# Bank Regulatory Agreements in New England

*Joe Peek and Eric S. Rosengren*

*Professor of Economics, Boston College, and Visiting Economist, Federal Reserve Bank of Boston; and Vice President and Economist at the Federal Reserve Bank of Boston, respectively.* *The authors thank Susan Bannon, Peggy Gilligan, Leo Hsu, Tim Lin, and Anthony Storm for providing excellent research assistance.*

New England's recovery from our most recent recession has been marked by unusually slow growth in bank lending. Total bank loans declined 30 percent from a peak in the third quarter of 1989 to a trough in the first quarter of 1993. As of the third quarter of 1994, total loans still had recovered only to 76 percent of the level attained at the peak.

Numerous recent studies have identified low bank capital ratios as a factor contributing to slow growth in loans (Bernanke and Lown 1991; Furlong 1992; Hancock and Wilcox 1992, 1993; Peek and Rosengren 1992, 1994, 1995c; Cantor and Wenninger 1993; Baer and McElravey 1994). While the correlation between weak growth in lending and low capital ratios is now well recognized, a direct link between the level of bank lending and bank regulation has been established only recently (Peek and Rosengren 1995a, 1995b, 1996).

To better understand how regulatory policy might directly influence bank lending, this article examines the ways that bank supervisors intervene when a bank's financial situation deteriorates. Bank supervisors progressively take actions intended to improve banks' prospects for overcoming financial difficulties; they also attempt to limit the exposure of deposit insurance funds to losses from failing banks. If a bank's problems are serious, or if bank management is not sufficiently responsive, regulators will impose a formal action, a legally enforceable agreement requiring a bank to take remedial measures to improve its performance. This study examines the requirements contained in these formal actions and their likely effect on bank behavior.

Among the conditions included in formal regulatory actions, capital requirements have played a key role in altering bank lending behavior. Formal actions normally require that much higher capital-to-asset ratios be attained within two years. Banks with low or no profits and an inability to obtain new capital at reasonable rates are left with only one viable option: to shrink their assets (and liabilities). Unfortunately for

many small and medium-sized businesses, much of the shrinkage has occurred within banks' loan portfolios. Thus, the association between low bank capital ratios and slow bank loan growth found in previous studies may be a result of the conditions required in formal actions.

On the other hand, to be effective from a bank supervision standpoint, intervention must have an effect on bank behavior. Formal regulatory actions did alter bank behavior and the intervention occurred relatively early, in many cases well before a bank's reported capital was considered "impaired." And, while the short-term impact on banks is to reduce loans, bank-dependent borrowers may still benefit in the longer run to the extent that supervisory intervention is able to reduce the number of bank failures.[1] By leaving in place valuable historical lending relationships that would have been destroyed had the bank failed, lending to its bank-dependent customers is reduced temporarily rather than eliminated.

## *I. Formal Actions and the Examination Process*

Bank examinations provide an opportunity for supervisors to verify that the practices and procedures instituted by the bank are consistent with safe and sound operations. As part of the verification process, bank supervisors rate the financial condition of the bank, considering the capital adequacy, asset quality, management quality, earnings potential, and liquidity of the institution (CAMEL). The composite CAMEL rating, which can range from 1 to 5, provides an assessment by examiners of the strength of a banking institution. While banks are evaluated on a case-by-case basis, those with a composite rating of 4 ("potential of failure, performance could impair viability") or 5 ("high probability of failure, critically deficient performance"), and some institutions with a CAMEL rating of 3 ("remote probability of failure, flawed performance"), normally will undergo enforcement action.

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As the financial condition of a bank deteriorates, the first major supervisory action is usually the memorandum of understanding (MOU).[2] MOUs are agreements between bank supervisors and a bank detailing actions to improve deficiencies in the bank's operations. These agreements usually discuss changes necessary in management, strategic plans, credit risk assessment, interest risk assessment, capital adequacy, reserving procedures, and management information systems. The MOU offers suggestions that would likely be discussed at the end of any full exam, but it also serves to emphasize that the findings during the exam were not satisfactory. The MOU is not generally made public by the regulator, and is not legally enforceable, so it emphasizes the need for changes by bank management without the potential penalties and attention generated by more serious actions.

