Were Bank Examiners Too Strict with New England and California Banks?

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> Massachusetts Gov. Michael Dukakis accused the Comptroller of the Currency of "enforcing stricter standards in New England than in the rest of the country." . . . New England's elected officials are . . . concern[ed] that regulators are pushing their once vibrant region into a recession by forcing banks to *increase loan reserves* [emphasis added], which, in turn, is causing them to tighten credit standards.
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> [T]here is widespread concern that the medicine might be worse than the disease. Bankers fear that regulators who were heavily criticized for not acting quickly when Texas banks were collapsing are now overreacting in New England.
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> In a reprise of the kind of regulatory crackdown already experienced in the East, California bankers report that federal agencies . . . have been harsh this year.
>
> *American Banker*

During the early 1990s bank examiners were frequently accused of being too strict with banks in New England, thereby contributing to a credit crunch in the region.[1] If supervisors of New England banks were being unusually strict, they may have been reacting to public complaints of lax supervision of the savings and loan industry in the 1980s. Such complaints were rife as New England banks' loan problems were surfacing. As California's economy began a slowdown and banks there began to experience significant loan losses, examiners of California banks also were accused of being too strict. Unusually strict examination practices could have contributed

The views expressed are those of the authors and do not necessarily represent those of the Federal Reserve Bank of Richmond or the Federal Reserve System.

[1] For reports of examiner strictness, see *American Banker,* April 20, 1990, p. 1; April 25, 1990, p. 1; and August 16, 1991, p. 1; *The Economist,* April 7, 1990, p. 94; or *The Wall Street Journal,* April 12, 1990, p. A16.

to the large declines in bank loans and the severity of the economic downturns in New England and California.[2] Several studies have found evidence that the large declines in bank lending in New England were, in part, the result of constraints on bank lending imposed by regulatory capital standards (Peek and Rosengren 1992, 1993; Bernanke and Lown 1991).[3] These studies focus on whether capital constraints faced by New England banks during that region's economic troubles produced declines in bank lending. The capital constraints in many cases resulted from large additions to reserves for loan losses. The studies make no attempt to determine if bank examiners were inappropriately strict in the amount of additions to reserves for loan losses they required of banks, though Bernanke and Lown (1991) do briefly examine supervisory strictness and conclude that New England banks were not subject to overzealous supervision.

This article looks for evidence of excessive examiner strictness as manifested in the amount of reserves for loan losses New England and California banks were required to maintain. Here, strictness refers to the required level of reserves for loan losses relative to expected loan losses. While requiring banks to maintain a certain level of reserves for loan losses is only one of several ways examiner strictness can manifest itself, it is one of the most important. Allowing banks to hold reserves for loan losses that are too small relative to expected future losses, or, equivalently, allowing them to overvalue their loan portfolios, may increase bank failure costs borne by the deposit insurance fund. On the other hand, excessive strictness may lead to unnecessary cutbacks in bank lending. Such indeed is the contention of those criticizing examiners of New England and California banks. To test for loan loss reserve account strictness, we compare the ratio of reserves for loan losses to nonperforming loans for New England and California banks to the average ratio for all U.S. banks. If examiners were being unusually strict in the amount of loan loss reserves they required of New England and California banks, the ratio for these banks should have exceeded that of the average U.S. bank at the time of the hypothesized strictness. We also examine how the average ratio for New England and California banks changed in the periods before and during the hypothesized strictness. If examiners were unusually strict, the ratios for these banks should have increased to unusually high levels compared with past years. Last, we compare the ratio for banks in New England and California to the ratio for banks affected by oil-industry problems of the mid-1980s. If

[2] According to a 1991 survey, 56 percent of surveyed small banks in northern and central California indicated that they had denied loans during the year because of the strict regulatory environment. The Western Independent Bankers Association and the Secura Group conducted the survey, and the *American Banker* reported the results in its November 20, 1991, issue.

[3] Peek and Rosengren (1993) go so far as to conclude that their evidence suggests that "New England did suffer from a regulatory-induced credit crunch" (p. 28).

examiners were unusually strict with New England and California banks during the 1990s, the ratios for New England and California banks should exceed those of banks in the oil-industry-dependent region during economic difficulties. We also broaden our measure of supervisory strictness beyond the simple reserves-to-nonperforming ratio and test again for signs of examiner strictness.

Section 1 deals with bank problem-loan accounting and notes how examiner strictness may influence reported results. In Section 2 we describe our measures of examiner strictness. In Section 3 we report the results of our analysis using the measures mentioned above. According to such measures, we find little evidence that supervisors were too strict with banks in New England and California. To the contrary, we find that banks in New England and California seem to have received relatively lenient treatment. Finally, in Section 4 we examine some possible reservations to our analysis.

1. EXAMINER STRICTNESS AND BANK ACCOUNTING FOR PROBLEM LOANS

One category of problem-loan data is *reserves for loan losses.* Reserves for loan losses are reported by all banks to federal regulators in quarterly financial statements known as "call reports," more technically named "Consolidated Reports of Condition and Income," which consist of a balance sheet, an income statement, and other financial information. The primary function of the reserve for loan losses account is to adjust the reported value of the loan portfolio for expected future credit losses. A bank's reserve for loan losses should equal its, or its examiner's, best estimate of the dollar value of expected losses of principal on its portfolio of loans. If a bank maintains its reserve account at a level equal to this estimate, then total loans less reserves, or net loans, is the best estimate of the collectible value of the loan portfolio. On bank financial statements, net loans are added to other assets to arrive at total assets. The reserve account is established and maintained by periodic charges to an expense account denoted "provision for loan losses."[4]

Additions to the loan loss reserve account, like other expenses, reduce net income. Under normal circumstances, a bank's operating income is sufficient to cover additions to loan loss reserves and other expenses. Sometimes, as occurred at many New England banks during the late 1980s, additions to loan loss reserves exceed income. In such cases, adding to loan loss reserves reduces capital.

It seems likely that pressures on examiners to be strict or lenient will manifest themselves in reserves for loan losses required of banks. During bank examinations, examiners verify the adequacy of loan loss reserves and often require banks to increase the size of the account. Examiners exercise a good deal

[4] See Walter (1991) for further discussion of loan loss reserves.

of judgment and discretion when determining what constitutes an adequate level of loan loss reserves. Such judgment is necessary because many bank loans are heterogeneous and the signals of impending loan losses vary from loan to loan. But it leaves scope for examiner decisions to be influenced by pressures to be strict or lenient. New England bank examiners were criticized for excessive strictness in the early 1990s. Such strictness was attributed to fears of repeating past mistakes. On the other hand, throughout much of the 1980s, many observers expressed concerns that examiners were being too lenient with banks that held nonperforming less-developed-country (LDC) loans. Such banks were seen as holding loan loss reserves that were low relative to expected losses on the loans. Bank supervisors may have thought that by giving them additional time to collect nonperforming loans or to supplement reserves for loan losses, the banks would be able to avoid shrinking their loan portfolios or even failing. Supervisors also may have been under some political pressure to "go easy" on LDC-exposed banks. Had examiners forced the LDC-exposed banks to quickly add reserves to cover expected loan losses, the necessary additions to reserves could have virtually eliminated the equity of some of these banks (Mengle and Walter 1991). Ultimately, the exposed banks made large additions to reserves for LDC loans beginning in 1987.

