

# ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

## Have the Characteristics of High-Earning Banks Changed? Evidence from Ohio

by Paul R. Watro

Many factors affect bank earnings, including the overall quality of management, risk preferences, economic and competitive conditions, revenues, cost controls, and luck. The relative importance of these factors is important not only to bank managers and investors, but also to regulators, who are concerned about banks' financial condition.

Bank regulators and others have been increasingly concerned with the presumably greater risk-taking by lenders, declining earnings, and a continued rise in bank failures in this decade.<sup>1</sup> During the 1980s, banks have been charging off loans at about twice the rate that was experienced in the 1970s. Banks' return on assets and equity has also fallen significantly, and the number of bank failures has jumped from a yearly average of less than 10 during the 1970s to 100-200 per year over the last four years.

While financial distress in banking has been attributed mostly to recessions in the agriculture and energy industries and to the international debt problem in the early 1980s, studies have generally concluded that management is the key element between the ultimate success or failure of banks.<sup>2</sup>

Numerous studies have examined bank earnings to isolate factors that account for differences in banks' financial condition. The general approach of these studies has been to examine a range of bank operating ratios and to identify the ones that could best explain earnings differences among banks in a given year or time period. Researchers generally conclude that management's control over expenses, particularly noninterest expense ratios, has been the most important determinant of bank profitability.

Although this evidence is fairly consistent and strong, the majority of the previous studies either were conducted prior to deregulation or used data collected when regulatory and legislative constraints were more restrictive with regard to bank location, products, and prices.

This *Economic Commentary* identifies the characteristics of high-earning banks in Ohio before and after deregulation, showing that they have changed because of differences in the banking environment. It also finds a greater disparity between the best- and worst-performing banks, with the high-earning institutions generating higher returns than they did prior to deregulation.

**Regulatory and technological changes in the banking industry have had a pronounced effect on bank operations in the last decade. By analyzing the average return on assets for both high- and low-earning banks in Ohio over five-year periods in the mid-1970s and mid-1980s, the author finds that the top-performing financial institutions earned higher returns after deregulation, while the earnings of poorly managed banks deteriorated.**

### ■ Sample and Analysis

We limit the analysis to banks in one state to control for branching laws, ownership constraints, and regional economic conditions. Ohio is a good state to examine for several reasons. Its banks have not generally been involved in a large amount of energy, agriculture, and international lending, so bank earnings have not been significantly affected by the boom-and-bust cycles that occurred in these sectors. Also, Ohio branching laws were liberated in 1979, and interstate bank acquisitions were authorized in 1983.

These major reductions in locational constraints, coupled with interest-rate deregulation, afforded bank management new opportunities to achieve superior performance. In addition, bank operations and earnings may have been affected significantly by the expanded powers of the savings and loan (thrift) industry since the early 1980s, particularly since these institutions have a sizable presence in Ohio. Thus, it is reasonable to expect that differences in the characteristics of Ohio bank earnings between the mid-1970s and mid-1980s can be largely attributed to regulatory and technological changes.

Earnings were measured by the average return on assets for all Ohio banks that operated continuously over either the 1973-1977 or the 1983-1987 period. Earnings over each of the five-year periods were used to reduce the variation due to chance. Banks that ranked in the top 20 percent were classified as high earners; those in the bottom 20 percent were designated as low earners. Each group contained 94 banks in the prederegulation period, but only 56 banks in the postderegulation period. The substantial drop in this sample reflects the continued consolidation in the Ohio banking industry through mergers.

Data were collected on institutional size, ownership, branches, growth, asset holdings, loan quality and composition, deposit structure, revenues, and expenses. Additional data were gathered on local competitive and economic conditions,

such as market concentration, the share of deposits held by thrift institutions in the market, and personal income growth in the market.<sup>3</sup> Each of these factors may influence bank earnings, although only some of them are under the direct control of bank management. For each of the variables, we calculated mean values for the high and low earners for both periods. Using a standard statistical test, we determined if the means were different between the two bank groups in either period.

### ■ Findings

Results are presented in tables 1 through 4. Table 1 gives the mean values and differences for the high- and low-earning banks during the pre- and postderegulatory period. As expected, we found large differences, which varied considerably over time. Caution should be exercised in applying these findings to banking in general, however, since results are based on data from only one state and on a single cross-section study.

