

Banking Performance In Tenth District States

By William R. Keeton and Katherine M. Hecht

The year 1986 provided little relief for commercial banks in Tenth District states. The number of banks declined for the second year in a row and growth at remaining banks was slowed by weak credit demand and cautious lending policies. Not only did loan losses continue to climb during the year, but interest income fell more than interest expense, reducing bank profitability to less than a third of the previous peak. Capital-asset ratios remained relatively high, but only because slow asset growth helped make up for the failure of banks to reinvest earnings and raise new equity.

The decline in district banking performance in 1986 was not uniform. Although fewer in number, some banks continued to do very well. And significantly, the two groups of banks suffering the greatest deterioration in performance in recent years gave conflicting signals as 1986 progressed. At banks in energy-producing states, the steep decline in oil prices early in the year contributed

to mounting delinquencies, higher loan writeoffs, and sharply reduced earnings. Earnings of district agricultural banks also fell to new lows in 1986. However, at these banks, the stabilization of loan losses and the easing of delinquencies after midyear provided some indication that a turnaround might be near.

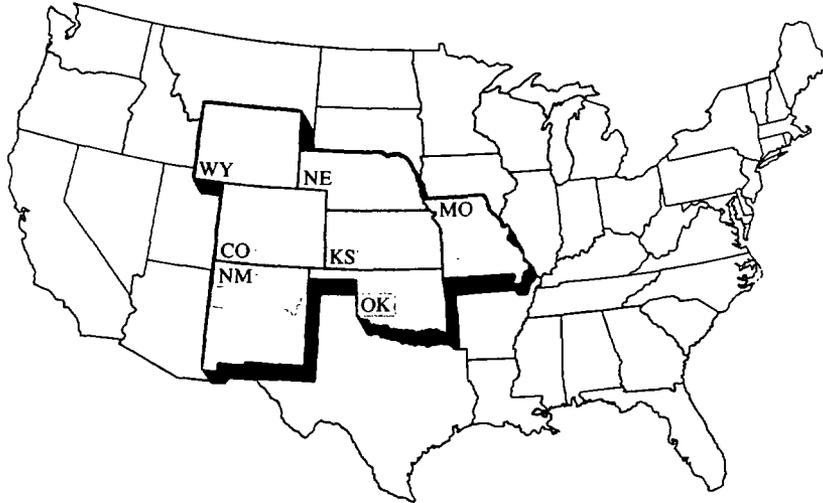
This article examines district banking performance in 1986, focusing on both the decline in overall performance and the divergence in performance among banks. The article first reviews two key aspects of performance, growth and profitability. Next, the article discusses the impact of net interest income and loan losses on profitability. The article then turns to another aspect of performance, the adequacy of banks' capital. The article concludes with a brief analysis of performance in each of the Tenth District states—Colorado, Kansas, Missouri, Nebraska, New Mexico, Oklahoma, and Wyoming (Figure 1).

Growth

One aspect of performance is growth, the increase in the amount of resources banks use and

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FIGURE 1
Tenth District states



Shaded area is Tenth District

the amount of services they provide. In the past, the banking industry has grown in two ways—through increases in the number of banks and increases in the size of banks.

Changes in number

Throughout the 1970s and early 1980s, the number of commercial banks in Tenth District states grew steadily, with bank openings exceeding bank closings. Over the last two years, the decline in the average profitability of district banks has helped reverse this trend, both by discouraging new bank formation and increasing the rate of bank failures.

The total number of commercial banks in Tenth District states declined in 1986 for the second year in a row. As shown in Table 1, only 18 new banks were started during the year, half as many as in

1985. Also, 69 banks failed or were closed voluntarily. Of the banks that failed, only 11 were succeeded by new banks formed to take over their deposits. The rest were either merged with existing banks or liquidated altogether. Finally, 76 open banks disappeared in 1986 through mergers with other banks. Although this number was even higher than in 1985, most of the mergers occurred in one state and most were with other banks in the same holding company. The net effect of the above changes was a reduction of 116 commercial banks in the district, almost twice the decline in 1985.

Changes in size

At those banks that remained in business, the slowdown in growth that began in 1985 continued into 1986. Assets grew 3.8 percent over the

TABLE 1
Changes in number of insured commercial banks, Tenth District states*

	<u>1984</u>	<u>1985</u>	<u>1986</u>
Banks established <i>de novo</i>	70	38	18
- Failed banks	23	63†	69‡
+ Banks established to succeed failed banks	16	22	11
- Open banks merged with other banks	32	56	76
= Net change in number of banks	+31	-59	-116

*Excludes the change due to banks switching from uninsured to insured status. Seventeen banks made this switch in 1984, seventeen in 1985, and five in 1986.

†Includes one bank that closed voluntarily

‡Includes five banks that closed voluntarily and three banks that converted to savings banks

course of 1986 after increasing 4.8 percent in 1985. And loans increased a mere 2.1 percent during the year, down from 2.8 percent in 1985.

The slow overall growth in loans and assets last year masked significant differences among banks. Table 2 compares the growth in assets and loans at banks in three size categories and at agricultural and nonagricultural banks within each size category. Each of the three size categories holds a third of total bank assets in the district. In 1986, small banks had assets of less than \$60 million, medium-size banks had assets between \$60 million and \$320 million, and large banks had assets of more than \$320 million.¹ Table 2 also shows how growth within the two smaller size groups

¹ Because inflation and economic growth tend to increase the assets of all banks, the two size thresholds have risen over time. In defining size groups, many studies of bank performance use the same dollar thresholds in early years as in later years. That approach can produce distortions over long periods, because the tendency for all banks to grow in dollar terms causes the small size group to shrink relative to the larger groups.

differed between agricultural banks and nonagricultural banks. Agricultural banks are defined as those with at least 25 percent of their loan portfolios in farm real estate or farm-operating loans. More than 90 percent of these banks were small in 1986 and the rest were medium size.

Table 2 confirms that growth rates in 1986 differed significantly both by size and type of bank. In 1986, large banks experienced the slowest asset growth of the three size groups but significantly faster loan growth. This experience was in marked contrast to 1985, when large banks enjoyed average growth in assets but slower-than-average growth in loans. Within the two smaller size groups, Table 2 also shows that agricultural banks continued to grow more slowly than nonagricultural banks. The difference in growth was especially sharp for loans. Although loan growth slowed at both types of banks, loans continued to increase moderately at nonagricultural banks in the small and medium-size groups while falling sharply at agricultural banks. The contraction of loans at agricultural banks came as no sur-

TABLE 2
Growth in total assets and loans,
commercial banks in Tenth District states*
(percent)

	Number of Banks, 1986	Growth in Assets		Growth in Loans	
		1985	1986	1985	1986
All banks	2,804	4.8	3.8	2.8	2.1
Small banks	2,287	5.3	4.6	2.9	-0.5
Agricultural	1,158	2.6	3.6	-3.1	-5.3
Nongricultural	1,129	7.9	5.4	7.9	2.9
Medium banks	474	4.0	4.5	4.2	0.5
Agricultural	73	2.0	3.2	-3.9	-5.1
Nongricultural	401	4.3	4.7	5.3	1.2
Large banks	43	4.9	2.4	1.4	6.2

*Growth from beginning to end of year at banks in operation the entire year

prise, reflecting continued weakness in farm borrowers' demand for credit and an increased desire on the part of banks to invest in safe assets.

