POST-ACQUISITION PERFORMANCE OF RURAL BANKS

Allen M. Featherstone

Proceedings of a Seminar sponsored by
North Central Regional Project NC-207
"Regulatory, Efficiency and Management Issues Affecting Rural Financial Markets"
Kansas City, Missouri
October 16-17, 1995

Department of Agricultural Economics And Rural Sociology
221 Agriculture Building
Fayetteville, Arkansas 72701

January 1996

Post-Acquisition Performance of Rural Banks

Allen M. Featherstone[*]

November 30, 1995

The effects of bank consolidation on available credit for small rural businesses and farmers is a major concern. It is often argued that larger organizations, which usually have an urban base, neglect the credit needs of their rural constituents. The effect of mergers on the banking and financial services industry was recently investigated by the U.S. House Subcommittee on Financial Institutions and Consumer Credit. Janet Yellen, a member of the Board of Governors of the Federal Reserve System, testified that "mergers resulting in relatively high levels of local banking market concentration can adversely affect local bank customers." Similar concerns were also raised by a State of Texas House Committee on Small Business Access to Capital: "Experience with interstate banking tells us that out-of-state banks tend to decrease their lending service to small businesses - which are the backbone of job creation."

The effect of consolidation on rural financial markets is not a new issue. A set of studies by the Federal Reserve System in the early 1970's examined the effects of bank structure on the performance of rural financial markets. These studies were in response to rural banks exhausting their lending limits in the era before negotiable certificates of deposits. Merger activity was argued to increase the effective competition among banks. Bank-holding companies or branching was thought to have structural advantages because banks were better able to service larger borrowers within the area, attract managers with better training, and allow specialization within the lending functions, such as agricultural lending. The theoretical arguments were not readily evident in the empirical studies. In one state, farm lending decreased in banks acquired by a holding company while it increased by banks that established branches. In two other States, no significant difference was found in the lending patterns of these banks.

Gilbert and Belongia examined the agricultural loan ratios of rural subsidiaries of bank holding companies and found that in 1975, 1980, and 1985 that the ratio of agricultural loans to total assets was significantly lower for banks associated with these holding companies. They conclude that the acquisition of small banks by large bank holding companies tends to reduce the supply of agricultural credit via commercial banks.

[*] Allen M. Featherstone is an associate professor in the Department of Agricultural Economics at Kansas State University, Manhattan, Kansas. The authors would like to acknowledge the helpful comments of Emil Melichar and Paul Ellinger.

Rose compared the characteristics of the performance of acquiring banks and non-acquired banks following the acquisition. He found that the post-acquisition performances were different with a one-year surge in revenues, expenses, and portfolio size. This was followed by a long-term decline in the acquiring banks' ratios over all five years.

Thus, past comparisons of bank performance prior to and after merger activity is mixed. The post-acquisition performance of recent bank mergers where either one or both of the parties were involved in agricultural lending is limited. This article examines the post-acquisition performance of a set of financial institutions involved in agricultural lending. Both pre-acquisition performance and post-acquisition performance will be considered. Specifically, differences in financial performance, efficiency, risk, loan portfolio, and balance sheet structure will be examined.

Related Literature

Agricultural Banking Literature

Concerns have arisen as to whether banks that have traditionally supplied credit to production agriculture will continue to do so after consolidation. Ellinger has summarized the issues relating to the potential gains from efficiency analysis of agricultural banks. Featherstone and Moss measured the product-specific returns from agricultural lending and analyzed whether economies of diversification result from the inclusion of agricultural lending in a bank's portfolio. Using 7,108 rural or agricultural bank data from the 1990 Federal Reserve Call Report, they found that there was little evidence for cost savings from expanding the agricultural lending portfolio. In addition, they found little evidence of savings from diversification into agricultural lending.

Neff, Dixon, and Zhu measured the efficiency of individual banks using both cost and profit function approaches and found little consistency among the results. Banks which were highly efficient from a cost standpoint may or may not have been from a profit standpoint.