If bank supervisors determine that a bank's problems are more serious, they will institute a formal action. A formal action can be either a written agreement or a cease and desist order, with the latter generally viewed by both the bank and the public as the more serious. At least in New England, however, the difference appears to be associated with the primary supervisor of the bank. The Federal Deposit Insurance Corporation (FDIC) normally issues cease and desist orders and the Office of the Comptroller of the Currency (OCC) generally signs formal agreements. Both actions cover the same general areas discussed in a full bank exam or in an MOU. However, because formal actions are legally enforceable agreements with civil penalties for noncompliance, they are viewed as the most serious actions available to supervisors short of closing the bank. Formal actions are also publicly disclosed, resulting in greater public scrutiny of the problems at the bank.

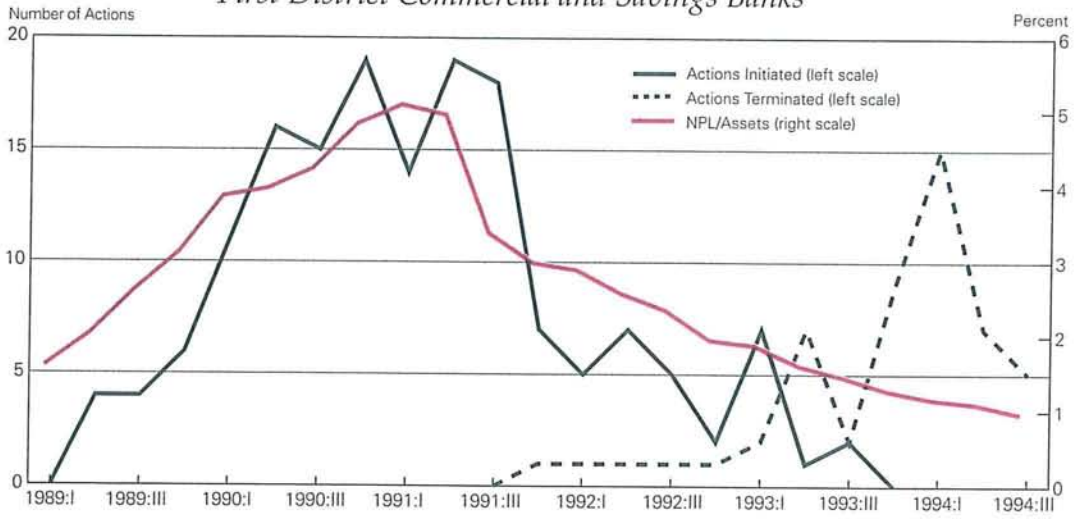
Formal actions are intended to provide supervisory intervention at a bank well before it reaches the point of failure. Figure 1 shows that the rise and

[1] While formal actions do appear to change bank behavior, no attempt is made in this study to determine whether these changes in behavior improve the survival rates of banks. That research is currently under way and will be reported in a future article.

[2] Banks with serious problems may not get an MOU because they immediately receive a formal action.

Figure 1

*Enforcement Actions and Ratio of Nonperforming Loans to Assets, First District Commercial and Savings Banks*




Source: Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation.

subsequent decline in new formal actions in New England closely correspond with banks' ratio of nonperforming loans to assets, where nonperforming loans are defined as the sum of loans past due 90 days or more and nonaccruing loans.[3] Both the number of new enforcement actions and the ratio of nonperforming loans to assets were low in early 1989. They then grew substantially as the New England economy deteriorated and real estate prices slumped. New enforcement actions peaked in the fourth quarter of 1990, and again in the second quarter of 1991. The ratio of nonperforming loans to assets reached a peak around the same time. Both series then dropped sharply, with the subsequent decline continuing at a more moderate pace. By 1993:III when the last formal action was imposed, the ratio of nonperforming loans to assets had returned to a level comparable to that at the beginning of 1989. Consistent with the improving health of the banking sector as reflected in these two series, supervisors began terminating enforcement actions in late 1991. They have continued to do so, with 15 enforcement actions terminated in the first quarter of 1994 alone.

Table 1 indicates the number of FDIC-insured New England banks placed under a formal action, according to the ratio of nonperforming loans to total assets, measured in the quarter in which the examination occurred that resulted in the formal action. Generally, formal actions are imposed when the nonperforming loans ratio is still relatively low: Twenty-nine banks (18 percent) had a ratio below 2 percent at the exam resulting in a formal action, and 73 banks (45 percent) had a ratio below 4 percent.