Profitability

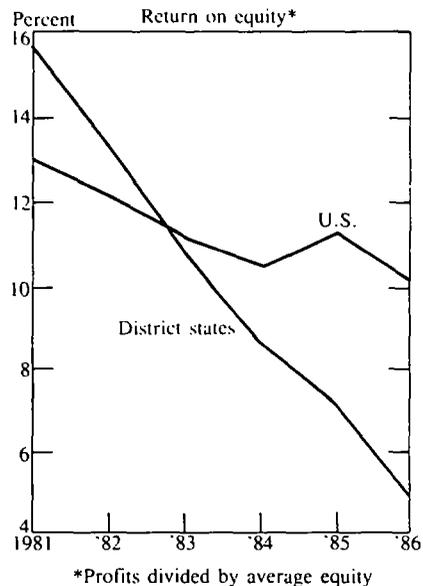
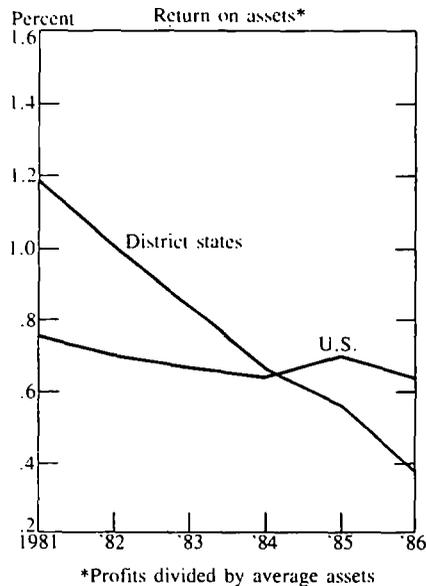
A second dimension of performance is profitability, the ability of banks to generate enough revenue to cover their costs and reward their shareholders. To compare profitability across time or across banks, profits must be deflated by some measure of bank size. Return on equity (ROE) deflates a bank's profits by its equity, the amount owners have invested in the bank through the purchase of stock or retention of earnings. Return on assets (ROA) deflates profits by total assets, including both financial and physical assets.

Measured by either ROE or ROA, the profitability of commercial banks in Tenth District

states fell sharply in 1986, the fifth decline in a row (Chart 1).² The decline in profitability left ROA at 0.37 percent in 1986, less than a third of the 1981 peak. Similarly, ROE ended up at 4.8 percent, down from 15.6 percent at the 1981 peak. As the chart shows, the decline in profitability last year was not confined to district banks. Profitability also declined at banks nationwide, wiping out the improvement of the previous year. As in the 1981-84 period, however, the decline was much smaller in the nation as a whole than in Tenth District states.

² All data in this article were taken from the Reports of Condition and Income filed by insured commercial banks. Balance sheet data for 1981 to 1983 were adjusted for mergers at the Board of Governors of the Federal Reserve System to ensure that the assets and liabilities of merging banks were combined as close as possible to the date they began reporting their income jointly. Data for 1984 to 1986 were adjusted the same way by the authors.

CHART 1
Profitability of commercial banks



In the last two years, figures on the average profitability of district banks have been influenced by the high rate of bank failures. Many banks that incurred heavy losses and depressed average profitability in 1985 were closed in 1986, removing their influence from the figures. Thus, among banks that remained in operation throughout 1985 and 1986, the decline in overall profitability was even greater than indicated in Chart 1. For example, the average ROA of banks open both years declined 31 basis points, 13 points more than the decline in the average ROA of all banks in the district.

Profitability by size and type

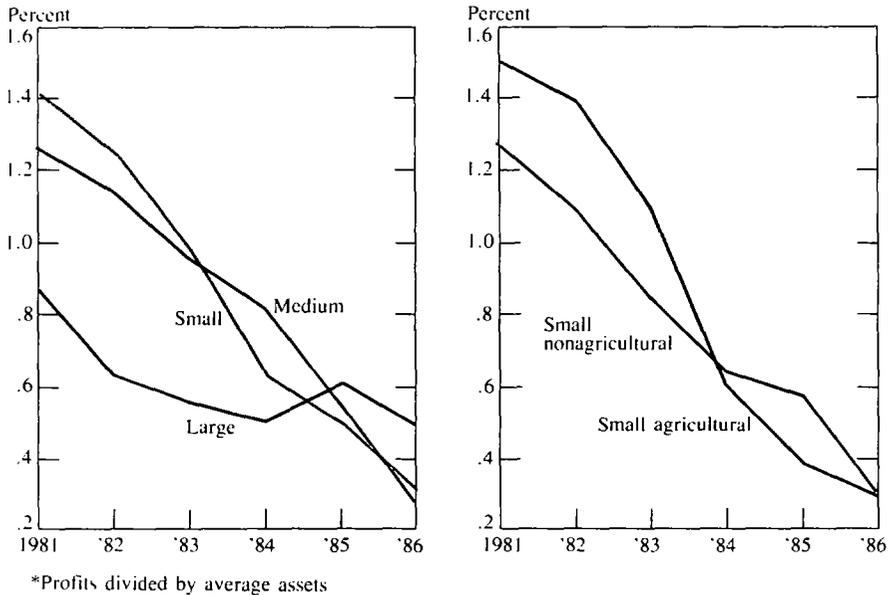
In 1986, earnings performance once again varied by size and type of bank. On average, declines in profitability were larger at medium-

size banks than at small and large banks. And for the first time in several years, profitability declined less at agricultural banks than at nonagricultural banks of similar size.

The left panel of Chart 2 shows how profitability has changed at the three size groups, as measured by ROA. Profitability fell at all three size groups in 1986. As in 1985, though, profitability fell most at medium-size banks, giving them the lowest ROA of the three size groups. At large banks, the decline in ROA in 1985 offset the rise in ROA the previous year. But because the decline was not as steep as at small and medium-size banks, large banks again earned the highest ROA of the three size groups.

In the district as a whole, profitability fell less at agricultural banks than at nonagricultural banks for the first time in four years. As noted earlier, most agricultural banks are small. The right panel

CHART 2
Return on assets at banks in Tenth District states*



of Chart 2 compares the recent earnings performance of small agricultural banks with that of small nonagricultural banks. Although the ROA of small agricultural banks continued to decline in 1986, it fell significantly less than the year before. At small nonagricultural banks, by contrast, ROA fell significantly more in 1986 than 1985. Within the medium-size group, changes in profitability were more similar, with ROA falling just as sharply at agricultural banks as at nonagricultural banks.