Another category of banks' problem-loan data is *nonperforming loans*. According to federal bank regulatory definitions, nonperforming loans ("past-due and nonaccrual loans" on bank call reports) are those for which the borrower is 30 days or more late on contracted interest or principal payments and those on nonaccrual status. Loans 30 days or more late are further classified as 30 to 90 days past due and 90 days or more past due. Regulators require banks to stop accruing interest on loans, or place them on nonaccrual status, if the borrower's financial condition has deteriorated, if payment in full is not expected, or if the loan has been in default 90 days or more.[5] Few loans are placed on nonaccrual status unless they are past due, since the first sign that the financial condition of the borrower has deteriorated or that payment in full is not expected generally is the failure to make timely interest or principal payments.

Verifying the appropriateness of the loan loss reserve account during examinations typically involves a significant amount of examiner judgment and discretion. Little discretion, however, is involved in determining whether or not a loan should be reported as nonperforming. For most loans, if the borrower is current on interest and principal payments, the loan is not reported as nonperforming. If, on the other hand, the borrower is more than 30 days past

[5] A loan 90 days or more late generally must be placed on nonaccrual status unless (1) it is a consumer installment loan, (2) it is secured by a mortgage on a one- to four-family property, or (3) it is well secured and in the process of being collected. Loans that are 90 days or more late that fall under one of the excluded categories are reported as "loans past due 90 days or more."

due, the loan will be reported as nonperforming. Occasionally loans may be placed on nonaccrual status even though they are not past due. The examiner or bank may believe that even though the borrower is current on payments, the borrower may be unable ultimately to repay the entire loan. In such cases, nonperforming loans will be enlarged based on examiner or bank discretion.

The final category of problem-loan data discussed is loan *charge-offs*. When it is apparent that all or a portion of a loan will be uncollectible, the loan is charged off. The amount of the charge-off will equal the book value of the loan when the bank or its examiner believes the loan is likely to be a total loss. The charge-off will be less than book value when the bank or its examiner believes that some of the loan's principal value will be recovered, say, from foreclosure on collateral. When a charge-off is taken, some or all of the book value is removed from the bank's books and the same amount is deducted from the reserve for loan losses account. In most cases, loans more than 180 days past due are charged off. On the other hand, there is a good deal of bank or examiner judgment involved in charging off a loan that is less than 180 days past due. Any recovery of an amount previously charged off is added to the reserve balance upon its collection.

2. MEASURES OF EXAMINER STRICTNESS

As discussed earlier, examiners have considerable latitude to determine the appropriate level of loan loss reserves, so that pressures to be more or less strict may influence the amount of reserves held. Ideally, a test for excessive examiner strictness would compare the bank's loan loss reserve to a knowledgeable but impartial party's estimate of future loan losses. Using this test, the examiner's strictness would be measured by the ratio of the bank's reserves to the impartial party's loss estimate. If the ratio is significantly less than one, the bank has underreported reserves and its examiner may have been too lenient. If the ratio is approximately one, then the bank has properly reported reserves and its examiner has been fair. If the ratio is significantly greater than one, then the bank has overreported reserves, possibly because the bank's examiner has been too strict. While bank financial statements report loan loss reserve figures, they do not report impartial loan loss estimates. In our analysis, we use banks' reported nonperforming loans as a proxy for the impartial party's estimate of future loan losses.[6]

[6] While many researchers count as nonperforming only those loans past due 90 days or more and those in nonaccrual status, our measure of nonperforming loans also includes loans past due 30 to 90 days. We have chosen to be more inclusive because we believe that the component consisting of loans 30 to 90 days past due provides additional information about future loan losses. Our empirical results are not dependent on including this component.

We choose the nonperforming loans figure as a proxy because it is unlikely to be influenced by examiner strictness yet is likely to be highly correlated with an impartial party's estimate of future loan losses. As discussed earlier, the amount of reported nonperforming loans is subject to little examiner judgment. Thus, like the impartial party's loan loss estimate, it is unlikely to be influenced by pressures on examiners to be lenient or strict. Since nonperforming loans are known to be troubled, when the amount of such loans held by the bank increases, an impartial party would increase his estimate of eventual loan losses for most banks. For all U.S. banks, from 1983 to 1993, nonperforming loans and net charge-offs (charge-offs less recoveries on previously charged-off loans) during the following four quarters were highly correlated, with a correlation coefficient of 0.87. Other research supports the hypothesis that nonperforming loans have power in predicting future losses. Berger, King, and O'Brien (1991) regress charge-offs on loan loss reserves and nonperforming loans, using data for all U.S. banks from 1982 through 1989. They conclude that "the nonperformance measures [nonperforming loans] add significantly to the information about future bank performance beyond loan loss reserves" (p. 769).[7] In related work, Avery, Hanweck, and Kwast (1985), Hirschhorn (1986), and Cole and Gunther (1993) find that nonperforming loans help predict bank failures.

Unfortunately, we cannot simply examine the average ratio of reserves to nonperforming loans for a region and conclude that if the ratio is greater than one, the region's examiners were unusually strict, and if the ratio is less than one, they were unusually lenient. Typically the ratio is significantly lower than one because a portion of nonperforming loans is likely to be completely or partially repaid and only the remainder will result in a loss. A priori, we do not know what levels of the reserves-nonperforming loans ratio indicate that examiners have been "lenient," "fair," or "strict" for a given bank or group of banks. Instead, to draw conclusions regarding examiner strictness we analyze the reserves-nonperforming loans ratio for New England and California banks relative to the ratio for three control groups. First, we compare the ratio for New England and California banks to the ratio for all U.S. banks in the same time period. We assume that examiners were fair for the average of all U.S. banks. Second, we compare the reserves-nonperforming loans ratio for New England and California banks to past years' average levels of the ratio. In doing so, we

[7] The Berger, King, and O'Brien measure of nonperforming loans differs slightly from our measure of nonperforming loans. Berger, King, and O'Brien include as nonperforming loans those past due 90 days or more, those on nonaccrual status, and renegotiated loans. Renegotiated loans are those loans for which the bank has reduced interest or principal payments because of the deterioration of the financial position of the borrower. We exclude from our analysis renegotiated loans but include loans past due 30 to 90 days. Any differences in results should be minor because Berger, King, and O'Brien estimate that renegotiated loans have a relatively small, and in some of their regressions insignificant, influence on later loan charge-offs, and because, as noted earlier, our results are largely unchanged by the inclusion of loans past due 30 to 90 days.

assume that before troubled times, examiners were fair with New England and California banks. Finally, we compare the ratio for New England and California banks to the ratio for banks in the "oil region" during the period of that region's economic difficulties. We compute these ratios relative to the U.S. average. As for oil-region banks, we assume their examiners were fair, or at least not strict, since no complaints of such strictness were heard at the time of distress. Now any one of these assumptions alone may be subject to question. But if all three comparisons point to the same conclusion about examiner strictness, then we can be fairly confident of our conclusions. We would conclude that there is evidence that examiners in New England or California were unusually strict if the loan loss ratio for banks in these regions was significantly above (1) the ratio for all U.S. banks, (2) past levels of the ratio for New England and California, and (3) the ratio for the oil region.

