

## Tenth District community banks: Who is at risk?

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Many note that financial and technological innovations and deregulation have robbed banks of their best customers and shrunk the special niche banks fill for borrowers and savers. Some comment that the industry suffers from overcapacity and that consolidation is inevitable.<sup>1</sup> Others forecast a dramatic fall in the number of banks, with larger banking organizations playing a dominant role. They see no room for "mom and pop shops", and label community banks as "dinosaurs whose time has passed."<sup>2</sup>

Although Tenth District banks may not be as pessimistic about the future as these forecasters, they are concerned about what tomorrow will bring. In the previous article, Catharine Lemieux reported that community banks surveyed by this Reserve Bank believe they will face strong competition from less regulated nonbank firms.<sup>3</sup> Many feel they operate at a disadvantage to these less regulated firms, making it more difficult for them to compete and survive in the years ahead.

In light of these concerns, this article reviews recent trends in community bank performance and attempts to identify emerging patterns. From these performance patterns, it assesses how community banks have done in recent years and attempts to identify who may be at risk as the future unfolds.

### Community bank performance

Tenth District banks typify the institutions that forecasters see losing out. At year-end 1993, there were 1,834 banks in the District. The smallest of these banks had total assets of \$1.7 million. The largest had \$7.2 billion in total assets.

Half of District banks had assets less than \$36 million; 95 percent had assets less than \$225 million. Depending upon the definition that is used, all but a handful of District banks could be viewed as community banks. They could be the banks some see disappearing from the economic landscape as evolution in our financial system continues. To determine if this might be the case, we examined recent performance trends to see if Tenth District banks are showing signs of weakness that might have future implications.

Any number of measures could be used to review Tenth District bank performance trends. For purposes here, bottom-line bank net income relative to average assets (ROAA) is used.<sup>4</sup>

The table provides recent ROAA information for large banks nationally (those with \$5 billion or more in total assets) and for Tenth District banks. In the table, nationwide large bank performance is the yardstick by which District bank performance is judged. Admittedly, this yardstick is an imperfect one, since it too may be changing in response to changes in our financial system. However, it does provide a basis for seeing how well Tenth District banks are doing relative to a peer group of larger banks, banks some observers believe may play a more important role in the future.

The table also includes ROAA data for different size categories of Tenth District banks. The size categories shown correspond to the asset size break-outs used in the Uniform Bank Performance Report (UBPR), a peer performance report issued by the Federal Financial Institutions Examination Council and provided

<sup>1</sup> For example, see Arthur Andersen and Bank Administration Institute, *Vision 2000: The Transformation of Banking* (1991), p. 9-10.

<sup>2</sup> Anat Bird, "Are Community Banks an Endangered Species?", *The Bankers Magazine*, November/December 1992, p. 77. Bill Atkinson, "93 Buyouts Thinned the Ranks of Small Banks to 60 Year Low," *American Banker*, March 21, 1994, p. 1.

<sup>3</sup> Catharine M. Lemieux, "Meeting The Challenges: Community Bankers' Views," as presented in this issue.

<sup>4</sup> Net income is net income from operations less taxes, adjusted for extraordinary items and securities gains/losses.

Table 1

## Return on average assets, large U.S. and Tenth District banks

Year	(1) U.S. banks with assets more than \$5 billion	(2) All Tenth District banks	(3) District banks with assets less than \$10 million	(4) District banks with assets from \$10 million to less than \$25 million	(5) District banks with assets from \$25 million to less than \$50 million	(6) District banks with assets from \$50 million to less than \$100 million	(7) District banks with assets from \$100 million to less than \$300 million	(8) District banks with assets more than \$300 million
1980	.57	1.17	1.54	1.54	1.54	1.44	1.18	.93
1981	.56	1.23	1.53	1.48	1.52	1.43	1.29	.94
1982	.51	1.03	1.25	1.29	1.36	1.38	.98	.65
1983	.46	.82	.83	1.04	1.03	1.04	.85	.65
1984	.44	.65	.53	.49	.69	.85	.51	.66
1985	.61	.45	.24	.30	.54	.45	.27	.46
1986	.60	.22	-.29	.05	.31	.25	-.01	.40
1987	-.40	.38	-.01	.34	.37	.36	.32	.47
1988	.91	.58	.41	.55	.70	.63	.66	.44
1989	.24	.81	.58	.80	.81	.85	.92	.67
1990	.36	.66	.61	.76	.79	.81	.73	.28
1991	.47	.86	.74	.93	.94	1.04	.88	.73
1992	.91	1.13	.81	1.11	1.21	1.26	1.15	1.08
1993	1.23	1.33	.79	1.14	1.25	1.31	1.30	1.46