Although earnings performance varied by size and type of bank, there continued to be important differences within each of the categories. In 1986, 26 percent of agricultural banks suffered net losses, the same proportion as the year before. At the other end of the spectrum, though, 28 percent of agricultural banks earned more than 1 percent on their assets—fewer than the 37 percent

that earned such returns in 1985, but a significant number just the same. Similar differences in earnings performance existed among nonagricultural banks. Reflecting the steep decline in average profitability, the proportion of nonagricultural banks with net losses rose from 20 percent in 1985 to 25 percent in 1986. But 34 percent of nonagricultural banks still had ROA's greater than 1 percent in 1986, down from 43 percent the year before.

Determinants of profitability

The decline in average profitability in 1986 resulted from two factors, a decrease in net interest income and an increase in the provision of funds for loan writeoffs. Profits can be defined as net interest income and net gains from security sales minus loan loss provisions, net noninterest

TABLE 3
Income and expense of insured commercial banks
in Tenth District states*
 (percent)

	<u>1981</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Net interest income (NIM)†	4.70	4.30	4.37	4.12
+ Net security gains‡	-0.13	0.03	0.10	0.16
- Loan loss provisions	0.30	0.85	1.05	1.20
- Net noninterest expense	2.24	2.28	2.37	2.29
- Total taxes	0.86	0.54	0.49	0.43
Profits (ROA)	1.18	0.66	0.55	0.37

*All variables are expressed as a percentage of average annual assets net of loan loss reserves. Average annual assets are computed from beginning, middle, and end-of-year figures with weights of one-quarter, one-half, and one-quarter, respectively. Data for each year are for banks in operation the entire year.

†Interest income is calculated on a taxable-equivalent basis. That is, each bank's tax-exempt income from state and local securities is adjusted by its marginal tax rate.

‡Includes net gains on extraordinary items

expense, and taxes. Table 3 deflates each of these components by total assets for the years 1981 and 1984-86. As shown in the table, net interest income declined sharply relative to assets in 1986, after increasing moderately in 1985. Last year's decline left the net interest margin (NIM) of district banks at 4.12 percent, down almost 60 basis points from the 1981 peak. Reinforcing the deterioration in NIM in 1986 was another sizable increase in the ratio of loan loss provisions. This increase was the fifth in a row for district banks and lifted provisions to 1.20 percent of assets, four times the 1981 level.

The adverse effects of the decline in NIM and rise in loan loss provisions were partly offset by favorable changes in the other profit components. Net gains on security sales were even higher in 1986 than 1985 as banks took advantage of the decline in market rates and resulting appreciation in security values to boost their reported earn-

ings. Net noninterest expense fell just enough to make up for the previous year's rise, and taxes continued to decrease in line with banks' before-tax income. Despite these offsetting factors, though, ROA still declined sharply, from 0.55 percent in 1985 to 0.37 percent in 1986.

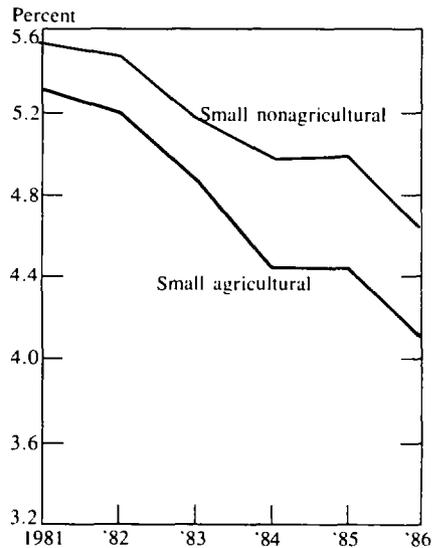
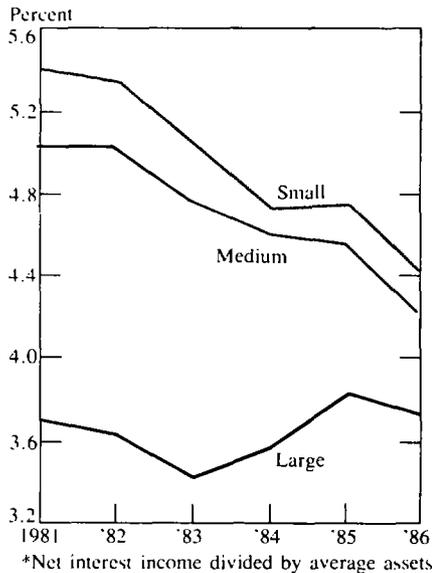
Net interest margin

The decline in net interest margin (NIM) in 1986 represented a sharp reversal from the previous year (Table 3). After improving seven basis points in 1985, the NIM of district banks shrank 25 basis points in 1986, reaching its lowest level in ten years.

NIM by size and type

Although NIM declined at all three size groups in 1986, the decline was significantly smaller at

CHART 3
Net interest margin at banks in Tenth District states*



large banks than at small and medium-size banks. As shown in the left panel of Chart 3, the NIM of small and medium-size banks fell more than 30 basis points in 1986, matching the steep declines of 1983 and 1984. At the region's large banks, by contrast, NIM fell less than ten basis points in 1986. The decline in NIM at large banks represented a marked turnaround from the improvement of the previous two years. Because the decline was relatively small, however, the gap between the NIM of large banks and the NIM of small and medium-size banks narrowed further during the year.

In 1986 as in 1985, NIM behaved very similarly at agricultural banks and nonagricultural banks of the same size. As shown in the right panel of Chart 3, NIM fell by equal amounts at small agricultural banks and small nonagricultural banks in 1986, after remaining virtually unchanged in

both groups in 1985. Within the medium-size group, NIM also behaved similarly at the two types of banks, falling sharply in both cases.

Determinants of NIM

Banks' interest income and interest expense can change either through shifts in the composition of their assets and liabilities or through changes in the rates of return on their assets and liabilities. Table 4 shows the contribution of such portfolio shifts and rate changes to the behavior of district banks' NIM since 1984. These estimates were obtained by splitting banks' assets and liabilities into broad categories. The impact of portfolio shifts between categories was estimated by calculating the amount by which interest income, interest expense, and NIM would have changed if the average rate of return earned or paid on

TABLE 4
Changes in interest income and expense
at banks in Tenth District states-
 (percentage-point change in ratio to average assets)

	<u>1984-85</u>	<u>1985-86</u>
Change in interest income ratio	-0.74	-1.14
Portfolio shifts	+0.01	-0.08
Rate changes	-0.75	-1.06
Change in interest expense ratio	-0.81	-0.90
Portfolio shifts	+0.10	+0.01
Rate changes	-0.91	-0.90
Change in NIM	+0.07	-0.25
Portfolio shifts	-0.09	-0.09
Rate changes	+0.16	-0.16
Memo:		
Change in 6-month Treasury bill rate	-2.14	-1.63

each category had remained constant. The rest of the change is the "rate effect," the part due to changes in the average rates of return on different categories.³

The NIM of district banks not only continued to be hurt by adverse portfolio shifts in 1986 but also suffered from a large adverse rate effect. Because deposit deregulation had come to an end, unfavorable shifts in the composition of funds at small and medium-size banks had much less effect on interest expense in 1986 than in 1985. However, these banks suffered an unusually large adverse shift in the composition of their assets in 1986—a shift away from loans toward lower

yielding money market assets. As a result, the total effect of adverse portfolio shifts on the average NIM of district banks was just as large in 1986 as 1985—nine basis points. More surprising than the shift out of loans was the failure of district banks to benefit from the continued decline in market rates. In sharp contrast to 1985, rates on assets tended to fall more than rates on liabilities in all three size groups, producing an adverse rate effect on NIM of 16 basis points.