We also test for examiner strictness using a second measure, the ratio of loan loss reserves to loan charge-offs occurring later (RES_t/CO_{t+i}). The ratio allows us to avoid a potential bias caused by a change in the definition of nonperforming loans. Approximately when loan problems of New England banks reached their peak, examiners began to require more frequently that banks place loans current on principal and interest payments on nonaccrual status. Before then, examiners only infrequently required banks to report any current loans on nonaccrual status. Current loans placed on nonaccrual status were commonly referred to as "performing nonperforming loans." Typically, such loans were suspect because collateral values had fallen significantly or because there was some indication that the borrower would be unable to make continued payments. Examiners generally required extra reserve backing for these loans. Because a performing borrower is more likely than a nonperforming borrower to repay a loan, the amount of loan loss reserves for performing nonperforming loans should be somewhat lower than for other nonperforming loans. Thus, the reserves-nonperforming loans ratio may have a downward bias beginning when examiners increased the frequency with which they declared performing loans nonperforming. Unfortunately, bank financial statements do not segregate performing nonperforming loans, so we cannot adjust for the bias. The RES_t/CO_{t+i} measure avoids this bias since it does not employ nonperforming loans at all.

The RES_t/CO_{t+i} ratio also allows us to test the robustness of our conclusions regarding nonperforming loans. That is, it provides a measure that requires no proxy of an impartial party's estimate of loan losses. This could be important because when using nonperforming loans as a proxy for an impartial party's estimate of loan losses, we in effect assume that a dollar of nonperforming loans always leads an impartial examiner to require each and every bank to hold approximately the same level of reserves. If this is not true—in other words, if a dollar in nonperforming loans leads an impartial examiner to require fewer reserves in one region than in others—then our reserves-nonperforming loans ratio may give us biased results. One can imagine, for example, that in a

region that has experienced a perceived temporary economic shock, impartial examiners might require lower loan loss reserves per dollar of nonperforming loans than in other regions. Since we cannot directly test the accuracy of nonperforming loans as a proxy, testing for examiner strictness with a measure that is not dependent on this proxy provides the best opportunity to test the robustness of our strictness conclusions. If RES_t/CO_{t+i}-based strictness conclusions confirm those from the reserves-nonperforming loans measure, then we can be more certain of the robustness of our conclusions.

3. ANALYSIS USING MEASURES OF EXAMINER STRICTNESS

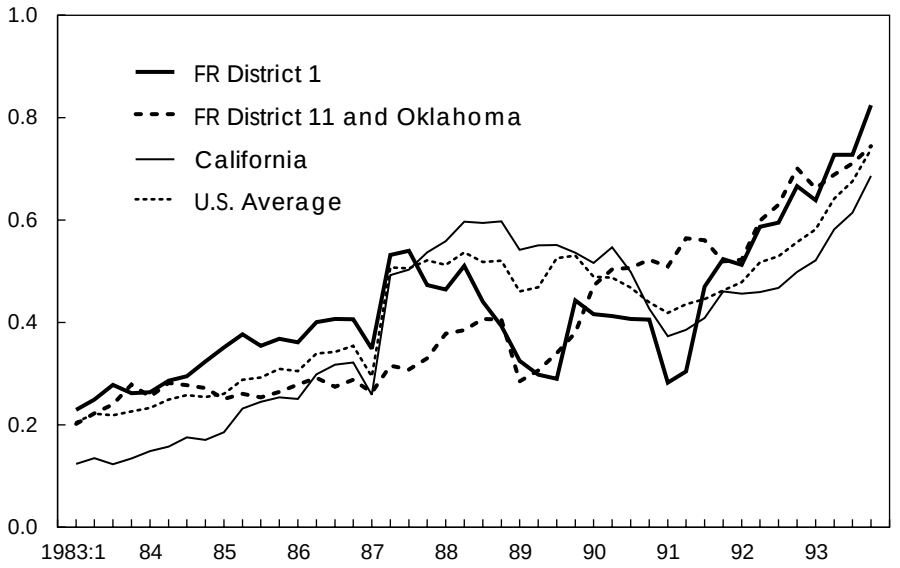
Figure 1 displays weighted-average reserves-nonperforming loans ratios for banks in New England (**Federal Reserve District 1**), in the "oil region" (**FR District 11 and Oklahoma**), in California, and throughout the United States (observations are quarterly).[8] The weighted average is the sum of loan loss reserves for all banks in a region divided by the sum of all nonperforming loans for all such banks.[9] The figure shows that during the periods when examiners were supposedly too strict, New England and California banks' average reserves-nonperforming loans ratios were not unusually high relative to (1) the U.S. average, (2) past levels achieved in the two regions, or (3) the experience of the oil region. On the contrary, New England and California reserves-nonperforming loans ratios were somewhat low.

Figure 1 shows that after remaining above the U.S. average ratio from 1983 until 1987, New England's reserves-nonperforming loans ratio fell below the U.S. average ratio and remained well below it until 1991, when it rose slightly above it. The period when the ratio was low relative to the U.S. average corresponds with New England's economic troubles, which were worst between 1987 and 1992. Therefore, New England banks' reserves-nonperforming loans ratio was low for some years before examiners were criticized for unusual strictness (mostly in 1990). Even after the New England ratio rose above the U.S. average ratio, it tracked that average fairly closely. Figure 1 also shows that as economic difficulties were hitting California in 1990, the California

[8] Our "oil region" (**FR District 11 and Oklahoma** in Figure 1) includes banks in Oklahoma, from Federal Reserve District 10, and banks in Federal Reserve District 11. This combination means that banks in states most affected by petroleum-industry problems are grouped together.

[9] We display weighted results in these graphs because displaying the average of individual banks' ratios produces results that might be distorted by a small number of banks with very few nonperforming loans. The reserves-nonperforming loans ratios of these banks are extremely high because they had almost no nonperforming loans but over time maintained a significant amount of loan loss reserves, producing ratios as high as 1700.

Figure 1 Ratio of Reserves to Nonperforming Loans



reserves-nonperforming loans ratio fell below the U.S. average ratio. It remained slightly below the U.S. average ratio through 1993.[10]

In 1990, at the time of the hypothesized strictness, New England banks' reserves-nonperforming loans ratio was below its 1987 level and only about equivalent to the level reached in 1985 and 1986. The ratio did begin to increase rapidly in 1991, but it did not regain its 1987 level until late 1991. Likewise, California banks' average reserves-nonperforming loans ratio did not return to

[10] The dips in the **FR District 11 and Oklahoma** line in Figure 1 beginning in the first quarter of 1989 and in the **FR District 1** line beginning in the first quarter of 1991 are the result of the fairly unique way the FDIC handled some large bank failures in the late 1980s and early 1990s. Failures of large banking companies in Texas and New England (First Republic Bank Corp. of Texas, MCORP of Texas, Texas American, First American Bank and Trust of Texas, and Bank of New England) were handled for an interim period, usually less than a year, by placing the assets and deposits of failed banks in "bridge banks" set up and owned by the FDIC, until a buyer could be found. These bridge banks included on their books most of the failing banks' nonperforming loans but minimum loan loss reserves, so that their presence in our Figure 1 data set causes the reserves-nonperforming loans ratio to be low for the periods of their existence. Removing bridge banks from the data used to construct Figure 1 eliminates most of the 1989 dip in the **FR District 11 and Oklahoma** line and all of the 1991 dip in the **FR District 1** line and causes the **FR District 1** line to rise above the **U.S. Average** line one quarter earlier (second quarter rather than third quarter 1991) than shown in Figure 1. Other than these changes, eliminating the "bridge bank effect" leaves Figure 1 essentially unchanged.