quarterly to insured banks by their primary federal bank supervisor. Because new banks often exhibit unique operating characteristics that could disguise evolving performance trends, they are excluded from the size break-out data in the table.<sup>5</sup>

The period covered in the table starts in 1980. This coincides with the passage of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA). DIDMCA deregulated deposit interest rates and increased deposit competition. Because of this, 1980 represents a logical starting point for the analysis. The study period ends in 1993, the latest year end for which data are available. Overall, the period covered should be long enough to identify any evolving trends in District bank performance.

Table data indicate Tenth District banks have generally outperformed large banks nationally. With the exception of poor performance toward the middle of the 1980s, when District banks were buffeted by troubles in the farm and energy sectors, their average ROAA has remained consistently above that for large banks nationwide. Although the performance gap seems to have narrowed in more recent years, this appears to be due more to strong performance at large banks rather than profit deterioration at District banks. Thus, as a group, District banks continue to do well and their future seems to be no less bright than larger banks in the industry.

While District banks have on average done well, not all banks have performed equally

<sup>5</sup> For purposes here, new banks are those that have been in operation five or fewer years.

well. When District data are disaggregated by size, some performance differences exist. The most obvious difference seems to exist between banks with assets less than \$10 million (Column 3 in the table) and larger banks (Columns 4 through 8). Additionally, in more recent years, it appears performance at banks in the next largest size category (Column 4) may be lagging as well. Thus, it appears that many of the District's smaller banks are showing signs of growing performance weakness.

Arguably, these performance differences may be due to factors other than size. For example, smaller banks' poorer performance over time may be the product of location, loan orientation, or a host of other factors rather than an inherent disadvantage related to their size. To account for this possibility, a simple model was constructed to disentangle size effects from other factors in explaining performance differences among banks.<sup>6</sup> In summary terms, the model hypothesizes that ROAA differences among banks can be explained by such things as their loan orientation, location, ownership structure, and size. The results obtained from the model indicate each of these factors is useful in explaining ROAA differences. However, size, even after taking into account other factors, continues to play a significant role in explaining performance differences among banks. Moreover, the effect of size on performance is growing, especially for the District's smallest banks, and has done so during a period of recovery and prosperity for banking. Thus, model results tend to confirm performance patterns shown in the table: the performance of the District's smaller banks is falling behind that of larger banks.

#### **Possible reasons for lagging performance at smaller banks**

What might account for lagging performance at smaller banks? Studies that have looked at the relationship between bank

size and performance note there may be economies of scale in banking, meaning larger banks may have some cost advantage over smaller banks. Although the asset size necessary to capture these economies is thought to be relatively small, the District's smaller banks fall well below this minimum size. As a result, they may operate at a cost disadvantage to larger District banks. This may help explain their lower ROAA performance. However, it does not explain why smaller banks became progressively less profitable than larger banks.

A partial explanation for the growing performance disparity may be asset growth differences between smaller and larger banks. Approximately half of the District's smaller banks in operation at year-end 1993 had been in business for more than 80 years. Despite many years of operation, their total assets remained below \$25 million. These banks are small because they serve small communities, and they stay small because the communities they serve often experience little or no real economic growth. As a result, asset growth at many smaller banks has not matched that for the industry or kept pace with the rate of inflation.<sup>7</sup> This lack of growth may have made it more difficult for them to remain efficient providers of financial services. Furthermore, it may have made it harder for them to absorb higher operating costs resulting from such things as general price increases and greater regulatory compliance costs.