Table 1 also classifies banks with formal actions according to the size and charter of the organization. "Large" is defined as any bank with at least $300 million in assets at the time of the exam resulting in a

[3] This study dates the formal actions by the date of the examination that resulted in the formal action rather than by the date the formal action is signed. Typically, at the end of the examination, the bank knows the nature of its problems and that it will receive a formal action. During the time between the exam and the signing of the formal action, bank supervisors determine the specific conditions to be stated in the action, often in consultation with the bank's management. Thus, a bank may begin to change its behavior at the time of the exam rather than waiting for the signing of the action. Furthermore, many of the requirements of the formal action are stated as changes required relative to values at the time of the exam rather than values at the time the formal action is signed.

Table 1
*Ratio of a Bank's Nonperforming Loans to Assets at the Time of an Examination Resulting in a Formal Action, New England FDIC-Insured Banks*[a]

| | Total | | Large Commercial | | Small Commercial | | Large Savings | | Small Savings | |
|---|---|---|---|---|---|---|---|---|---|---|
| Nonperforming Loans/Assets (%) | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) |
| <2.0 | 29 | 7.0 | 2 | 2.3 | 17 | 1.6 | 4 | 2.1 | 6 | 1.0 |
| 2.0–2.5 | 11 | 6.0 | 3 | 4.7 | 6 | .7 | 1 | .5 | 1 | .1 |
| 2.5–3.0 | 9 | 2.7 | 1 | 1.8 | 6 | .7 | 0 | 0 | 2 | .2 |
| 3.0–3.5 | 14 | 33.7 | 4 | 27.9 | 5 | .8 | 3 | 4.7 | 2 | .3 |
| 3.5–4.0 | 10 | 14.8 | 2 | 13.7 | 6 | .5 | 1 | .3 | 1 | .2 |
| 4.0–4.5 | 15 | 6.6 | 0 | 0 | 5 | .4 | 6 | 5.4 | 4 | .8 |
| 4.5–5.0 | 12 | 14.1 | 3 | 11.2 | 7 | 1.0 | 1 | 1.7 | 1 | .2 |
| 5.0–5.5 | 9 | 11.9 | 2 | 10.2 | 5 | .5 | 1 | 1.0 | 1 | .1 |
| 5.5–6.0 | 7 | 1.0 | 0 | 0 | 4 | .3 | 1 | .5 | 2 | .2 |
| 6.0–6.5 | 8 | 3.6 | 1 | .8 | 3 | .4 | 2 | 2.1 | 2 | .3 |
| 6.5–7.0 | 6 | 1.6 | 1 | .4 | 2 | .3 | 1 | .8 | 2 | .1 |
| 7.0–7.5 | 4 | 1.3 | 0 | 0 | 2 | .2 | 1 | .9 | 1 | .1 |
| 7.5–8.0 | 5 | 4.1 | 0 | 0 | 2 | .1 | 3 | 4.0 | 0 | 0 |
| >8.0 | 23 | 8.9 | 4 | 2.0 | 8 | .6 | 9 | 5.8 | 2 | .4 |
| Total Banks with Formal Actions | 162 | 117.2 | 23 | 75.0 | 78 | 8.2 | 34 | 29.9 | 27 | 4.1 |

[a]This table includes all formal actions on FDIC-insured commercial and savings banks resulting from bank examinations during the period 1989:I through 1993:III in New England, defined here as the First District of the Federal Reserve System. Large banks are defined as those with assets exceeding $300 million at the time of the examination resulting in the formal action.

formal action.[4] Twenty-six percent of large savings banks received formal actions after their nonperforming loans ratio exceeded 8 percent. That was also the case for 17 percent of large commercial, 10 percent of small commercial, and 7 percent of small savings banks. At the other end of the spectrum, small banks were more than twice as likely as large banks to receive their formal actions before their nonperforming loans reached 2 percent of assets.

Because of the size mix of banks receiving formal actions, a much larger percentage of bank assets than of banks came under formal actions. Figure 2 shows that both the share of assets and the share of loans held by banks under formal actions rose from 1989:I through 1990:IV. The series then dips as the Bank of New England and its affiliates, under formal actions at the time and representing the second largest bank holding company in New England as measured by total assets, failed in 1990:IV and their assets were transferred to the FDIC. Both series then resumed their rise as additional banks came under formal actions.[5]