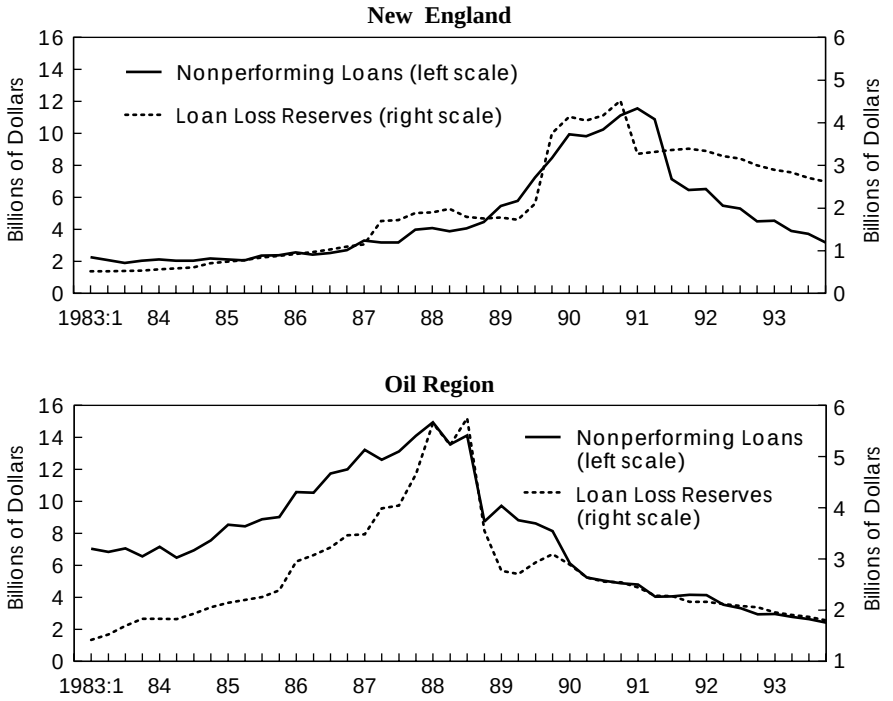
levels attained in 1990 until 1993, well after examiner strictness was supposed to have occurred. Therefore, at the time of the hypothesized strictness, banks in New England and California had fairly low reserves-nonperforming loans ratios relative to pre-recession levels.

The oil region's economic problems were worst in the 1984 through 1989 period. As shown in Figure 1, the reserves-nonperforming loans ratio of the region's banks did not fall until 1989, one year after nonperforming loans reached their peak. In contrast to the experience of banks in New England and California, oil-region banks showed little decline in the ratio of reserves to nonperforming loans during troubles in the region. Though their reserves-nonperforming loans ratio was below the U.S. average ratio throughout much of the latter half of the 1980s, they maintained a fairly consistent increase throughout the 1980s and early 1990s.

One of the most dramatic features of Figure 1 is the increase in the reserves-nonperforming loans ratio in the second quarter of 1987. Virtually all of the increase is accounted for by $18 billion of additions to loan loss reserves made by large banks to provide for anticipated losses on LDC loans (McLaughlin and Wolfson 1988). These additions began on May 20, 1987, when Citicorp added $3 billion to loan loss reserves to cover expected LDC loan losses. Following the Citicorp addition, other large banks throughout the country made sizable additions to loan loss reserves to cover expected future losses on LDC loans. As shown in Figure 1, the ratios for New England banks and California banks also jumped in the second quarter of 1987, as banks in these areas also made large additions for LDC loans. The ratio did not increase significantly in the oil region because exposure to LDC debt was minimal in that region.

Even though New England and oil-region banks were in similar shape in terms of the percentage of loans that were troubled, banks in these two regions displayed very different behavior as nonperforming loans first began to increase. Figure 2 displays the dollar amount of (1) nonperforming loans and (2) reserves for loan losses for New England and the oil region. On average, oil-region banks added substantially to reserves as soon as nonperforming loans began to rise in 1984. In New England, by contrast, loan loss reserves remained essentially unchanged as nonperforming loans almost doubled between mid-1987 and late 1989. In the first seven quarters of that period, these loans increased 82 percent in New England while reserves rose only 2 percent. Conversely, comparable seven-quarter figures for the oil region show that nonperforming loans relative to assets rose 63 percent while reserves rose 62 percent. Banks in New England did not add significantly to reserves for almost two years after the onset of rising problem loans. As a fraction of nonperforming loans, New England banks' large quarterly additions to reserves in late 1989 and 1990 were significantly greater than any quarterly additions made by oil-region banks. Additions made by banks in New England were viewed as evidence that examiners were being too stringent. But they only brought the reserves to nonperforming loans ratio

Figure 2 Loan Loss Reserves and Nonperforming Loans



at New England banks up to the level of oil-region banks at a comparable point in that region's fortunes.

Differing reactions in New England and the oil region may have resulted from different signals of future losses available to the two regions. The collapse of OPEC and oil prices in the early 1980s may have given oil-region banks and their examiners early and clear warning of long-lasting loan problems in that region, leading them to make early additions to loan loss reserves. In New England, on the other hand, signs of persistent loan problems may have become clear only as more and more loans became nonperforming.

When compared to the average of all U.S. banks, weighted-average reserves-nonperforming loans ratios for New England and California banks provide no evidence of unusual examiner strictness. Indeed, they give some indication of examiner lenience, especially in the period before the hypothesized strictness. Likewise, there is no evidence of unusual examiner strictness when comparing reserves-nonperforming loans ratios for New England and California during the periods of hypothesized examiner strictness to the average

ratios generated by banks in these regions before the onset of their economic troubles. Finally, in comparison to results produced by banks in the oil region, New England and California banks do not appear to have been treated strictly.

Figure 1 seems to point fairly consistently to the conclusion that New England and California banks were not forced to add excessively to reserves and might have even been treated leniently by examiners. Seeking additional confirmation, we employed regression analysis to determine whether regions were statistically significantly different from the average for all U.S. banks. We ran regressions using as dependent variables the log of the quotient of two ratios, namely, reserves to nonperforming loans for individual banks and for the average of all U.S. banks. We employed as independent variables dummies for banks' regions. Expressed this way, our regression counts each bank's individual reserves-nonperforming loans ratio equally, regardless of the size of the bank. The regression equation appears as follows:

$$\log(\text{RATIO}_{it}/\text{RATIO}_{\text{U.S.}t}) = B1 * RG_1 + B2 * RG_2 + \cdots + B13 * RG_{13} + e_{it}$$

$$\text{RATIO}_{it} = \frac{(RES_{\text{Q1}} + RES_{\text{Q2}} + RES_{\text{Q3}} + RES_{\text{Q4}})}{(NPL_{\text{Q1}} + NPL_{\text{Q2}} + NPL_{\text{Q3}} + NPL_{\text{Q4}})}$$

$=$ Bank i's average reserves-nonperforming loans ratio in year t.[11]

$\text{RATIO}_{\text{U.S.}t} =$ Arithmetic average of all U.S. banks' RATIO_i in year t.