Siles, Hanson, and Robison examined the probability of agricultural loan approval using financial performance variables and relationship variables. They found that positive relationships increased the likelihood of loan approval. They also found that relationships play the most important role when the financial strength of the borrower is marginal.

Banking Literature

Yellen summarized the findings of a number of scale economies studies and found that large firms have either small or no cost advantages. Studies that examined cost efficiencies arising from efficiently combining inputs in the most productive way have found that management skills dominate any benefits from economies of scale.

Berger, Kashyap, and Scalise reviewed the transformation in banking with consideration of the future. They argue that the consolidation trend will continue into the future with most bank assets being controlled by a relatively few large organizations. They predict that lending to small businesses will fall, but that much of the eliminated activity may not currently be profitable.

The theory of relationship lending in the area of small business finance is an emerging alternative to transaction lending. Sharpe developed a dynamic theory of relationship lending under the assumption of asymmetric information. Fama argued that these relationships arise because of inside information generated by previous lender-borrower interactions. Petersen and Rajan empirically examine the ties between a firm and its creditors and the quantity and cost of credit available using Small Business Association data. They find that the primary benefit of building ties with the lender is an increase in the availability of credit. Borrowing from multiple lenders increases the price and reduces the availability of credit. Berger and Udell examine the future of small business lending under Universal Banking and the relationship borrower hypothesis. They find that larger more complex banks reduce the supply of small business lending.

Yellen argues that the current merger activity is likely to have modest effects on the availability of services to small businesses because most mergers have not been between banks operating in the same market and that the effects of intra-market mergers can be limited by antitrust constraints. Thus, the evidence is mixed although limited with regard to the effects of merger activity on lending to small businesses.

Data and Methods

Data on bank mergers and acquisitions were obtained from two series on bank consolidations. Data for acquisitions that occurred between January 1987 and December 1991 were obtained from *Bank Expansion Quarterly* and *Mergers and Acquisitions* (Applewhite). Data on mergers and acquisitions through 1993 were obtained from SNL Securities. These data were combined with 1987 through 1993 Federal Reserve Call Report data. Altogether, 785 acquired banks that had agricultural lending activity were matched with the acquiring holding company[1]. These banks represent 26% of the 3,015 reported

[1] An acquiring holding company may appear more than once in the averages if it acquired multiple banks.

bank mergers and acquisitions that occurred during the period (Rhoades)[2]. Records were available for 433 acquisitions, the year before, the year of, and the year after. Records for 287 acquisitions were available two years after, 206 for three years after, and 47 for four years after the acquisition.

The combined acquisition data will be used to examine characteristics of acquiring holding company and acquired banks. Data on the size, the profitability, the cost structure, and agricultural lending will be examined. First, acquisitions of all banks that had any agricultural lending will be examined. Next, acquisitions of small banks with agricultural lending will be examined. A small acquired bank is defined to have less than $100 million in assets during the year of acquisition. Finally, acquisitions of agricultural banks will be studied. An agricultural bank is defined to have more than 20% of loans to the agricultural sector. A time frame of one year before through three years after acquisition will be studied for each group of banks.

Results

In general, acquiring holding companies were larger, more profitable, and had relatively less agricultural lending than the acquired banks. For the sample of 785 acquisitions, the acquiring holding company on average had six times the total assets of the acquired banks (Table 1). Their return on assets was about 0.3 percentage points larger for the acquired banks, the rate of return on equity was about 5.0 percentages points greater, and the net income was 6 times larger[3]. The acquiring holding companies cost structure did not differ much from that of the acquired banks. Acquired banks had a larger portion of their portfolio in agricultural lending than the acquiring banks.