Table 2 shows the leverage ratios of these banks at the time of the exam resulting in a formal action. More than half of the formal actions were imposed on banks before their leverage ratios fell below 5 percent, a level deemed to indicate that a bank was "well capitalized" under the guidelines in the Federal Deposit Insurance Corporation Improvement Act (FDICIA). Thus, in many cases supervisors intervened well before a bank's capital was considered "impaired," even though the capital zones were not defined specifically until well after FDICIA. Only 23 percent of the formal actions were imposed on banks with leverage ratios below 4 percent, while 38 percent were imposed on

[4] Using the exam date to classify size has two potential problems. First, many institutions may have already undergone shrinkage prior to the exam. Second, over time the $300 million cutoff would be slightly different in real terms because of inflation, although the inflation rate was low during this period. If, instead, banks were classified according to size at the beginning of the sample period, other problems would be introduced: many institutions grew significantly as a result of mergers, and some would be classified as small even though they were quite large by the time of the exam.

[5] Total assets under enforcement actions can decline as a result of bank failures as well as declines in assets at banks under formal actions or the termination of a formal action. If all or part of the assets of a failed bank under an enforcement action are transferred to the FDIC and/or a bank not under an enforcement action, the share of assets under formal actions will record a decline.

Table 2

*Leverage Ratios of Banks at Exam Resulting in a Formal Action, New England FDIC-Insured Banks*[a]

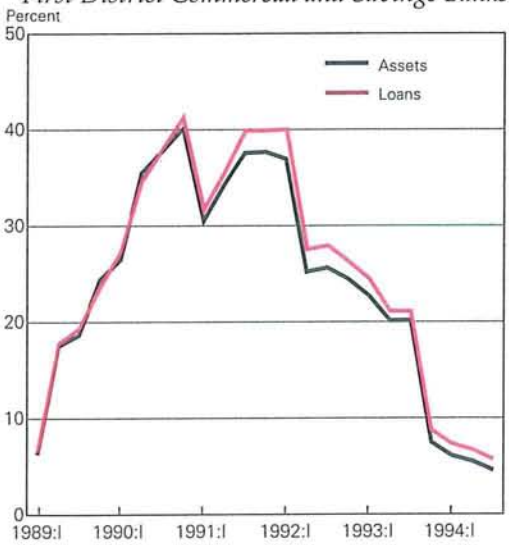
| Leverage Ratio | Total | | Large Commercial | | Small Commercial | | Large Savings | | Small Savings | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) | Number | Assets ($ Billions) |
| <4.0 | 38 | 21.6 | 4 | 11.3 | 16 | 1.5 | 10 | 7.6 | 8 | 1.2 |
| 4.0–4.5 | 17 | 13.3 | 3 | 3.8 | 7 | 1.0 | 5 | 8.3 | 2 | .2 |
| 4.5–5.0 | 18 | 17.9 | 2 | 13.7 | 9 | .9 | 5 | 3.1 | 2 | .1 |
| 5.0–5.5 | 17 | 34.9 | 6 | 30.1 | 6 | .7 | 1 | 3.4 | 4 | .7 |
| 5.5–6.0 | 10 | 3.0 | 1 | .5 | 4 | .4 | 3 | 1.8 | 2 | .3 |
| 6.0–6.5 | 15 | 8.8 | 3 | 5.7 | 5 | .6 | 4 | 1.9 | 3 | .6 |
| 6.5–7.0 | 9 | 9.9 | 1 | 8.7 | 7 | .8 | 1 | .4 | 0 | 0 |
| 7.0–7.5 | 11 | 1.8 | 1 | .6 | 6 | .4 | 1 | .3 | 3 | .5 |
| 7.5–8.0 | 8 | 2.5 | 1 | .4 | 5 | .4 | 2 | 1.8 | 0 | 0 |
| >8.0 | 19 | 3.6 | 1 | .3 | 13 | 1.4 | 2 | 1.3 | 3 | .5 |
| Total Banks with Formal Actions | 162 | 117.2 | 23 | 75.0 | 78 | 8.2 | 34 | 29.9 | 27 | 4.1 |

[a]This table includes all formal actions on FDIC-insured commercial and savings banks resulting from bank examinations during the period 1989:I through 1993:III in New England, defined here as the First District of the Federal Reserve System. Large banks are defined as those with assets exceeding $300 million at the time of the examination resulting in the formal action.