Why did the decline in market rates reduce banks' interest income more than their interest expense in 1986, narrowing NIM? It is not surprising that the recent decline in rates had a less favorable effect on NIM in 1986 than in 1985, when the decline began. As a result of deposit deregulation, rates on liabilities now respond more quickly to changes in market rates than rates on assets. Thus, when market rates headed downward in 1985, much of the decline in interest expense came in that year while much of the

³ For a more detailed explanation of the decomposition, see William R. Keeton and Lyle Matsunaga, "Profits of Commercial Banks in Tenth District States," *Economic Review*, Federal Reserve Bank of Kansas City, June 1985.

decline in interest income was postponed to 1986. What is surprising is that interest income fell as steeply as it did in 1986, not only exceeding the fall in interest expense but wiping out the improvement in NIM the previous year.

Some observers have attributed recent declines in interest income to the increase in nonaccruing loans, loans on which borrowers are failing to meet interest payments. Although this factor may have been important at some banks, it appears to account for very little of the aggregate decline in interest income at district banks. The largest impact in 1986 was in the medium-size group, and in that group the increase in nonaccruing loans reduced NIM by only three basis points.⁴

Another possible explanation for the decline in interest income is that the sluggish regional economy reduced borrowers' demand for credit, forcing banks to reduce their loan rates more than they otherwise would. As shown in the left panel of Chart 4, however, the behavior of loan returns in 1984-86 was quite similar to the behavior of loan returns in 1981-83, a period when market rates also fell but the regional economy was stronger. Furthermore, if declining loan demand were primarily responsible for the fall in interest income, banks in areas with the greatest delinquencies or slowest loan growth should have suffered the steepest decline in loan returns, a correlation that failed to exist in 1985 and 1986.

The main reason interest income has fallen relatively steeply in the last two years is not that the regional economy has slowed, but rather, that

security returns are still showing the lagged effects of earlier declines in market rates. As shown in the right panel of Chart 4, the average return on securities fell significantly more from 1984 to 1986 than from 1981 to 1983, even though market rates fell less in the recent period. Because district banks hold roughly two-thirds of their security investments in long-term instruments, many of the securities maturing in 1985 and 1986 were securities purchased in the late 1970s and early 1980s when market rates were high. As banks rolled these securities over at lower rates, the average return fell. In 1982 and 1983, by contrast, banks were still enjoying the lagged effects of the earlier rise in market rates, rolling over securities at rates lower than at the 1981 peak but higher than when the securities were purchased.

Loan loss provisions

Relative to assets, loan loss provisions increased 15 basis points in 1986, slightly less than in 1985 (Table 3). As in past years, most of the increase in provisions in 1986 was to cover higher chargeoffs of bad loans. Only 15 percent of 1986 loss provisions represented net additions to banks' loan loss reserves.⁵

Provisions by size and type

Changes in loss provisions in 1986 differed significantly among the three size groups (Chart 5). The provisions of small banks declined slightly for the first time this decade. However, provisions continued to rise at medium-size banks and increased sharply at large banks after leveling off in 1985. As a result of these changes, the provi-

⁴ If a bank's accruing loans yielded 12 percent, a one percentage point increase in the proportion of nonaccruing loans would reduce the average return on loans by 12 basis points. However, because loans are about half of total assets at most banks, such a decline would reduce the ratio of interest income to assets by only six basis points. Furthermore, since assets are calculated net of loan loss reserves, the tendency for banks to increase their loss reserves in line with their nonaccruing loans works in an offsetting direction, raising the ratio of interest income to assets.

⁵ When banks write off bad loans, they charge their loan loss reserves, not their earnings. Writeoffs affect earnings only to the extent that banks provide enough funds for their reserves to make up for the chargeoffs.

CHART 4

Response of loan and security returns to market rates at banks in Tenth District states

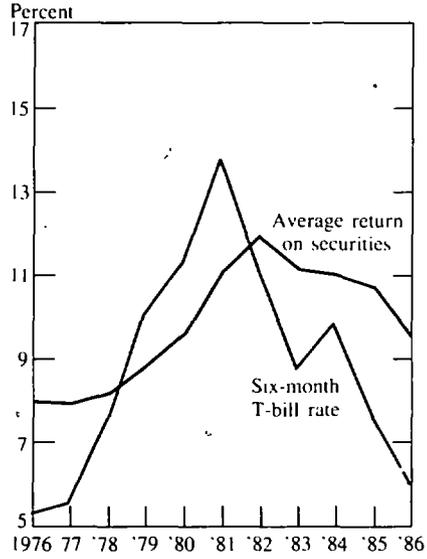
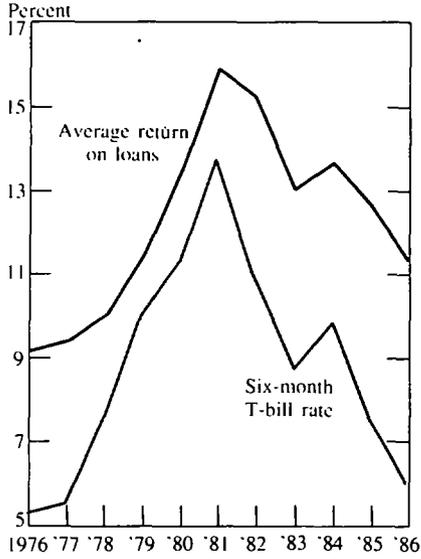
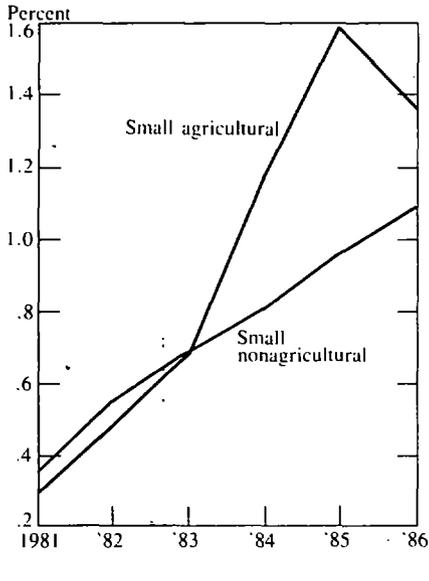
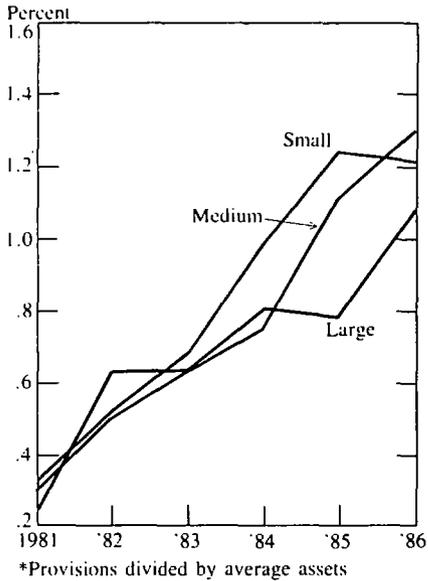