With respect to efficiency, smaller banks may be becoming less competitive as assets needed to achieve scale economies increase over time. For example, in the early 1980s, the minimum size thought necessary to capture most economies was less than \$50 million, perhaps in the area of \$10 to \$25 million in deposits.<sup>8</sup> By the early 1990s, this minimum figure was thought to be somewhere between \$100 and \$200 million in deposits.<sup>9</sup> Thus, the increase in the minimum size necessary to achieve scale economies

<sup>6</sup> The model is explained more fully in the Appendix.

<sup>7</sup> Assets at the average small bank grew by 75 percent during the study period. Average growth for all Tenth District banks was 120 percent. Prices rose by 74 percent.

<sup>8</sup> George J. Benston, Gerald A. Hanweck, and David B. Humphrey. "Scale Economies in Banking: A Restructuring and Reassessment," *Journal of Money, Credit, and Banking*, Vol. 14, No. 4, Pt. 1, November 1982, pp. 435, 452.

<sup>9</sup> Douglas D. Evanoff and Philip R. Israllevich. "Productive Efficiency in Banking." *Economic Perspectives*, Federal Reserve Bank of Chicago, July/August 1991, p. 23.

<sup>10</sup> Lending margin is defined as net interest income to average assets. Net interest income is the difference between a bank's interest income and its interest expense.

<sup>11</sup> Net overhead expense is defined as noninterest expense less noninterest income divided by average assets.

<sup>12</sup> David B. Humphrey, "Why Do Estimates of Bank Scale Economies Differ?" *Economic Review*, Federal Reserve Bank of Richmond, September/October 1990, p. 47. Allen N. Berger and David B. Humphrey, "The Dominance of Inefficiencies Over Scale and Product Mix Economies," *Journal of Monetary Economics*, Volume 28, No. 1., August 1991, p. 118. Also, Allen N. Berger, Diana Hancock, and David B. Humphrey, "Bank Efficiency From the Profit Function", *Journal of Banking and Finance*, Vol. 17, Nos. 2-3, April 1993, p. 338. Loretta J. Mester, "How Efficient Are Third District Banks?," *Business Review*, Federal Reserve Bank of Philadelphia, pp. 14, 17.

<sup>13</sup> Half of the 290 towns where minimum growth banks operate had populations of less than 700. Three-quarters of these towns had populations of 1400 or less.

may help explain lagging performance at smaller banks.

Besides these efficiency matters, growth has other ramifications for profitability at smaller banks. Limited asset growth, when coupled with price pressure from an increasingly competitive environment, places a ceiling on revenue growth. During a period of rising operating costs, this ceiling makes it harder for banks with limited growth opportunities to absorb increased costs and maintain profits. For example, 45 percent (295 of 650) of banks in the two smallest asset size categories at year-end 1993, started and stayed in the same category over the study period. Assets at these "minimum growth" banks increased by 51 percent between 1980 and 1993, while the average District bank more than doubled in size over the period. Lending margins at "minimum growth" banks shrank by 18 percent while Districtwide lending margins remained largely unchanged.<sup>10</sup> At the same time, net overhead expenses at "minimum growth" banks grew by 5 percent while Districtwide they fell 3 percent.<sup>11</sup> The combination of slow growth, falling margins, and rising operating costs may have increased profit pressures at many smaller banks, helping to explain the growing disparity between their performance and that of larger banks.

In summary, smaller District banks are less profitable than larger banks and this profitability difference has grown over time. Many smaller District banks serve small markets with little or no growth. This may make it increasingly difficult for them to capture economies available to larger, faster growing banks and to absorb increased operating costs. Thus, limited growth opportunities and the inability to expand assets under management may be putting smaller District banks at an increasing performance disadvantage to larger banks.

### **Implications for smaller banks**

Does this mean smaller District banks will be driven from the marketplace? Not necessarily. Strong management and prudent growth may help many of them regain lost ground and remain effective competitors.

Studies suggest efficiently managed smaller banks may be able to effectively compete against larger banks. These studies indicate that managerial efficiencies may dominate scale economies in banking.<sup>12</sup> They note costs vary more among banks of the same size than banks of different sizes, and that these differences may be attributed to differences in operating efficiency. As a consequence, a well-run smaller bank may be able to successfully compete against a more inefficiently managed larger bank. Thus, strong management may help smaller District banks overcome other size-related disadvantages, permitting them to remain effective competitors.