Figure 2

*Shares of Total Bank Assets and Loans under Enforcement Actions*

*First District Commercial and Savings Banks*




Source: Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation.

banks with a leverage ratio exceeding 6 percent, a level more than twice the minimum required for the healthiest banking institutions to satisfy capital requirements and substantially above the capital deemed adequate in FDICIA.[6]

Smaller institutions were more likely than larger institutions to receive their formal actions while their leverage ratios were still relatively high. In fact, approximately 15 percent of the formal actions imposed on small savings and commercial banks occurred while their leverage ratios were still above 8 percent. Savings banks were the least well-capitalized at the time formal actions were imposed. Approximately 30 percent of the savings banks had a leverage ratio below 4 percent at the time they received a formal action.

[6] It might appear surprising that banks with leverage ratios exceeding 6 percent came under formal actions. This occurred for at least three reasons. First, formal actions may be imposed on banks with severe problems with management information systems (predominantly smaller banks), making it difficult for examiners to ascertain the true financial health of the bank, even though reported capital may be high. Second, as a consequence of their examinations, several of these banks saw their leverage ratio drop well below 6 percent after they had fully reserved for their problem loans, suggesting that their reported leverage ratio at the time of the examination was overstated. Third, some banks with leverage ratios exceeding 6 percent were subjected to a formal action at the same time as other, poorly capitalized banks within the same holding company, in order to limit transfers of assets from poorly to better capitalized affiliates.

Table 3
*Conditions Contained in Formal Regulatory Actions at FDIC-Insured Commercial and Savings Banks, New England*[a]

| | | Required Leverage Capital Target (Percent of Assets) | | | | | Increase in Loan Loss Reserve (Percent of Assets) | | |
|---|---|---|---|---|---|---|---|---|---|
| Total Banks[b] | Banks with Formal Actions | <5 | 5–6 | 6 | 6–7 | >7 | ≥1 | <1 | Increase Not Quantified |
| 493 | 162 | 1 | 20 | 98 | 13 | 8 | 56 | 39 | 67 |

[a]This table includes all banks under formal actions resulting from examinations of FDIC-insured commercial and savings banks during the period 1989:I through 1994:I in New England, defined here as the First District of the Federal Reserve System.
[b]Measured as of 1989:I.

## II. Remedial Measures in Formal Actions

Formal actions are intended to provide specific recommendations for actions by banks to prevent further deterioration in their financial condition. Many of the requirements of a formal action are qualitative rather than quantitative. These recommendations may include improved management information systems, greater oversight of credit risks, and improved reserving procedures.

For example, examiners generally sample the loan portfolio to determine whether the classification of loans by the bank is consistent with that of the examiners. Examiners categorize loans as loss, doubtful, substandard, special mention, and not criticized. Loans categorized as loss indicate that the loan is uncollectible. Loans categorized as doubtful are loans where "the collection or liquidation in full is highly questionable and unlikely." Loans categorized as substandard are "inadequately protected by the current sound worth and paying capacity of the obligor or of the collateral pledged." Loans categorized as special mention are "currently protected but are potentially weak." Loans not criticized have no clearly identified weakness. The bank's loan loss reserve is normally evaluated against the classified loans in its portfolio. If examiners determine that the amount of classified loans has been understated by the bank, they are likely to be critical of the bank's risk identification system and to require a recategorization of loans to more closely reflect their actual status as perceived by the examiners.

In addition to such general management recommendations, which frequently are the result of deficiencies found during the examination process, several specific quantitative requirements are usually stated in the formal action. By far the most common are requirements to improve capital ratios, or at least to maintain them at a particular level.

Table 3 shows the conditions included in formal regulatory actions for FDIC-insured New England banks, from the first quarter of 1989 to the third quarter of 1993. One-third of FDIC-insured commercial and savings banks in New England had formal actions. If confidential MOUs were included, the share of banks under regulatory actions would be significantly larger. Many of the 1989 and 1990 formal actions required banks to maintain a capital ratio of at least 8 percent under the old capital definitions (primary capital).[7] More recent formal actions have tied the specific targets to the leverage ratio, and, in some cases, to risk-based capital ratios. The most common capital target in these actions was a 6 percent leverage ratio. Thus, these formal regulatory actions required leverage ratios twice the minimum required by the leverage capital requirements for the strongest institutions.

If no new capital can be raised through new equity issues or through retained earnings, the bank may need to shrink dramatically. Consider a bank whose leverage ratio was 4 percent. To achieve a 6 percent leverage ratio through asset shrinkage alone, the bank's assets would have to decline by 33 percent.