CHART 5

Loan loss provisions at banks in Tenth District states*



*Provisions divided by average assets

TABLE 5
Net chargeoffs by type of loan,
Tenth District states
 (percent of end-of-year loans)

	<u>1984</u>	<u>1985</u>	<u>1986</u>
Real estate loans	0.4	0.6	0.8
Consumer loans	0.7	1.0	1.4
Agricultural operating loans	2.3	4.3	4.2
C&I and all other loans	1.7	2.1	2.6
Total loans	1.2	1.7	1.9

sions of the three size groups converged in 1986, ranging from 1.1 percent of assets at large banks to 1.3 percent at medium-size banks.

As the right panel of Chart 5 makes clear, the small decline in loss provisions in the small size group was due entirely to a sharp decrease in provisions at small agricultural banks. While the provisions of small nonagricultural banks increased about the same amount in 1986 as 1985, the provisions of small agricultural banks fell for the first time since the slump in agriculture began. Despite the improvement, the provisions of small agricultural banks remained exceptionally high—1.4 percent of assets versus 1.1 percent for small nonagricultural banks. Within the medium-size group, the relative performance of agricultural banks was similar, with provisions failing to increase but still very high.

Does the decrease in loss provisions at district agricultural banks mean that recovery is underway? On the positive side, the decline in provisions in 1986 did not reflect a decision by agricultural banks to draw down their loan loss reserves; relative to assets, chargeoffs fell almost as much as provisions and reserves continued to grow. However, the decrease in the ratio of chargeoffs and provisions to assets resulted from a steep decline in the ratio of loans to assets, and not from a decrease in the proportion of loans

written off. Relative to end-of-year loans, the total chargeoffs of district agricultural banks remained unchanged at 3.0 percent. Thus, while loan losses clearly stabilized in 1986, it is too early to conclude that they have started downward.

Further insight into loan loss trends can be obtained from loss rates on different types of loans. Table 5 breaks down the net chargeoffs of district banks by major categories of loans for the years 1984-86.⁶ As would be expected from the stabilization of losses at agricultural banks, the chargeoff rate on agricultural operating loans was virtually unchanged in 1986 after almost doubling in 1985. The biggest increase in chargeoff rates in 1986 was in the category "commercial and industrial (C&I) and all other." The higher losses in this category probably reflect the worsening of the energy recession and further spillover of agriculture and energy problems to local businesses. The chargeoff rate on real estate loans remained the lowest of all, despite indications of mounting problems in commercial real estate.

⁶ At the end of 1986, real estate loans accounted for 35 percent of total loans, consumer loans for 19 percent, agricultural operating loans for 8 percent, and C&I and all other loans for 37 percent.

TABLE 6
Nonperforming loans by size and type of bank,
Tenth District states*
 (percent of total loans)

	<u>Dec.</u> <u>1985</u>	<u>June</u> <u>1986</u>	<u>Dec.</u> <u>1986</u>
All banks	3.7	4.4	4.4
Small banks	4.2	4.9	4.8
Agricultural	5.0	6.1	5.7
Nonagricultural	3.7	4.1	4.1
Medium banks	4.0	4.8	5.1
Agricultural	4.9	7.1	6.7
Nonagricultural	3.9	4.5	4.9
Large banks	3.0	3.6	3.3

*Nonperforming loans at banks in operation all of 1986. Includes renegotiated loans in compliance with modified terms.

Nonperforming loans

Future loan losses are closely related to the current level of nonperforming loans. These loans are loans that have not been written off but are at least 90 days overdue, nonaccruing, or renegotiated.⁷ Although some nonperforming loans may be fully repaid and others partly salvaged, banks with high levels of nonperforming loans today are likely to have high rates of loan losses in the future.

The proportion of nonperforming loans increased at all sizes and types of banks in 1986

but showed some sign of peaking at agricultural banks. As shown in Table 6, the average delinquency rate of district banks increased from 3.7 percent at the end of 1985 to 4.4 percent at the end of 1986, continuing the upward trend of the last several years. In contrast to 1984 and 1985, however, the percentage of nonperforming loans at the two sizes of agricultural banks fell significantly after midyear.⁸ Furthermore, though the proportion of nonperforming loans at agricultural banks was much higher at the end of the year than at the beginning, renegotiated debt accounted for

⁷ Banks are allowed to count as income any interest that is due but not received, provided the interest and principal are less than 90 days overdue or the loan is well secured and in process of collection. Nonaccruing loans are overdue loans that do not meet either of these conditions. Renegotiated loans are troubled loans with terms that have been eased to facilitate repayment by the borrower.

⁸ Since banks take most of their writeoffs late in the year, delinquencies usually increase less in the second half than the first half. What was different about 1986 was that the proportion of nonperforming loans at agricultural banks decreased in the second half instead of increasing at a slower rate. For similar evidence on the behavior of delinquencies at agricultural banks nationwide, see Emanuel Melichar, "Turning the Corner on Troubled Farm Debt," *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System, July 1987.

TABLE 7
Nonperforming loans by type of loan,
Tenth District states*
 (percent of total loans)

	<u>Dec.</u> <u>1985</u>	<u>June</u> <u>1986</u>	<u>Dec.</u> <u>1986</u>
Real estate loans	3.4	4.0	4.2
Consumer loans	1.1	1.2	1.4
Agricultural operating loans	6.9	8.2	7.4
C&I and all other loans	4.5	5.5	5.4
Total loans	3.7	4.4	4.4

*Nonperforming loans at banks in operation all of 1986. Includes renegotiated loans in compliance with modified terms.

almost all the increase at small agricultural banks and close to half the increase at medium-size agricultural banks—evidence that these banks were dealing constructively with their problem loans. Among nonagricultural banks, the biggest increase in nonperforming loans was at medium-size banks. Their delinquency rate rose throughout 1986, reaching 4.9 percent at yearend, less than the rates at the two sizes of agricultural banks but above the rates at other nonagricultural banks.