In the last five years, banks have been earning about the same returns on assets, but have been earning lower returns on equity than they did in the 1973-1977 period, as shown in table 1. In addition, the variability in bank earnings, as indicated by the standard deviation for the return on assets and equity, has increased significantly, suggesting that banking is generally more risky today than in the past.

In the postderegulatory period, the worst-performing banks experienced much lower and more volatile earnings. However, the high-earning banks apparently were quite successful in capitalizing on the opportunities that arose from a less-regulated banking environment. The high earners generated a 1.62 percent return on their assets over the last five years, compared to 1.46 percent over the 1973-77 period. Also, these banks did not experience a significant rise in earnings volatility, as the low-earning banks did in recent years. Moreover, higher earnings by the most profitable banks did not appear to result from using greater financial lever-

age, because the capital positions of these banks also improved substantially.

### ■ Size, Ownership, and Concentration

Before deregulation, there were significant differences in size, ownership, and market concentration between the high and low earners (table 2). High-earning banks were smaller, were more likely to be independent, and were headquartered in more concentrated banking markets. After deregulation, however, these factors were not statistically associated with bank earnings.

Even when thrift institutions are taken into account, the local structure of banking markets may no longer accurately reflect the competitive conditions for banking services in an area.<sup>4</sup> The threat of entry by financial institutions outside the market may act as an effective disciplinary force and exert downward pressure on earnings. Alternatively, bank customers may no longer be limited by geographical area, which would force local institutions to react to price and service changes from outside suppliers.

The effect of institutional size and ownership on bank earnings has underlying implications for the future banking structure. Given the wave of technological changes, deposit-rate competition, and widespread movement toward eliminating geographic banking barriers, the survival of small and independently owned banks has been in question for many years. Although we still find some of these banks outperforming larger banks belonging to bank holding companies, the probability of being a high-earning bank is no longer greater for small or independent banks in the less regulatory and more competitive environment.

What seems to be important from an institutional standpoint is now office size. In order to compete aggressively on a price basis, banks have been forced to reduce overhead costs to offset the higher explicit rates being paid on deposits. The high-earning banks had deposits of \$19.6 million per

TABLE 1 EARNINGS AND CAPITAL OF OHIO BANKS

	1973-1977			1983-1987		
	All Banks	High Earners	Low Earners	All Banks	High Earners	Low Earners
<b>Earnings</b>						
Percent return on assets	0.99 (0.35)	1.46 (0.24)	0.52 (0.25)	0.98 (0.56)	1.62 (0.27)	0.21 (0.64)
Percent return on equity	12.1 (3.51)	15.0 (2.26)	7.6 (3.74)	10.9 (6.60)	14.8 (3.33)	2.4 (9.57)
<b>Capital</b>						
Equity as a percent of assets	8.2 (2.12)	10.0 (1.89)	7.2 (1.54)	8.8 (2.70)	11.6 (3.71)	7.4 (1.64)

NOTE: A t-test indicated that the differences in the mean values for high- and low-earning banks were statistically different from zero at the 1 percent level in each period. Standard deviations are in parentheses.

SOURCE: Federal Financial Institutions Examination Council's Reports of Income and Condition for Banks.

TABLE 2 INSTITUTIONAL AND MARKET FACTORS

	1973-1977		1983-1987	
	High Earners	Low Earners	High Earners	Low Earners
<b>Institutional factors</b>				
Deposit size (\$ mil)	39.1 <sup>a</sup>	86.5	203.9	136.3
Asset growth over period (%)	64.6	64.8	66.0	56.5
Number of offices	2.8 <sup>b</sup>	5.4	6.5	6.9
Average office size (\$ mil)	9.8	9.2	19.6 <sup>b</sup>	13.6
Unit bank (%)	42.6 <sup>b</sup>	23.4	42.9 <sup>b</sup>	25.0
Bank holding company subsidiary (%)	19.1 <sup>b</sup>	44.7	42.9	37.5
Multibank holding company subsidiary (%)	12.8 <sup>b</sup>	35.1	19.6	21.4
<b>Market concentration<sup>c</sup></b>				
Herfindahl index	2475 <sup>a</sup>	2066	2441	2163
Thrift market deposit share (%)	31.6	32.9	32.4	34.2
<b>Economic conditions</b>				
Personal income growth over period (%)	52.8	51.1	42.8	41.0

a. Denotes significance at 5 percent level.

b. Denotes significance at 1 percent level.

c. Figures for 1975 and 1984 only.

NOTE: A t-test was used to determine if the differences in the mean values for high- and low-earning banks were statistically different from zero within each time period.

