries following the Bank of Boston disclosure. Bank of New England management defended their earlier actions by specifically stating that they did not view the written agreement as a material event.
  6. Supervisory bank ratings (CAMELS) range from one, indicating that the bank is sound in every respect, to five, indicating that the bank’s performance is critically deficient and that it has a very high probability of failure. The 89 percent figure is an understatement of the probability of a bank receiving a formal action based on safety and soundness considerations having one of the two lowest supervisory ratings, insofar as the formal actions at over one-half of the banks with CAMEL 1 or 2 ratings dealt with the removal or suspension of officers and directors rather than with more general balance sheet problems (Curry et al. 1997). Others were imposed on relatively healthy banks in an effort to prevent spillover effects from other unhealthy banks in the same holding company that received a formal action (Peek and Rosengren 1995).
  7. These banks were deleted from our sample because the measured response to announcements might be misleading. With very low share prices, a movement between the bid and asked values alone could represent a substantial percentage change in the price, even if the event had little impact on the perceived fundamental value of the shares. Similarly, a change in the price of an infrequently traded stock in an event window might be contaminated by the response to other news that has accumulated since the last trade.

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8. Both indices are constructed from SNL Securities' listings of publicly traded BHCs. The daily bank stock index is constructed by averaging, using equal weighting, all individual BHC returns on a given day. The region-specific bank stock indexes are constructed similarly for each of the following census regions: New England, Middle Atlantic, South Atlantic, East North Central, East South Central, West North Central, West South Central, Mountain, and Pacific. A BHC's region is determined by the location of its headquarters at the time of the formal action announcement.

9. The t-statistic for all CARs is calculated as the ratio of the mean CAR to its estimated standard deviation, where the standard deviation is estimated from the time series of mean abnormal returns (see Brown and Warner 1985). This technique takes into account possible cross-sectional dependence in security-specific abnormal returns.

10. This is not the result of banks substantially raising deposit rates to retain customers. The average interest rates paid on deposits at banks in these BHCs falls slightly in the quarter of the formal action announcement.

11. Only three banks had a decline in total deposits in excess of 10 percent. First National Corp. had a decline of 20.1 percent. Although a substantial decline, this drop can be attributed to a withdrawal by its largest depositor, which held 25 percent of the bank's deposits, for a reason unrelated to the announcement of the formal action. The depositor, Bowest Corporation, which had been acquired in early 1992 by ITT International, withdrew its deposits at the request of its new parent company and placed these deposits with its new parent. The two other institutions with double-digit declines were Hibernia Corp. (11.6 percent decline) and Civic Bancorp (10.6 percent decline). Despite those declines in deposits, deposit rates paid by both institutions did not indicate a run on these banks. In the face of a run, a bank would likely increase deposit rates in an attempt to retain depositors. Contrary to this conjecture, both banks reduced the rates they paid on savings deposits, small time deposits, and large time deposits (the accounts where most of their deposit declines occurred). This may indicate that management was willing to allow deposits to run off, possibly because of a desire to shrink bank operations, in an attempt to improve capital ratios. Thus, even at the three institutions with the most extreme declines in deposits, the announcement of a formal action did not appear to cause a run.

12. Consistent with this, many formal actions devote much of the agreement to ways to improve the management information system, credit evaluation, and consistency in reporting problem loans.

13. In this part of the analysis, we calculated CARs using the two-factor model that specifies a national bank index as the second factor. We do not use the region-specific bank index as the second factor here since we are trying to identify spillover effects within the announcing banks' regions.

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14. Flannery and Houston (1998) find that experience in the United States shows that the market interprets data differently when the bank holding company has recently been examined. Thus, even though the dates of exams and the results of exams are not publicly disclosed, the market knows when examinations occur and evaluates the accounting information differently.