The independent variables are all dummy variables: RG_d is a dummy variable equal to one if a bank is in Federal Reserve District number d and zero otherwise. The state of California is entered as regional dummy 13 (and is excluded from Federal Reserve District 12) because California was especially plagued by the recession of the early 1990s, while other Twelfth District states were relatively better off. $d = 1, 2, \ldots 13$.

The regression equation was run once for each year 1983 through 1993. Because banks, or their supervisors, may take several quarters to adjust the reserve account in response to a change in nonperforming loans, reserves-nonperforming loans ratios were calculated using annual averages. Since every region was represented by a dummy, constants were omitted from the regression. Table 1 displays the results of these regressions. The coefficient on each region's dummy is a measure of how location influences the deviation of a bank's reserves-nonperforming loans ratio from the U.S. average ratio. The t-statistics are test statistics for the hypothesis that the region dummy coefficients equal zero. In other words, they test the hypothesis that there is

[11] Banks that do not produce call reports for all four quarters in a year, either because of failure, merger, or de novo entry, are removed from the regression calculation for the year. The "bridge bank effect" (discussed in footnote 10) therefore does not influence our regression results.

no relationship between location in the region and the deviation of a bank's reserves-nonperforming loans ratio from the comparable U.S. average ratio.

The regression results corroborate the trends apparent in Figure 1. Banks in New England and California had low reserves-nonperforming loans ratios compared to banks nationwide around the time of their economic troubles and during and after the periods examiners were criticized for being excessively strict. Specifically, the regressions show very large (in absolute value) and statistically significant negative coefficients for New England and California during these periods. Banks in Federal Reserve District 1 (New England) had a coefficient of $-.68$ in 1990, near the trough of the New England recession. This was by far the largest absolute coefficient of any region in any year. The reserves-nonperforming loans ratio for banks in New England fell significantly below the average ratio for all U.S. banks in 1988, soon after loan troubles began to surface in New England. The ratio then declined further through 1990. It began recovering in 1991 but remained significantly below the U.S. average through 1993. The coefficients for California also became very highly negative in the early 1990s. In contrast, the lowest coefficient registered in the oil region (Federal Reserve District 11 and Oklahoma) was $-.23$. Until 1987 the reserves-nonperforming loans ratio for banks in the oil region was significantly above or only slightly below the U.S average. From 1987 through 1990, the reserves-nonperforming loans ratio for oil-region banks was statistically significantly lower than the average ratio for all U.S. banks, although the absolute value of the coefficient for the oil region was much smaller than that of coefficients for New England and California.[12]

The regression analysis provides evidence that New England and California banks were not forced by excessively strict examiners to overreserve. It shows that New England and California banks had much lower reserves relative to nonperforming loans than average for all U.S. banks before, during, and after the time examiners were being criticized for excessive strictness. The analysis also shows that relative to the U.S. average, underreserving was much greater in New England and California than it had been earlier in the oil region. The regressions do indicate that some underreserving during economic troubles may be normal, since it seems to have occurred in New England, California, and in the oil region. Such could be the case because it may take some time for banks to recognize and set aside income for problem loans, or for examiners to examine banks and force them to increase reserves for loan losses.

When we further investigate examiner strictness using our second strictness measure, the ratio of loan loss reserves today to loan charge-offs tomorrow

[12] One might conjecture that different size banks may reserve for loan losses in different ways, on average. If this is the case, then our results may have been influenced by differences in the size distribution of banks across the regions. To test for this, we regressed our ratio on size dummies and found no consistent relationships.

Table 1

Regression equation: $\log(\text{RATIO}_{it}/\text{RATIO}_{\text{U.S.}t}) = B1 * RG_1 + B2 * RG_2 + \cdots + B13 * RG_{13} + e_{it}$

Regional Dummies	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
Fed Reserve District 1	0.12	0.19	0.21	0.23	0.19	−0.23	−0.62	−0.68	−0.56	−0.41	−0.35
	(2.19)[b]	(3.62)[c]	(4.08)[c]	(4.54)[c]	(3.64)[c]	(−4.10)[c]	(−10.96)[c]	(−11.71)[c]	(−9.09)[c]	(−6.10)[c]	(−4.99)[c]
Fed Reserve District 2	0.15	0.17	0.28	0.27	0.15	−0.10	−0.29	−0.43	−0.35	−0.38	−0.41
	(2.68)[c]	(3.09)[c]	(5.44)[c]	(5.57)[c]	(3.08)[c]	(−1.91)[a]	(−5.59)[c]	(−8.35)[c]	(−6.83)[c]	(−7.05)[c]	(−7.35)[c]
Fed Reserve District 3	−0.18	−0.08	0.01	0.04	−0.04	−0.16	−0.23	−0.35	−0.38	−0.29	−0.34
	(−3.40)[c]	(−1.69)[a]	(0.20)	(0.81)	(−0.94)	(−3.15)[c]	(−4.66)[c]	(−7.21)[c]	(−7.87)[c]	(−5.97)[c]	(−6.51)[c]
Fed Reserve District 4	−0.15	−0.08	−0.04	−0.05	−0.10	−0.18	−0.23	−0.23	−0.23	−0.18	−0.13
	(−4.00)[c]	(−2.04)[b]	(−1.08)	(−1.51)	(−2.97)[c]	(−4.88)[c]	(−6.15)[c]	(−6.08)[c]	(−6.03)[c]	(−4.67)[c]	(−3.23)[c]
Fed Reserve District 5	0.06	0.10	0.10	0.11	0.01	−0.05	−0.14	−0.20	−0.26	−0.19	−0.18
	(1.47)	(2.86)[c]	(2.83)[c]	(3.40)[c]	(0.36)	(−1.33)	(−3.93)[c]	(−5.87)[c]	(−7.60)[c]	(−5.55)[c]	(−4.88)[c]
Fed Reserve District 6	0.07	0.07	0.03	0.00	−0.08	−0.11	−0.17	−0.23	−0.24	−0.16	−0.11
	(3.11)[c]	(3.26)[c]	(1.22)	(0.02)	(−3.59)[c]	(−4.86)[c]	(−7.16)[c]	(−9.89)[c]	(−10.68)[c]	(−7.07)[c]	(−4.56)[c]
Fed Reserve District 7	−0.03	−0.04	0.00	0.11	0.20	0.22	0.19	0.18	0.12	0.06	0.03
	(−1.42)	(−2.38)[b]	(0.12)	(6.61)[c]	(11.98)[c]	(12.51)[c]	(10.61)[c]	(9.91)[c]	(6.39)[c]	(2.96)[c]	(1.45)
Fed Reserve District 8	−0.04	−0.04	−0.02	0.03	0.00	−0.03	−0.02	−0.10	−0.11	−0.06	0.01
	(−1.46)	(−1.74)[a]	(−0.94)	(1.30)	(0.14)	(−1.38)	(−0.92)	(−4.18)[c]	(−4.68)[c]	(−2.49)[b]	(0.30)
Fed Reserve District 9	−0.26	−0.32	−0.34	−0.31	−0.16	−0.01	0.04	0.08	0.09	0.10	0.07
	(−10.26)[c]	(−13.70)[c]	(−15.30)[c]	(−14.48)[c]	(−6.93)[c]	(−0.32)	(1.56)	(3.11)[c]	(3.66)[c]	(3.78)[c]	(2.60)[c]