SOURCES: Federal Financial Institutions Examination Council's Reports of Income and Condition for Banks, Summary of Deposit Data from the Board of Governors of the Federal Reserve System, and U.S. Bureau of the Census.

office, compared to \$13.6 million per office for the low-earning banks. In addition, more than two-fifths of the high-earning banks were unit banks in both periods examined.

### ■ Expenses and Revenues

Cost containment continues to be the key for achieving consistently high earnings in banking (tables 3 and 4). Bank costs are generally classified into two major components: interest and noninterest costs.

Given the level of interest rates, interest cost depends on the volume and mix of liabilities. Prior to deregulation, high-earning banks kept interest costs down by holding a larger share of non-interest-bearing demand deposits, which enabled them to pay significantly less for deposits (table 3). High-earning banks also held fewer higher-paying time deposits, including large certificates of deposit.

After deregulation, the interest-expense gap between the high and low earners was cut in half as their deposit composition and rates became similar. Nevertheless, through less reliance on expensive borrowed funds, the high earners still maintained significantly lower interest expenses.

Noninterest expenses have been increasing throughout the last two decades. These expenses include all expense items involved in overall bank operations, such as employee compensation, advertising costs, legal fees, insurance premiums, and directors' fees, as well as expenses of premises and fixed assets. In an effort to enhance earnings, banks have been closely monitoring personnel and occupancy costs. Some banks have elected to streamline operations through staff reductions, branch closings, and consolidation of operations.

In addition, with the liberalization of Ohio branching restrictions, some bank holding companies have consolidated and merged subsidiary banks on a regional or state basis in an effort to increase centralization and efficiency. Al-

**TABLE 3 EXPENSES AND REVENUES**

	1973-1977		1983-1987	
	High Earners	Low Earners	High Earners	Low Earners
Expenses	5.20 <sup>a</sup>	6.78	8.24 <sup>a</sup>	9.51
Interest	3.06 <sup>a</sup>	3.87	5.60 <sup>b</sup>	6.02
Average deposit rate	3.33 <sup>a</sup>	3.89	6.29	6.43
Noninterest	2.15 <sup>a</sup>	2.94	2.66 <sup>a</sup>	3.57
Salaries	1.10 <sup>a</sup>	1.43	1.33 <sup>a</sup>	1.69
Average salary (\$)	9,015	8,912	20,730 <sup>c</sup>	19,384
Premises	0.27 <sup>a</sup>	0.45	0.33 <sup>a</sup>	0.54
Provisions for loan losses	0.12 <sup>a</sup>	0.34	0.28 <sup>a</sup>	0.72
Revenues	7.88	7.82	11.06 <sup>b</sup>	10.73
Interest	7.40	7.27	10.45 <sup>a</sup>	10.01
Average loan rate	8.71	8.89	11.97	12.10
Noninterest	0.34 <sup>b</sup>	0.43	0.54	0.61

a. Denotes significance at the 1 percent level.

b. Denotes significance at the 5 percent level.

c. Denotes significance at the 10 percent level.

NOTE: Figures are based on percentage of average assets, except for average salary. A t-test was used to determine if the differences in the mean values for high- and low-earning banks were statistically different from zero within each time period.

SOURCE: Federal Financial Institutions Examination Council's Reports of Income and Condition for Banks.

**TABLE 4 ASSET, LOAN, AND DEPOSIT COMPOSITION**

	1973-1977		1983-1987	
	High Earners	Low Earners	High Earners	Low Earners
Asset structure (%)				
Earning assets	93.4 <sup>a</sup>	91.8	96.5 <sup>a</sup>	94.1
Loans	48.4 <sup>a</sup>	55.3	48.2 <sup>a</sup>	52.7
Securities	35.6 <sup>a</sup>	27.5	35.3 <sup>a</sup>	25.2
Premises	1.25 <sup>a</sup>	2.05	1.04 <sup>a</sup>	1.83
Loan composition (%)				
Business	13.2 <sup>a</sup>	18.4	13.4	15.0
Farm	17.5 <sup>a</sup>	9.0	15.3	12.5
Consumer	35.0	36.0	28.5	28.6
Credit card	0.8	1.2	1.4	0.9
Real estate	44.6	41.7	48.2	50.1
Commercial	6.8	7.0	6.5 <sup>c</sup>	8.1
Deposit composition (%)				
Demand	36.4 <sup>a</sup>	29.5	16.2	15.3
Other transaction	0	0	11.7	12.5
Savings	31.3 <sup>b</sup>	34.7	26.3	26.3
Time	32.3 <sup>b</sup>	35.8	45.8	45.9
Large time	4.3 <sup>a</sup>	6.7	6.0	6.6

a. Denotes significance at the 1 percent level.

b. Denotes significance at the 5 percent level.

c. Denotes significance at the 10 percent level.