However, even with concerted management effort, "minimum growth" banks may still be at risk. More than 70 percent of these banks operate in towns that lost population between 1980 and 1990 and the customer base for many of them is shrinking.<sup>13</sup> Because of this, managers of "minimum growth" banks may face greater challenges than those at other small banks. These managers will be under greater pressure to run their banks efficiently, to establish new revenue sources to offset leaner lending margins, and to increase assets under management. Rather than meet these challenges, some may opt to sell their banks. Evidence of this is found in the community bank survey done by this Reserve Bank. An analysis of survey responses indicates that managers at smaller banks, those with assets of \$25 million or less, were more likely to have plans to sell their banks than those at

larger community banks.<sup>14</sup> Thus, the number of smaller District banks, especially "minimum growth" banks, may decline.

### Conclusion

Most Tenth District banks continue to perform well relative to the industry and show few, if any, signs of weakness. Despite this overall positive outlook, some community banks seem to be losing ground. ROAA performance at District banks with assets less than \$25 million lags that of larger District banks, and this performance disparity seems to be growing. As a result, the future for smaller District banks seems less certain. At particular risk in this group of banks are smaller banks located in places with limited growth opportunities. These banks may be too small to achieve economies of scale and their inability to grow may be causing them to become less cost competitive over time. Furthermore, their slow growth, coupled with pressure on their lending margins, may make it increasingly difficult for them to absorb rising operating costs. As a result, the future for these smaller banks may not be particularly bright—certainly not as promising as it was prior to the 1980s. Managers at these banks may have to take a proactive approach to meeting the challenges of the marketplace, improving efficiency, seeking new revenue sources, and increasing assets under management, if their banks are to remain viable competitors.

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<sup>14</sup> A chi-square test was used to analyze the relationship between bank size and community bank survey responses pertaining to new ownership. Smaller banks were more likely to be sellers. Larger banks were more likely to be buyers. These results were significant at a 1 percent level.

### Appendix: Evidence on Tenth District Community Bank Performance

Bank profits can be affected by a wide variety of factors. Often, this makes it difficult to identify how individual factors may influence performance. One way to overcome this obstacle is to use a model of bank profit performance and to statistically isolate factors that might explain performance differences among banks. In the study, a simple model was developed to analyze ROAA performance at Tenth District banks. In the model, it was assumed that community bank ROAA depends on the bank's size, loan orientation, location, and ownership structure. In equation form,

$$ROAA_t = \varphi (S_t, L_t, O_t, E_t)$$

where:

$ROAA_t$	is return on average assets
$S_t$	is one of six asset size categories
$L_t$	is bank location—rural or urban
$O_t$	is bank ownership structure—individuals, multibank, or one bank holding company
$E_t$	is bank loan emphasis—agriculture, business, consumer, or real estate

$ROAA_t$  in the model, is defined as the bank's net income after taxes, extraordinary items, and other gains and losses divided by its average assets.

$S_t$  represents one of six asset size categories to which the bank can be assigned based on its year-end assets—\$10 million or less, \$10 million to less than \$25 million, \$25 million to less than \$50 million, \$50 million to less than \$100 million, \$100 million to less than \$300 million, and \$300 million or more.<sup>1</sup> It is included in the equation to pick up size effects on bottom-line performance.

$L_t$  represents the location of the bank's home office—urban (MSA) or rural (Non-MSA).<sup>2</sup> It is included to pick up any difference in the competitive and economic environment between urban and rural locations.

$O_t$  represents the bank's ownership—individual or corporate (multibank or one bank holding companies)—and is included to capture the effects of ownership structure on bank performance.

$E_t$  represents the bank's loan orientation and is determined by the bank's largest loan category—agriculture, business, consumer, or real estate. It is included to pick up any effects loan emphasis may have on performance.

The model was estimated using ordinary least squares regression analysis. Separate analyses were done for 1980 to 1981, a peak in District bank performance; 1982 through 1986, a period of extremely poor District bank performance; and 1987 through 1993, a period of recovery and good District bank

<sup>1</sup> The size categories correspond to the asset size break-outs used in the Uniform Bank Performance Report (UBPR), a peer performance report issued by the Federal Financial Institutions Examination Council and provided quarterly to insured banks by their primary federal bank supervisor.