Fed Reserve District 10 (excluding Oklahoma)	0.16 (7.45)[c]	0.07 (3.26)[b]	0.10 (5.13)[c]	0.11 (6.20)[c]	0.18 (9.72)[c]	0.27 (13.22)[c]	0.35 (16.79)[c]	0.38 (18.23)[c]	0.45 (21.32)[c]	0.40 (18.59)[c]	0.38 (16.80)[c]
Fed Reserve District 11 (including Oklahoma)	0.15 (7.71)[c]	0.19 (10.65)[c]	0.08 (4.99)[c]	−0.07 (−4.31)[c]	−0.20 (−12.12)[c]	−0.23 (−12.27)[c]	−0.18 (−8.68)[c]	−0.05 (−2.36)[b]	0.04 (2.07)[b]	0.03 (1.22)	−0.03 (−1.36)
Fed Reserve District 12 (excluding California)	−0.48 (−9.40)[c]	−0.40 (−8.30)[c]	−0.38 (−8.17)[c]	−0.31 (−6.88)[c]	−0.29 (−6.02)[c]	−0.29 (−5.54)[c]	−0.17 (−3.20)[c]	−0.03 (−0.53)	0.08 (1.61)	0.14 (2.61)[c]	0.29 (5.36)[c]
California	−0.24 (−4.81)[c]	−0.08 (−1.93)[a]	0.04 (1.05)	0.01 (0.24)	0.06 (1.50)	0.04 (1.01)	0.10 (2.36)[b]	0.05 (1.16)	−0.26 (−6.42)[c]	−0.43 (−10.15)[c]	−0.45 (−10.16)[c]
F-Statistic	29.76	33.96	31.60	32.74	39.76	45.79	58.94	68.67	72.26	54.70	46.24
F-Significance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of Observations	13,889	13,841	13,870	13,715	13,221	12,643	12,269	11,925	11,556	11,140	10,674

[a] Significant at the 10 percent level.

[b] Significant at the 5 percent level.

[c] Significant at the 1 percent level.

Notes: Banks that did not produce call reports for all four quarters in a year were removed from the regression calculation for the year. Otherwise, regressions include all U.S. banks. t-statistics are in parentheses.

(RES_t/CO_{t+i}), our nonperforming loans-based results are confirmed. Analysis using RES_t/CO_{t+i} indicates that New England and California banks might have received lenient treatment at the hands of their examiners, or at least did not receive overly strict treatment.

Figure 3 displays the weighted-average RES_t/CO_{t+i} ratio graphed by region. The figure shows that New England banks' ratio fell below the U.S. average ratio beginning in 1988 and remained below it until early 1991, when New England's ratio moved slightly above the U.S. average ratio.[13,14] The figure also shows that the average ratio for California banks remained significantly above the U.S. average ratio until mid-1990, but then fell below. The average ratio for New England banks began falling in 1986, remained until 1992 well below levels maintained between 1983 and 1986, and never rose above the early 1986 level. California banks' average RES_t/CO_{t+i} ratio shows a similar pattern across time. In the oil-industry region, the ratio remained well below the U.S. average ratio until 1988. Then it either conformed to the average or rose above it throughout the remainder of the region's difficulties. These graphs indicate that compared to their U.S. and oil-region counterparts, as well as themselves in better times, New England and California banks may have been underreserved during much of each region's slowdown.

Table 2 displays results from regressions using RES_t/CO_{t+i} instead of *RES*/*NPL* but otherwise equivalent to the *RES*/*NPL* regression presented earlier. As was the case with the earlier regressions, the largest negative coefficients are associated with the economic difficulties experienced in New England and California in the late 1980s and early 1990s. Significantly negative coefficients continued even as complaints were surfacing of excessive examiner strictness in these regions. Banks in the oil region had RES_t/CO_{t+i} ratios well below the U.S. average ratio throughout the study period, though negative coefficients for the oil region were never as large as they were for New England and California at their worst. These results corroborate results from the nonperforming loans regressions and graphs.

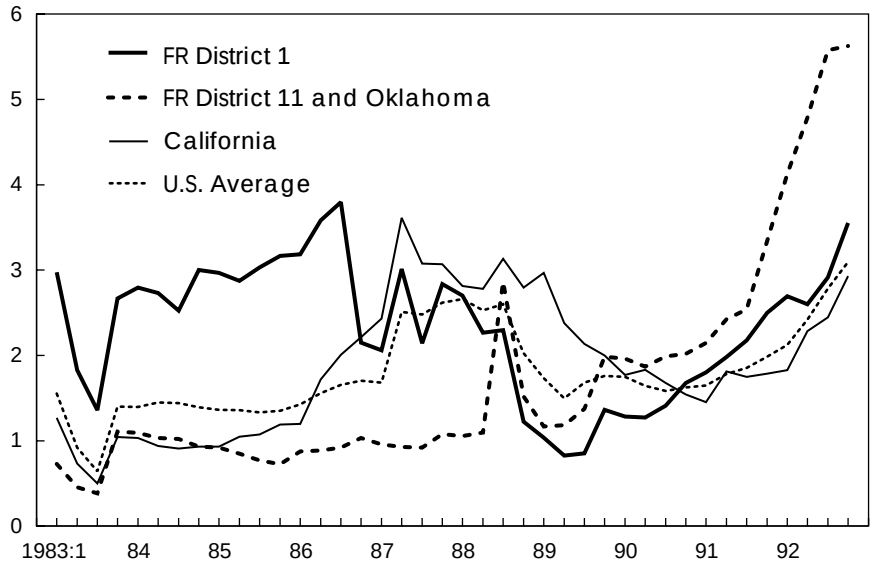
4. CAVEATS

Our regression analyses presented in Tables 1 and 2, and our comparisons of ratios for New England and California banks to the average ratio for all U.S. banks, could incorrectly classify regional examiners as more lenient than they were. If examiners were inappropriately strict in their standards for determining

[13] In our calculations, we excluded any bank that was not operating in all of the five quarters (one quarter when reserves are observed plus the following four quarters when charge-offs for the bank are observed) used to calculate a ratio.

[14] We also compared reserves to charge-offs over the next eight quarters and found similar results.