NOTE: A t-test was used to determine if the differences in the mean values for high- and low-earning banks were statistically different from zero within each time period.

SOURCE: Federal Financial Institutions Examination Council's Reports of Income and Condition for Banks.

though high-earning banks had lower salary expenses as a percentage of their assets, they paid significantly higher average salaries per employee than the low earners over the last five years.

Noninterest costs are also affected by the volume and mix of assets and liabilities. Some assets, such as loans, are typically riskier and more costly to make and to service than investments in government securities. Lenders also incur higher costs in extending certain types of credit, such as business and commercial real estate loans, which historically have higher default rates than consumer installment and mortgage loans. Banks that operate more branch offices are also likely to have higher occupancy expenses.

Table 4 shows that high-earning banks held a larger share of their assets in securities and a smaller share in both loans and premises and other fixed assets than low-earning banks in both periods examined. These factors helped the high-earning banks maintain significantly lower outlays for overhead expenses, including those for salaries, premises, and loan-loss provisions. Rather than decreasing in importance, the noninterest expense difference between the high- and low-earning banks became larger across the board in the postderegulatory period.

Somewhat surprisingly, the composition of loans was similar in the 1983-1987 period, except that the high earners made fewer commercial real estate mortgages. In contrast, the low earners made more business loans and fewer farm loans in the prederegulatory period.

Before deregulation, revenues were similar for the high- and low-earning banks, but after deregulation, the high earners generated greater income even though they held fewer and presumably higher-quality loans. Higher revenues came from holding a significantly larger share of earning assets and from generating higher yields on investments.

## ■ Conclusion

Characteristics of high-earning banks in Ohio have changed significantly since the mid-1970s. Prior to deregulation, a larger number of the high earners were not affiliated with a multi-bank holding company and operated in more concentrated markets. After deregulation, however, ownership or market concentration did not seem to matter. Perhaps independent banks have lost any edge that they may have had over multibank holding company banks, and perhaps the threat of potential competition has become strong enough to offset any differences in the existing local banking structure.

Although *bank size* continues to have no meaningful effect on bank earnings, *office size* helped to explain profitability differences among banks in recent years. The high-earning banks kept operating costs down by having more deposits per banking office than low-earning banks.

In the more competitive environment, we found greater disparity in earnings between the high- and low-earning banks in Ohio. The poorly managed banks experienced a significant earnings deterioration, which caused the aggregate figures to suggest that banking has become less profitable. However, the well-managed banks benefited from the opportunities created by deregulation, and the top-performing institutions earned higher returns than they did in the past.

## ■ Footnotes

1. Many economists argue that the mispricing of federal deposit insurance has encouraged greater risk-taking by depository institutions.
2. Office of the Comptroller of the Currency, *Bank Failure: An Evaluation of the Factors Contributing to the Failure of National Banks*, June 1988; Larry D. Wall, "Why Are Some Banks More Profitable Than Others?" *Journal of Bank Research*, vol. 15, no. 4 (Winter 1985), 240-256; and Myron L. Kwast and John T. Rose, "Pricing, Operating Efficiency, and Profitability Among Large Commercial Banks," *Journal of Banking and Finance*, vol. 6, no. 2 (June 1982), 233-54.
3. Banking markets are approximated by metropolitan statistical areas in urban areas and by counties in rural areas.
4. See Gary Whalen, "Concentration and Profitability in Non-MSA Banking Markets," *Economic Review*, Federal Reserve Bank of Cleveland, Quarter 1, 1987, 2-9; and "Actual Competition, Potential Competition, and Bank Profitability in Rural Markets," *Economic Review*, Federal Reserve Bank of Cleveland, Quarter 3, 1988, 14-23.

*Paul R. Watro is currently an economics instructor for the University of Kentucky at Jefferson Community College. He wrote this article while he was an economist at the Federal Reserve Bank of Cleveland. The author would like to thank Mark S. Sniderman and James B. Thomson for helpful comments and John Sheridan for research assistance.*

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