<sup>2</sup> MSA stands for Metropolitan Statistical Area, a designation given to a central city and its surrounding counties by the Department of Commerce.

### Appendix: Evidence on Tenth District Community Bank Performance, continued

performance. Data needed to derive the estimates were taken from individual Reports of Condition and Income filed by banks with their federal banking supervisor.<sup>3</sup> The results of the statistical estimation are shown in the Table.

In the equations, the constant term represents the average performance for mid-sized banks (\$25 to \$50 million in total assets), located in urban areas, owned by individuals, and specializing in real estate lending (bench-mark banks). The coefficients indicate how, on the average, the performance of banks with other characteristics compare to the bench-mark banks. The highlighted coefficients are significantly different than zero at the 5 percent level, meaning the factor is important in explaining profitability differences among Tenth District community banks. The "F" statistic at the bottom of the table is a measure of the overall power of the equations in explaining profit differences. The "R<sup>2</sup>" value indicates the proportion of total profit variation among banks explained by the equations. Although the "F" statistic indicates the equations have some power in explaining profit differences, the R<sup>2</sup> value indicates they explain only a tiny fraction of those differences, less than one percent for the second period and around 4 percent for the first and third periods. Thus, there are many other factors, besides those included in the model, that could explain profitability differences among banks.

Of importance for this study, are the coefficients on the asset size variables. In the earliest period, larger banks, (those with assets of \$100 million or more) were on the average less profitable than the bench-mark banks. During the 1982 to 1986 period, banks in the two smallest asset size categories and those with assets of \$100 million but less than \$300 million were on the average less profitable than bench-mark banks. In the last period, banks in the two smallest asset size categories continued to be less profitable than bench-mark banks and the increase in the coefficients for these bank size categories indicate that profitability differences with bench-mark banks were growing. For example, during the 1982 to 1986 period—a time of extreme financial stress for Tenth District banks, ROAA at banks with \$10 million or less in assets was on the average 12 basis points less than for bench-mark banks. Over the 1987 to 1993 period, a time of recovery and strong bank performance, their average profitability was almost 40 basis points less. A similar pattern of weakening performance existed for banks with assets of \$10 million but less than \$25 million; the decline in relative profitability was not as severe. From these results, it appears that the District's smaller banks, especially those with asset of less than \$10 million, may be at a relative profit disadvantage to larger banks and this disadvantage may be increasing.

<sup>3</sup> Data for  $S_{it}$ ,  $O_{it}$  and  $E_{it}$  were lagged one period to ensure they were not being affected by current period profitability.

## Appendix Table

Variable	Period 1980-1981		Period 1982-1986		Period 1987-1993	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
<b>Lender type</b>						
Constant	1.3356	31.225	.9286	17.415	.9349	30.093
Agriculture	.2243	5.937	-.0666	-1.479	.1471	6.078
Business	.0589	1.334	-.2604	-5.611	-.4034	-12.107
Consumer	.0127	.313	.0413	.767	-.0230	-.626
Real Estate	(Omitted from the regression equations)					
<b>Asset size (\$millions)</b>						
\$10 or less	-.0102	-.289	-.1190	-2.628	-.3991	-12.337
\$10 to \$25	-.0255	-.763	-.1220	-3.103	-.1479	-5.953
\$25 to \$50	(Omitted from the regression equations)					
\$50 to \$100	-.0339	.735	.0314	.642	.0350	1.207
\$100 to \$300	-.1883	-2.714	-.2606	-3.818	.0506	1.321
\$300 or more	-.4074	-3.592	-.1105	-.0880	.0801	1.190
<b>Location</b>						
Urban	-.0637	-2.067	.0723	1.921	-.2656	-11.139
Rural	(Omitted from the regression equations)					
<b>Ownership structure</b>						
One-bank	.1113	4.347	-.1639	-4.882	.0193	.882
Multibank	.0137	.345	-.1761	-3.728	.0537	1.871
Individual	(Omitted from the regression equations)					
<i>F</i>	15.32		9.803		58.384	
<i>R</i> <sup>2</sup>	.036		.009		.044	