Figure 3 Ratio of Reserves to Eventual Net Charge-Offs



reserves with *all* U.S. banks, New England and California banks might seem to have received lenient treatment by comparison even though they too were subject to inappropriately strict treatment. Bizer (1993) finds evidence that U.S. bank supervisors, on average, became stricter in their confidential bank ratings after 1989 as compared with before 1989. No studies exist of examiner strictness in standards for determining loan loss reserves. However, stories appearing around 1990 in the banking press reported a perception among bankers and borrowers that these standards were made stricter for banks throughout the country, not just in New England and California. We believe it unlikely that our measures incorrectly indicate lenient treatment of New England and California banks.

For one thing, our data do not support the conclusion that examiners throughout the United States became stricter in loan loss reserves standards in 1989 or 1990. To be sure, the U.S. average reserves-nonperforming loans ratio line shown in Figure 1 reaches a local minimum in the first quarter of 1991 and rises consistently afterward. But it does not rise to unusually high levels until 1993. Similarly, in Figure 3 the U.S. average RES_t/CO_{t+i} line reaches a local minimum in 1989, remains relatively flat until 1991, and then begins rising. True, as of the end of 1992, it does rise above the previous highs achieved in 1987 and 1988, but not far above. It therefore seems unlikely that unusual examiner strictness occurred for the average U.S. bank before late 1992.

Table 2
Regression equation: $\log(\text{RATIO}_{it}/\text{RATIO}_{\text{U.S.}t})$, where RATIO = $(\text{loan loss reserves})_t/(\text{net charge-offs})_{t+i}$

Regional Dummies	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**
Fed Reserve District 1	1.11	1.35	1.31	0.99	0.61	−0.42	−1.19	−1.14	−0.71	−0.55
	(13.23)[c]	(16.78)[c]	(16.48)[c]	(12.10)[c]	(7.36)[c]	(−5.07)[c]	(−14.10)[c]	(−12.35)[c]	(−7.34)[c]	(−5.23)[c]
Fed Reserve District 2	0.75	1.12	1.10	0.76	0.38	0.04	−0.64	−0.64	−0.47	−0.56
	(9.09)[c]	(14.28)[c]	(14.42)[c]	(9.56)[c]	(4.87)[c]	(0.53)	(−8.30)[c]	(−8.34)[c]	(−5.95)[c]	(−6.66)[c]
Fed Reserve District 3	1.05	1.22	1.31	0.99	0.82	0.52	0.10	−0.13	−0.16	−0.05
	(13.10)[c]	(16.09)[c]	(17.87)[c]	(13.06)[c]	(10.80)[c]	(7.21)[c]	(1.42)	(−1.82)[a]	(−2.22)[b]	(−0.58)
Fed Reserve District 4	0.40	0.55	0.50	0.36	0.15	−0.05	−0.09	−0.11	−0.16	−0.13
	(6.98)[c]	(10.26)[c]	(9.50)[c]	(6.72)[c]	(2.77)[c]	(−0.90)	(−1.55)	(−1.99)[b]	(−2.82)[c]	(−2.04)[b]
Fed Reserve District 5	0.67	0.74	0.74	0.46	0.34	0.12	−0.15	−0.25	−0.23	−0.02
	(11.79)[c]	(14.08)[c]	(14.61)[c]	(9.01)[c]	(6.56)[c]	(2.27)[b]	(−2.91)[c]	(−4.94)[c]	(−4.47)[c]	(−0.31)
Fed Reserve District 6	0.14	0.15	0.10	−0.08	−0.21	−0.29	−0.37	−0.43	−0.28	−0.22
	(3.95)[c]	(4.52)[c]	(3.06)[c]	(−2.27)[b]	(−6.01)[c]	(−8.41)[c]	(−10.87)[c]	(−12.46)[c]	(−8.01)[c]	(−5.87)[c]
Fed Reserve District 7	0.16	0.05	0.19	0.46	0.53	0.50	0.46	0.32	0.27	0.18
	(5.91)[c]	(1.84)[a]	(8.03)[c]	(17.93)[c]	(19.26)[c]	(17.56)[c]	(15.69)[c]	(10.88)[c]	(9.08)[c]	(5.31)[c]
Fed Reserve District 8	0.05	0.04	0.11	0.22	0.22	0.18	0.13	0.09	0.08	0.13
	(1.34)	(1.12)	(3.38)[c]	(6.41)[c]	(6.04)[c]	(4.88)[c]	(3.36)[c]	(2.33)[b]	(2.13)[b]	(2.92)[c]
Fed Reserve District 9	−0.08	−0.22	−0.28	−0.12	0.07	0.17	0.27	0.42	0.37	0.35
	(−2.25)[b]	(−6.62)[c]	(−8.61)[c]	(−3.58)[c]	(1.90)[a]	(4.54)[c]	(6.89)[c]	(10.72)[c]	(8.89)[c]	(7.65)[c]

Fed Reserve District 10 (excluding Oklahoma)	−0.50 (−15.98)[c]	−0.53 (−18.32)[c]	−0.35 (−12.59)[c]	−0.25 (−8.71)[c]	−0.10 (−3.08)[c]	0.04 (−1.14)	0.16 (4.68)[c]	0.26 (7.46)[c]	0.31 (8.19)[c]	0.16 (3.84)[c]
Fed Reserve District 11 (including Oklahoma)	−0.39 (−13.91)[c]	−0.32 (−12.66)[c]	−0.55 (−23.00)[c]	−0.71 (−28.93)[c]	−0.79 (−29.55)[c]	−0.64 (−22.33)[c]	−0.31 (−10.07)[c]	−0.09 (−2.84)[c]	−0.07 (−2.00)[b]	−0.08 (−2.17)[b]
Fed Reserve District 12 (excluding California)	−0.06 (−0.84)	0.05 (0.78)	0.03 (0.45)	−0.18 (−2.47)[b]	−0.25 (−3.36)[c]	−0.17 (−2.19)[b]	−0.14 (−1.63)	−0.04 (−0.44)	−0.05 (−0.63)	−0.01 (−0.12)
California	−0.28 (−3.87)[c]	0.03 (0.45)	0.16 (2.66)[c]	0.18 (2.97)[c]	0.13 (2.01)[b]	0.32 (4.97)[c]	0.29 (4.43)[c]	−0.25 (−3.89)[c]	−0.68 (−10.97)[c]	−1.03 (−15.22)[c]
F−Statistic	87.61	124.13	150.51	141.73	122.36	79.76	65.31	55.90	41.83	35.16
F−Significance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of Observations	12,363	12,744	12,726	11,718	10,750	10,400	10,106	9,860	9,172	8,109

[a] Significant at the 10 percent level.

[b] Significant at the 5 percent level.

[c] Significant at the 1 percent level.

Notes: Banks that did not produce call reports for all five quarters (one quarter when reserves are observed plus the following four quarters when charge-offs are observed) used to calculate a year's ratio and banks that had no net charge-offs were removed from the regression calculation for the year. Otherwise, regressions include all U.S. banks. Year indicates time period when reserves were held. t-statistics are in parentheses.