Signs of a possible turnaround in agricultural credit problems can also be found in the behavior of nonperforming loans by type of loan. As shown in Table 7, delinquency rates were higher at the end of the year in all major loan categories but declined in the second half of the year for agricultural operating loans. For the year as a whole, the largest increases in delinquency rates were for C&I and all other loans and real estate loans. However, agricultural operating loans continued to have the highest proportion of nonperforming loans, 7.4 percent.

The increase in the proportion of nonperforming real estate loans in 1986 raises an important question: will real estate chargeoffs remain low or will they begin to act as an additional drag on

banks' earnings. Although delinquency rates for different types of real estate loans are unavailable, these rates can be estimated by comparing delinquencies at banks with different lending specializations. As shown in Table 8, estimates derived in this manner confirm that the increase in real estate delinquencies in 1986 was due to the widely publicized problems of the commercial real estate sector.⁹ Over the course of the year, the estimated delinquency rate on residential real estate loans changed little and the rate on farm real estate loans fell. However, the delinquency rate on construction loans increased to 8.2 percent and the rate on nonresidential real estate loans rose to 4.3 percent. The high and rising delinquency rates on these two loan categories suggest that chargeoffs will increase unless the commercial real estate market rebounds.

⁹ At the end of 1986, residential real estate loans accounted for 46 percent of total real estate loans, nonresidential real estate loans for 30 percent, construction loans for 17 percent, and farm real estate loans for 7 percent. The estimates in Table 8 were obtained by regressing the total delinquency rate on real estate loans against the shares of real estate loans in the four subcategories, weighting each observation by the square root of the bank's total real estate loans.

TABLE 8
Nonperforming real estate loans,
Tenth District states*
 (percent of total loans)

	<u>Dec.</u> <u>1985</u>	<u>June</u> <u>1986</u>	<u>Dec.</u> <u>1986</u>
Residential real estate loans	1.8	1.5	1.7
Nonresidential real estate loans	2.8	4.3	4.3
Construction loans	5.6	7.1	8.2
Farm real estate loans	10.9	11.3	9.9
 Total real estate loans	 3.4	 4.0	 4.2

*Nonperforming loans at banks in operation all of 1986. Estimated for subcategories by regression analysis.

Capital

A final dimension of performance is capital, the cushion banks build up to protect themselves against unforeseen losses. Like profitability, a bank's capital can be measured in various ways. The measure used in this article is primary capital, the sum of equity capital and loan loss reserves.¹⁰

Despite the continued decline in earnings, district banks on average were able to maintain their capital-asset ratios in 1986. Primary capital edged downward from 8.4 percent of assets at the end of 1984 to 8.3 percent at the end of 1986, as a small increase in the ratio of loan loss reserves to assets made up for a small decrease in the ratio of equity to assets. Although the ratio of equity to assets declined only slightly during the year, this achievement continued to reflect slow asset growth. For the first time in many years, banks paid out more in dividends than they

earned, subtracting from their equity growth. As a result, equity increased less than 1 percent over the course of the year.

The stability in the average capital-asset ratio for district banks masked some divergence among size groups. While rising 35 basis points at large banks, the ratio of primary capital to assets declined 30 basis points at small banks and 25 basis points at medium-size banks. Despite the declines, though, capital-asset ratios remained relatively high, ranging from 7.4 percent at large banks to 9.9 percent at small agricultural banks.

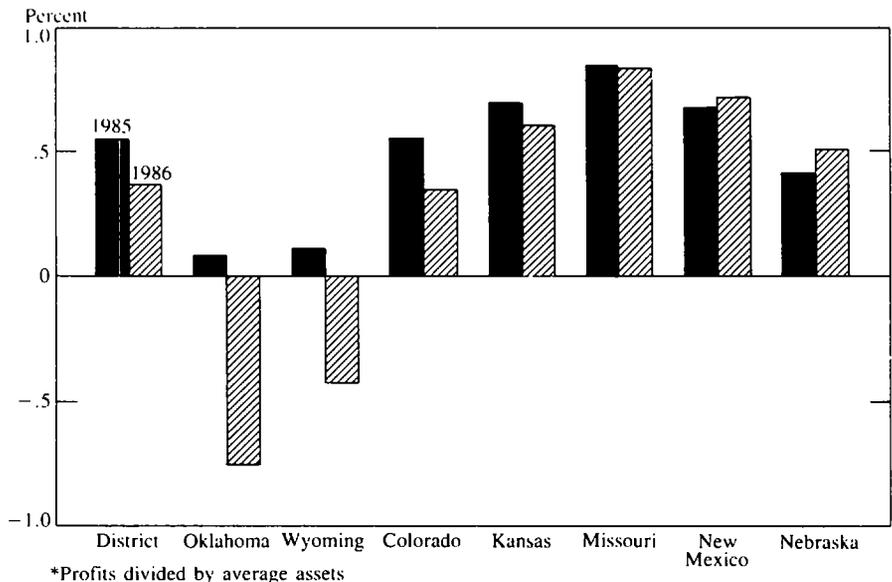
The adequacy of capital must be judged relative to the potential for future losses. As suggested earlier, a useful indicator of future loan losses is the level of nonperforming loans. At the end of 1986, 2,300 of the region's 2,800 banks still had more than twice as much primary capital as nonperforming loans. However, 165 banks ended the year with less primary capital than nonperforming loans, up from 116 at the end of 1985.

Performance by state

Not all states shared in the continued deterioration in banking performance in 1986. By most

¹⁰ In calculating primary capital to meet regulatory requirements, banks include minority interests in consolidated subsidiaries and mandatory convertible instruments and exclude intangible assets such as goodwill. These items are relatively unimportant at most district banks.

CHART 6
Return on assets at banks in Tenth District states*



measures, performance declined sharply in Oklahoma, Wyoming, and Colorado but only moderately or not at all in Kansas, Missouri, New Mexico, and Nebraska. This section briefly analyzes the banking performance of each state in order of the decline in ROA last year.

Oklahoma

The steep decline in energy prices in 1986 caused banking performance in Oklahoma to worsen significantly. Of Tenth District states, Oklahoma had by far the largest decline in ROA in 1986, 80 basis points (Chart 6). Sixteen of Oklahoma's 530 banks failed during the year and only two new banks were started.¹¹ At other Oklahoma banks, both assets and loans fell (Chart 7).