Table 3 indicates that many banks were also required to increase their loan loss provisions substantially, which, in the absence of current earnings, de-

[7] The capital ratio based on the old definition of capital, referred to as primary capital, was mainly composed of equity capital, goodwill, and allowance for loan and lease losses, divided by the sum of the quarterly average of assets and the allowance for loan and lease losses minus goodwill. (See Regulation Y, appendix B, pages 58–59 for more details.)

creases their capital. Roughly 60 percent of the formal actions described in Table 3 required specific increases to the loan loss reserve. This suggests that many of these banks previously had been underreserved. At many of the institutions, the increases were large, with 56 of the formal actions requiring an increase in reserves of 1 percent or more of total assets. Raising the required capital-to-asset ratio while simultaneously requiring loan loss provisions that decrease a bank's capital amplifies the procyclical nature of the implementation of capital regulations.

## *III. Bank Reactions to Formal Actions*

Table 4 shows how banks responded during the year following a bank examination that resulted in a formal action. The leverage ratio improved in only 42 banks (31 percent), even though 35 banks increased their equity capital (26 percent) and 111 shrank their assets (82 percent). Only 58 banks shrank their holdings of securities (43 percent), yet 123 shrank their total loans (90 percent), and 110 banks shrank their commercial and industrial loan portfolios (81 percent).

Table 5 shows the magnitude of the bank responses one year following the enforcement action. The shrinkage at most banks was dramatic (Panel A). Almost 40 percent of all FDIC-insured banks with formal actions had declines in assets of more than 10 percent within one year. And loan shrinkage was even more dramatic, with nearly 60 percent having registered declines in excess of 10 percent and 20 percent registering declines in excess of 20 percent. Of the 13 banks that increased their loans, only three had leverage ratios below 6 percent, and all four banks that increased their loans by more than 10 percent had leverage ratios above 6 percent.

Even though these banks were under pressure to raise their capital ratios, only one-quarter increased their capital and less than one-third succeeded in increasing their leverage ratio (Panel B), even with the (often dramatic) shrinkage of assets that occurred at most of these banks. Almost one-half of the sample had declines in their leverage ratio in excess of 1 percentage point. In large part, this occurred because of the widespread declines in capital, most often associated with the increased levels of loan loss reserves mandated by the formal actions, and the need to replenish loan loss reserves following loan charge-offs, many of which were required by the formal actions.

These results are consistent with results reported in Peek and Rosengren (1995b), who found that New England banks shrank as a result of formal actions. These effects were found to be statistically significant,

Table 4
*FDIC-Insured Banks' Responses One Year Following a Formal Action, New England*[a]

| | | | Number of Banks Whose | | | | | |
|---|---|---|---|---|---|---|---|---|
| Leverage[b] Ratio | Number | Assets[b] ($ Billion) | Assets Declined | Securities Declined | Loans Declined | CI Loans Declined | Leverage Ratio Increased | Equity Increased |
| <4.0 | 26 | 18.4 | 23 | 14 | 24 | 18 | 5 | 1 |
| 4.0–4.5 | 13 | 9.2 | 13 | 6 | 13 | 11 | 6 | 3 |
| 4.5–5.0 | 17 | 5.4 | 16 | 5 | 16 | 13 | 10 | 9 |
| 5.0–5.5 | 12 | 3.3 | 9 | 5 | 12 | 11 | 4 | 4 |
| 5.5–6.0 | 9 | 2.5 | 7 | 6 | 9 | 7 | 4 | 2 |
| 6.0–6.5 | 15 | 8.8 | 12 | 8 | 14 | 14 | 4 | 4 |
| 6.5–7.0 | 8 | 1.2 | 6 | 2 | 6 | 6 | 2 | 3 |
| 7.0–7.5 | 11 | 1.8 | 8 | 1 | 9 | 10 | 3 | 4 |
| 7.5–8.0 | 8 | 2.5 | 7 | 4 | 7 | 8 | 2 | 2 |
| >8.0 | 17 | 2.7 | 10 | 7 | 13 | 12 | 2 | 3 |
| Total | 136 | 55.7 | 111 | 58 | 123 | 110 | 42 | 35 |
| % Total | 100 | 100 | 81.6 | 42.6 | 90.4 | 80.9 | 30.9 | 25.7 |

[a]This table omits the 15 banks that either failed or were acquired during the year following their formal action and the 11 of the remaining banks that engaged in mergers or acquisitions during the year subsequent to their formal action.
[b]Measured at time of exam resulting in formal action.

even though the estimated equation included a variety of other variables to proxy for loan demand shocks, including variables to capture portfolio concentrations of the individual banks and over 100 time and location dummy variables. In addition, the loan supply constraints associated with formal regulatory actions were found to be particularly important at small banks and in lending categories likely to be dominated by borrowers dependent on bank financing.