Second, in comparing ratios for New England and California banks to ratios for control groups other than the U.S., we find that our measures also indicate no unusual strictness, and possibly lenience, for New England and California banks. As noted earlier, the reserves-nonperforming loans and RES_t/CO_{t+i} ratios achieved by New England banks in the late 1980s and early 1990s remained at or below the levels produced by New England banks before the 1987 decline. This indicates that unless examiners were inappropriately strict with New England banks in 1986 and 1987, they apparently were not in 1990 and 1991. A similar argument may be made for California banks. The reserves-nonperforming loans ratios for the oil region and New England were approximately equivalent at similar times during their difficulties. (Nonperforming loans peaked in the third quarter of 1988 for the oil region and the first quarter of 1991 for New England.) So, unless examiners were inappropriately strict in reserve standards for oil-region banks, they apparently were not with New England banks.

While it seems unlikely that comparisons with U.S. bank averages bias our analysis, our reserves-nonperforming loans ratio may understate the degree of examiner strictness in another way. A bank with an unusually large ratio of loan charge-offs to nonperforming loans could have a low ratio of reserves to nonperforming loans even though it is not underreserved and has not undergone unusually lenient examination. The high charge-off bank is likely to have a relatively low reserves-nonperforming loans ratio for two reasons. First, if the nonperforming loans charged off tend to be those with the greatest expected losses and therefore those with the greatest proportion of reserves, it is likely that charge-offs will lower the proportion of reserves to nonperforming loans. Second, when a portion of a nonperforming loan is charged off, the remainder of the nonperforming loan may have a lower-than-normal expected loss and require few loan loss reserves.

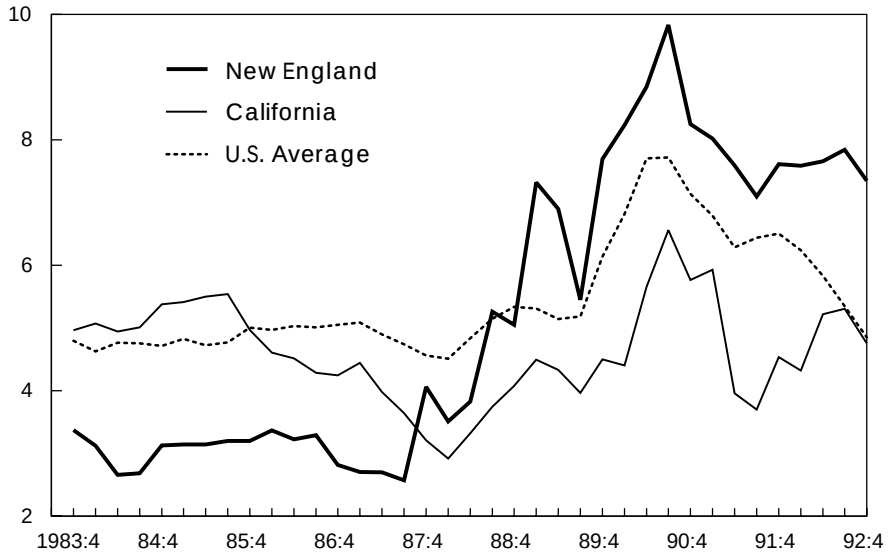
The bias in the reserves-nonperforming loans measure that can occur when loan charge-offs are unusually large can be minimized by modifying the reserves-nonperforming loans ratio. Loan charge-offs are added back to reserves for loan losses and to nonperforming loans so that the measure of examiner strictness becomes $(RES+CO)/(NPL+CO)$. This modification reverses the bias introduced by loan charge-offs on reserves and nonperforming loans. When the regressions presented in Table 1 were rerun with the $(RES + CO)/(NPL + CO)$ ratio substituted for the reserves-nonperforming loans ratio as the dependent variable, coefficients and their significance levels were virtually identical to those generated with the simpler reserves-nonperforming loans ratio. This result indicates that our original reserves-nonperforming loans ratio suffered from little if any bias from unusually large charge-offs. It follows that the reserves-nonperforming loans ratio probably underestimates examiner strictness little.

The RES_t/CO_{t+i} ratio also may understate examiner strictness because of examiner charge-off procedures. Since examiners have some discretion in

determining the required amount of loan charge-offs, it is possible that a tendency to be excessively strict might show up in the amount both of loan loss reserves and banks' charge-offs. If so, then CO_{t+i} in the RES_t/CO_{t+i} ratio would increase, causing that ratio to indicate either a decline or no change in examiner strictness when in fact examiners increased strictness.

Charged-off loan *recovery* data for New England and California banks, however, provides no evidence that examiners were excessively strict in the amount of charge-offs they required. As noted earlier, funds collected on loans previously charged off (for example from the sale of foreclosed properties or from repayments made by delinquent borrowers) are called *recoveries.* Their dollar amounts are reported in quarterly call reports. Excessive charge-off strictness means that examiners are forcing banks to charge off loans that ultimately will be repaid, or to charge off greater proportions of loans than ultimately will be lost on these loans. Therefore, an inappropriate increase in charge-off strictness should lead to an increase in later recoveries. Figure 4 graphs one year's average charge-offs divided by the following year's average recoveries (CO_t/REC_{t+i}) for New England, California, and the United States. Suppose the decline in the New England RES_t/CO_{t+i} line in Figure 3, or the rise in the line

Figure 4 Ratio of Charge-Offs to Eventual Recoveries



Notes: Each charge-off figure is the four-quarter sum of charge-offs in the current quarter and three previous quarters. Each recovery figure is the four-quarter sum of recoveries beginning in the following quarter.

to levels only slightly higher than the U.S. average after 1990, was the result of examiners being unusually strict in charge-off procedures. If so, then one would expect the CO_t/REC_{t+i} line in Figure 4 also to *fall* after 1987 and be unusually *low* relative to the U.S. average. Figure 4, however, shows that New England banks' CO_t/REC_{t+i} line *increased* from 1987 through 1990. Then, consistent with the U.S. average line, the New England line peaked in mid-1990 and declined for several quarters before leveling off well *above* the U.S. average line. California banks follow the same pattern as New England banks and U.S. banks, though from a lower level. The consistently lower-than-U.S.-average CO_t/REC_{t+i} ratio exhibited by California banks could indicate that California banks' examiners consistently applied stricter charge-off requirements than the average for all U.S. banks. It is unlikely then that New England and California banks' RES_t/CO_{t+i} ratio was artificially depressed during economic difficulties in those regions, since examiners apparently were not unusually strict in the charge-offs they required during those periods.

5. CONCLUSIONS

We have developed and examined several measures of supervisory strictness. We find little evidence that bank supervisors were too strict with New England and California banks. To the contrary, by our measures, examiners treated New England and California banks less strictly in times of trouble than the average U.S. bank. Moreover, examiners treated the former banks less strictly than before their economic troubles and less strictly than oil-region banks that suffered similar economic difficulties. These measures, however, provide no evidence that any such leniency by examiners was intentional. Perhaps examiners were surprised by the severity of the New England and California problems, but were less surprised by the severity of problems in the oil region.

It is probably true that the large additions to reserves for loan losses made by banks in New England and California in the early 1990s may have diminished these banks' ability to lend. But our data indicates that those additional reserves at best only made up for an extended period when reserves were too low relative to expected loan losses. It seems unlikely, therefore, that *inappropriate* action by bank examiners exacerbated the effects of the 1990–91 recession in these regions.

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