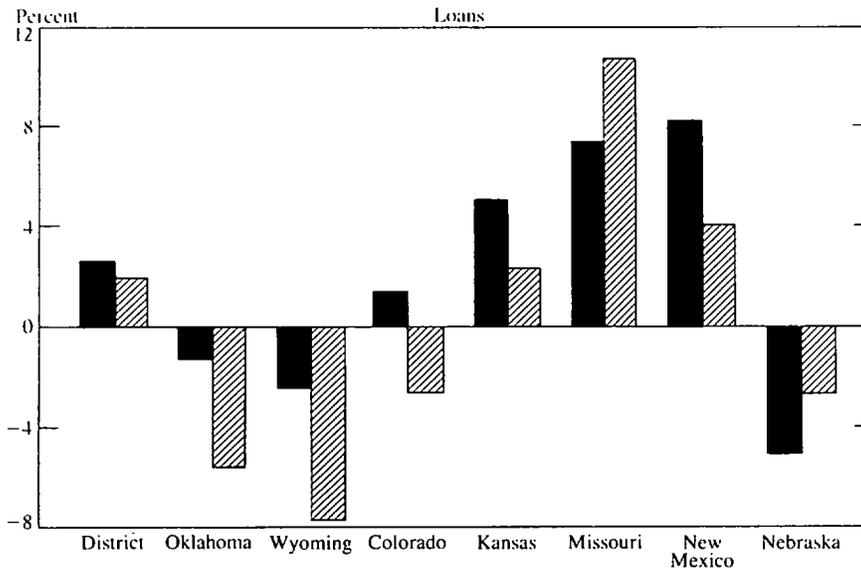
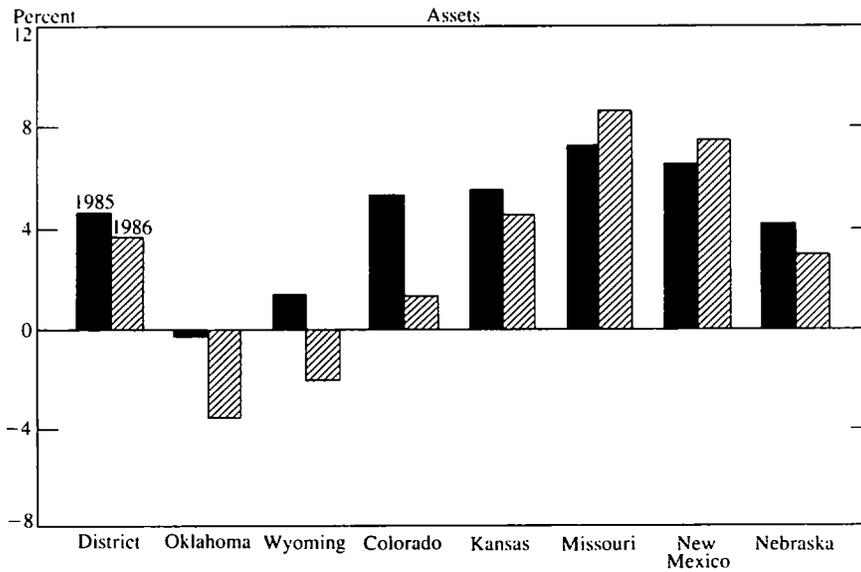
The sharp drop in profitability reduced average ROA to -0.7 percent and would have been even

greater were it not for the elimination of several banks that incurred heavy losses the year before. Although most banks in Oklahoma shared in the earnings decline, the greatest decrease occurred in the large size group. The net losses of banks in this group reached 1.8 percent of assets, while small banks almost broke even. Oklahoma's agricultural banks also suffered large declines in profitability in 1986. As a result, their ROA was only 0.1 percent, well below that of agricultural banks in most other states.

Although NIM declined significantly, the above-average decline in profitability at Oklahoma banks was due mainly to a sharp increase

¹¹ Throughout this section, the term "new banks" refers only to banks established *de novo* and not to banks formed to take over the deposits of failed banks.

CHART 7
Growth in bank assets and loans in Tenth District states



in loan loss provisions. Provisions reached 2.1 percent of assets in 1986, with the steepest increase occurring at large banks. In the two smaller size groups, loss provisions increased just as much at agricultural banks as at nonagricultural banks—in sharp contrast to the district as a whole, where provisions of agricultural banks fell.

At the end of 1986, 8.0 percent of loans at Oklahoma banks were nonperforming. The delinquency rate on agricultural operating loans was about the same as in the district as a whole. However, delinquency rates on real estate loans and C&I and all other loans were four percentage points higher.

Wyoming

Banks in Wyoming also suffered from the deepening recession in energy. ROA fell 50 basis points in 1986, giving Wyoming the second largest decline in profitability in the district (Chart 6). Seven of the state's 110 banks failed during the year and no new banks were started. At other banks, assets fell moderately and loans fell sharply (Chart 7).

Last year's decline in profitability left Wyoming banks with an average ROA of -0.4 percent, higher than in Oklahoma but much lower than in the district as a whole. No banks in Wyoming fell in the large size group in 1986. Medium-size banks suffered somewhat larger declines in profitability than small banks, further widening the gap between the two size groups. As in Oklahoma, agricultural banks also suffered steep declines in profitability. However, because these banks had been earning much higher profits than agricultural banks in the rest of the district, their ROA ended up at about the same level, 0.3 percent.

The main cause of the decline in ROA last year was a decrease of more than 40 basis points in NIM. Although interest expense fell about the same amount as elsewhere, interest income fell

more. Compared with other district banks, Wyoming banks not only experienced a larger shift in the composition of their assets away from loans, but also suffered a much larger decrease in the average return on their security holdings. Loan loss provisions also continued to increase. Although the increase was only slightly more than in the district as a whole, provisions reached 1.8 percent of assets in 1986, second only to Oklahoma.

Wyoming had the highest delinquency rate in the district at the end of 1986, with 9.5 percent of loans nonperforming. Delinquencies were a bit below average for agricultural operating loans but much higher than average for real estate loans and C&I and all other loans, especially the latter.

Colorado

Colorado is less dependent on the troubled energy industry than Oklahoma and Wyoming but is more dependent than other Tenth District states. Accordingly, it comes as no surprise that ROA fell just over 20 basis points in 1986, about the same as in the district as a whole (Chart 6). For the first time in recent memory, the number of banks failed to increase. Eleven new banks were opened during the year, but seven of the state's 460 banks failed and five closed their doors voluntarily. At other banks, assets grew slower than average for the district and loans fell (Chart 7).

As a result of the decline in profitability last year, Colorado banks earned only 0.35 percent on their assets. Profitability was virtually unchanged at the state's large banks but fell sharply at small and medium-size banks. At agricultural banks, the decline in profitability was about the same as in the rest of the district, leaving ROA at only 0.1 percent.

The reduction in profitability in 1986 was caused by a steep increase in loan loss provisions and an even sharper decline in net interest margins. Contributing to the decline in NIM was

a large shift in the composition of assets from loans to money market assets, especially at larger banks. Although all three size groups shared in the increase in provisions and decrease in NIM, the adverse effect of these changes on large banks was partly offset by a sharp decrease in net non-interest expense.

At the end of 1986, 5.2 percent of Colorado bank loans were nonperforming. This proportion was the third highest in the district, reflecting above-average delinquencies in all categories except consumer loans.