To determine the magnitude of the effect of formal actions on this study's sample of all New England banks, the following regression taken from Peek and Rosengren (1995b) was reestimated:

$$\frac{\Delta LN_{i,t}}{A_{i,t-1}} = \alpha_1 + \left(\alpha_2 + \alpha_3 \frac{K_{i,t-1}}{A_{i,t-1}}\right) FA_{i,t} + \alpha_4 \frac{K_{i,t-1}}{A_{i,t-1}} (1 - FA_{i,t}) + \beta X_{i,t-1} + \epsilon_{i,t} \quad (1)$$

The dependent variable is the change in total loans of bank $i$ scaled by total assets of bank $i$. The equation includes a dummy variable for formal actions ($FA$) with a value of one for any quarter the bank is under a formal regulatory action and zero otherwise.

Because formal actions specify a leverage ratio, usually 6 percent, that the bank is legally required to achieve, the most poorly capitalized banks have the greatest incentive to shrink. Thus, the magnitude of the effect of formal actions on the change in loans may differ across banks, in particular because it is related to a bank's beginning-of-period (end-of-previous-period) leverage ratio. Consequently, the coefficient on $FA$ has been specified to be a function of the leverage ratio, with $\alpha_3$ predicted to be positive. We also have included the leverage ratio for banks not under a formal action as an argument in the equation to allow for the possibility that a bank would respond by voluntarily rebuilding its capital ratio even in the absence of a formal action. That is, this specification allows one to distinguish between bank responses that are voluntary and those that are imposed by regulators. We anticipate that being below minimum capital requirements may not in itself generate a bank response to restore its capital position in the absence of formal regulatory actions, implying that $\alpha_3 > \alpha_4$.

While many of the differences across banks in the demand for loans will be ameliorated by concentrating on banks in one geographic region, Peek and Rosengren (1995b) also includes a series of classification variables intended to control for any remaining differences in loan demand shocks arising from a bank's size, its specialization in particular types of lending activities, volume of troubled loans, and bank charter type, as well as a set of dummy variables for each of the six New England states interacted with a set of quarterly time dummy variables, one for each quarter in the sample. The estimation technique is a variance components model. For a more detailed description of the estimation technique and variables, see Peek and Rosengren (1995b).

Table 5
*FDIC-Insured Banks' Response One Year Following Formal Action, New England*[a]

| | Panel A<br>Number of Banks | |
|---|---|---|
| Percent Change[b] | Change in Assets<br>Assets | Change in Loans<br>Loans |
| >20 | 4 | 2 |
| 10 to 20 | 5 | 2 |
| 5 to 10 | 5 | 1 |
| 0 to 5 | 11 | 8 |
| −5 to 0 | 29 | 19 |
| −10 to −5 | 29 | 27 |
| −15 to −10 | 29 | 32 |
| −15 to −20 | 13 | 17 |
| −20 to −25 | 6 | 14 |
| −25 to −30 | 5 | 9 |
| <−30 | 0 | 5 |
| Total | 136 | 136 |

| | Panel B<br>Number of Banks | |
|---|---|---|
| Percent Change[b] | Change in Capital<br>Assets | Percentage Point Change in Leverage Ratio |
| >1 | 6 | 12 |
| .5 to 1 | 7 | 15 |
| 0 to .5 | 22 | 15 |
| −.5 to 0 | 17 | 18 |
| −1 to −.5 | 18 | 11 |
| −2 to −1 | 24 | 24 |
| −3 to −2 | 14 | 16 |
| −5 to −3 | 14 | 11 |
| −10 to −5 | 13 | 11 |
| <−10 | 1 | 3 |
| Total | 136 | 136 |

[a]This table omits the 15 banks that either failed or were acquired during the year following their formal action and the 11 of the remaining banks that engaged in mergers or acquisitions during the year subsequent to their formal action.

[b]Change from the quarter in which the exam occurred that resulted in the formal action.