Kansas

Banking performance in Kansas remained above the average for the district, despite the high proportion of agricultural banks in the state. ROA declined less than ten basis points in 1986 (Chart 6). During the year, 14 of the state's 620 banks failed, almost as many as in Oklahoma. At those banks that remained open, both asset growth and loan growth slowed but were higher than in the district as a whole (Chart 7).

The moderate decline in profitability in 1986 left the state's ROA at 0.6 percent, significantly higher than the district average. Agricultural banks in Kansas suffered about the same decline in ROA as elsewhere, ending up with an ROA of 0.3 percent. Among nonagricultural banks, profitability declined significantly in the small size group but only slightly in the medium and large groups. All three sizes of nonagricultural banks continued to earn above-average profits. As in past years, though, large banks performed especially well. Their ROA was 1.2 percent in 1986, the highest in the district.

The reason ROA declined less in Kansas than in the district is that the state's nonagricultural banks suffered both a smaller increase in provisions and a smaller decrease in NIM. As elsewhere in the district, the largest increase in loan losses was at large banks, where provisions

reached 1.2 percent of assets. However, because their NIM remained very high, large banks were still able to earn significantly higher profits than small and medium-size banks.

Nonperforming loans were 3.6 percent of total loans at the end of 1986, a little below the average for the district. Delinquency rates on consumer loans and agricultural operating loans were about the same as elsewhere, but rates on real estate loans and C&I and all other loans were lower.

Missouri

Banking performance in Missouri remained highly stable. ROA was virtually unchanged in 1986 (Chart 6). Nine of the state's 670 banks failed, and four new banks were started. During the year, 56 banks disappeared through mergers, an even higher number than in 1985. As before, though, most of these banks were absorbed by banks operating in the same area and belonging to the same holding company. Both asset growth and loan growth accelerated in 1986, in sharp contrast to the district as a whole (Chart 7).

Missouri continued to have the highest ROA in the district, 0.8 percent. Agricultural banks suffered a relatively small decline in profitability that left their ROA at 0.4 percent, slightly higher than the district average. Among nonagricultural banks, earnings fell slightly in the medium-size group and were unchanged in the other two size groups.

Profitability failed to change because the decline in NIM was offset by decreases in loss provisions at small and medium-size banks and decreases in net noninterest expense at large banks. At agricultural banks, loan loss provisions fell sharply to 1.1 percent, well below the average for the district. And even though loan loss provisions increased at large banks, the total provisions of nonagricultural banks in the state were only 0.6 percent of assets, half the district average.

Missouri continued to have the lowest propor-

tion of nonperforming loans in the district, 2.2 percent. Although the delinquency rate on agricultural operating loans was higher than in the district as a whole, delinquency rates on other categories of loans were much lower.

New Mexico

Banking performance also changed little in New Mexico. Profitability was about the same in 1986 as in 1985 (Chart 6). Two of the state's 100 banks failed during the year. At other banks, assets grew rapidly and loans increased moderately (Chart 7).

The stability of profits in 1986 resulted partly from the elimination of the two failed banks, which incurred heavy losses in 1985. Even at other banks, though, declines in ROA were below average. Profitability declined least at the state's large banks, where ROA continued to exceed 1 percent. Small and medium-size banks earned 0.5 percent on their assets in 1986, down considerably from earlier peaks but still better than in the district as a whole.

Profitability declined only moderately at open banks because NIM fell less than average at small and medium-size banks and net noninterest expense declined more than average at large banks. Loss provisions rose in all three size groups, increasing almost as much in New Mexico as in the district. But at 0.9 percent of assets, total provisions remained less than in any other state except Missouri.

At the end of 1986, 3.9 percent of New Mexico bank loans were nonperforming. The delinquency rates on consumer loans and C&I and all other loans were the same as for the district, while rates on other categories were lower.

Nebraska

Banking performance improved in Nebraska but remained lower than in Kansas, Missouri, and New Mexico because of the higher proportion of

agricultural banks in the state. ROA increased just under ten basis points in 1986 (Chart 6). Six of the state's 450 banks failed, half as many as in 1985, and one new bank was started. At other banks, assets increased a bit less than in the district as a whole and loans continued to fall (Chart 7).

The small increase in profitability in 1986 reflected a stabilization of earnings at agricultural banks and a significant increase in profits at nonagricultural banks. At agricultural banks, ROA remained just over 0.3 percent, about the same as in the district as a whole. At nonagricultural banks, the increase in profitability offset more than half of the previous year's decline, leaving ROA at 0.7 percent.

The improvement in profitability resulted from a sharp decrease in loss provisions at agricultural banks and a sharp increase in security gains at nonagricultural banks. Although the NIM of agricultural banks fell almost as sharply in Nebraska as elsewhere, the effect on profits was offset by a steep decline in loan loss provisions that left provisions at about the same level as in the district as a whole. Nonagricultural banks not only were spared the increase in loss provisions and decreases in NIM that hurt nonagricultural banks in other states, but also realized large capital gains on security sales.

At the end of 1986, 4.1 percent of loans at Nebraska banks were nonperforming. Delinquency rates were below average on all loan categories. But because agricultural loans are much more important in Nebraska than the district as a whole, the total delinquency rate was almost as high.

Conclusions

The overall performance of banks in Tenth District states declined further in 1986. As in 1985, more banks were closed than were opened. At other banks, growth in assets remained slug-

gish and loans either declined or failed to keep pace with assets. Loan losses increased only slightly less in 1986 than in 1985. And net interest margins shrank during the year as banks shifted from loans to lower yielding assets and security returns showed the lagged effects of earlier declines in market rates. As a result of these developments, the average profitability of district banks fell for the fifth year in a row, leaving return on assets and return on equity at less than a third of their 1981 peaks. The capital-asset ratios of district banks slipped only slightly in 1986. However, this achievement resulted from increases in loss reserves and slow growth in assets. Because banks failed to reduce their dividends in line with their earnings, equity barely increased.

Performance continued to vary greatly across banks. Within each category of banks, some banks did poorly while others did very well. On average, agricultural banks and banks in energy-producing states continued to have the slowest growth, the highest loan losses, and the lowest profits. However, for agricultural banks the news

was not all bad. Their loan losses declined relative to their assets for the first time since the slump began. And even though more of their loans were delinquent at the end of the year than at the beginning, the proportion fell significantly after mid-year.

Although the regional economy is improving somewhat, the outlook for banking performance in 1987 is uncertain. The firming of oil prices in the first half of the year may slow the increase in losses on energy loans but is unlikely to produce a dramatic turnaround. And while the recent stabilization of farmland values may contribute to further declines in agricultural delinquencies, agricultural banks still have too many problem loans on their books for chargeoffs to come down quickly. Finally, though profits have so far been little affected by problems in commercial real estate, real estate delinquencies cannot continue increasing at last year's pace without banks eventually recognizing losses. In short, there are signs that the decline in district banking performance may be slowing to a halt. But to conclude that a recovery is underway would be premature.