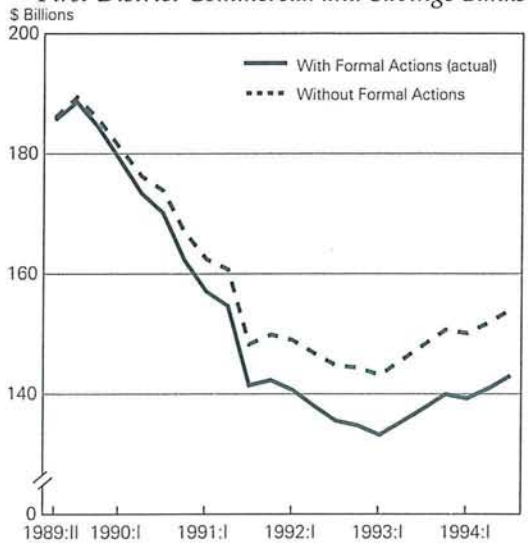
Using estimates of equation 1 for total loans on the sample of FDIC-insured New England commercial and savings banks for the period 1989:II to 1994:III, it is possible to calculate the total effect of the formal actions on bank lending. Because leverage ratios with and without formal actions have different estimated impacts, the effect of the leverage ratio also must be incorporated in order to calculate the net impact of formal actions on loan volumes. That is, it is necessary to calculate the magnitude of the effect over and above what would have occurred because of low leverage ratios in the absence of formal actions. The total effect of formal actions is thus calculated as $\alpha_2 + (\alpha_3 - \alpha_4) * K/A$ summed over all banks under formal actions.

Figure 3 shows the path of actual bank loans in New England during the 1989:II to 1994:III period, compared to the estimate of the magnitude of bank loans in the absence of formal actions. The latter path is derived by adding to actual loans the measure of the reduction in bank loans attributable to formal actions.

Figure 3

*The Decline in Bank Loans with and without Formal Actions*[a]

*First District Commercial and Savings Banks*




[a] Loans without formal actions are calculated as actual loans ("with formal actions") plus the imputed effect of formal actions on loan growth based on estimated coefficients from Equation 1 (see text).

Source: Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation.

The figure shows that from the peak in 1989:III to the trough in 1993:I, loans held by New England banks dropped by 30 percent. Of that $55 billion decline in bank loans, 18 percent ($10 billion) can be attributed to formal actions. The magnitude of the decline that can be attributed to formal actions indicates that these regulatory actions contributed to the credit crunch that occurred in New England during this period.

*The correlation between bank capital and loan shrinkage found in earlier studies has a regulatory link, through the requirements imposed in formal actions.*

As of the third quarter of 1994, 52 of the outstanding formal actions had been terminated because of the improved financial health of the banks. As Figure 1 showed, the imposition of formal actions has essentially ceased in New England and terminations are on the upswing. The combination of terminations and the failures or acquisitions of banks under formal actions left slightly less than 50 formal actions still in effect at the end of the third quarter of 1994. With at least one-third of these remaining actions terminated in late 1994 and early 1995, and with additional terminations of formal actions likely to occur over the next several quarters given the dramatic improvement in the financial conditions of New England banks, much of the restraint on bank lending arising from formal actions has been mitigated. Thus, the recent episode of the supply-induced decrease in bank lending in New England associated with formal regulatory actions now should have come to a close.

## *IV. Conclusion*

The widespread imposition of formal regulatory actions on New England banks contributed to the decline in bank lending in that region since 1989. Formal actions that require significant improvements in bank capital ratios over periods as short as two years induced banks to shrink their loan portfolios. This study documents that the correlation between bank capital and loan shrinkage found in earlier

studies has a regulatory link, through the requirements imposed in formal actions.

Such a supply-induced shrinkage in credit availability can be a serious obstacle to bank-dependent customers of troubled or failed banks. In the event that their loans are called (or their primary lender fails), these bank-dependent customers may have few, if any, alternative sources of credit in their local banking market. Because the recent banking problems were so widespread in New England, few banks were in a financial position to offset reductions in lending by more troubled institutions.

As formal actions have been, and continue to be, terminated, the regulatory impediments to an expansion of lending by New England banks will erode. Nonetheless, an understanding of how regulatory policy can affect lending and the local economy is important, if regulators are to avoid magnifying future banking cycles. While research to date has documented that regulatory actions change bank behavior, it remains an open question whether fewer banks failed as a result of the formal actions. If the formal actions prevented still more bank failures, then in the absence of such aggressive regulatory intervention, increased numbers of failures might have resulted in even greater loan shrinkage.

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