The size of the acquired bank is likely to be correlated with the location. That is, larger banks are usually located in more urban settings, while smaller banks are usually located in more rural settings. To examine potential differences in post-acquisition performance, the differences in the characteristics of acquired banks with assets less than $100 million and the acquiring holding companies were examined. The rate of return on assets and equity for acquired banks with less than $100 million in assets is less than that of all acquired banks. The intensity of agricultural lending which is measured as the percentage of the portfolio in agricultural loans is larger for the smaller banks than for all acquired banks, although the total loan volume is less. Holding companies which acquire smaller banks are about 50% of the size of all acquiring holding companies. The rate of return on assets and equity is nearly equal to all acquiring holding companies. The

---

[2] The percentage is higher than 26% in that only acquisitions by holding companies are matched. Banks that merged and consolidate records could not be matched.

[3] The reported mean rates of return were unweighted averages of the individual rates of return.

agricultural loan ratio is higher for those holding companies which acquire smaller banks than for all holding companies.

Table 3 examines the characteristics of those banks which have a concentration of more than 20% of their lending activity in agriculture. The average size of these banks is very similar to all acquired banks with less than $100,000 in assets. The rate of return on equity is substantially higher on the agricultural banks than the smaller banks while the operating expenses are lower. For the acquiring holding companies, the rates of return on assets and equity are nearly identical to those in Table 2. Those holding companies that acquire agricultural banks tend to have a higher concentration in agricultural lending activities and in volume of agricultural loans.

Table 4 presents measures of the relative importance of agricultural lending for both the acquired banks and acquiring holding companies for all banks, small banks, and agricultural banks over time. The year t-1 represents the year before the merger. The year t represents the year of the merger. This data can be compared with Tables 1, 2 and 3 to determine the effect of the loss of observations due to inconsistent matching. The second and third column examine the time path of agricultural lending over time for all banks over the five year period. For both the acquired bank and the acquiring holding company, the proportion of the portfolio in agricultural lending was greater three years after the merger than at the time of or the year before the merger. This pattern is consistent for both small banks and agricultural banks.

Table 5 presents the agricultural loan volume pre- and post-acquisition for both the acquired banks and acquiring holding companies. While the percentage of loan volume provides an indication that agricultural lending did not decrease in relative importance after the acquisition, the average agricultural loan volume confirms that agricultural lending was not substantially reduced in the three years following the acquisition.

The banks were further examined to determine which percentage of buyers and sellers increased the intensity and volume of their post-acquisition agricultural lending. For all 206 banks, 106 of the acquired banks had a greater percentage of their portfolio in agricultural lending three years after the acquisition than before. For the acquiring holding companies, 150 had a larger percentage in agricultural mortgages post acquisition. In terms of loan volume, 133 of the acquired banks and 172 of the acquiring holding companies had a higher agricultural loan volume three years after the acquisition than they did one year before.

The results for smaller banks are nearly identical to those of all banks. Roughly 50% of acquired banks increased the intensity of agricultural lending after the acquisition and 70% of the acquiring holding companies increased the intensity of agricultural lending. In terms of volume, 70% of acquired banks increased the agricultural loan volume and 85%

of acquiring holding companies increased loan volume. The percentages for agricultural bank acquisitions are nearly identical to small banks except that nearly 80% of acquired banks increased the intensity of agricultural lending after the acquisition.

Table 6 presents the average agricultural loan volume and percentage of agricultural lending for all banks for each the three categories of banks analyzed. The general trend over the time period was for an increase in agricultural lending. The average lending per bank increased by nearly 50% over the seven year period. Agricultural banks had a higher rate of increase than all banks while smaller banks had a lower rate of increase. The percentage of the lending portfolio allocated to agricultural loans decreased slightly over the period for all banks and increased slightly for small and agricultural banks. While the pre and post acquisition do not match correspond to the years, the general increase in agricultural lending by banks involved in acquisitions did not differ substantially from the overall industry trend.

Concluding Comments

Consolidation in the banking industry has raised concerns with regard to lending in the rural areas. This manuscript examined the lending activity to one sector, agriculture, before and after the acquisition by a bank holding company. In general, acquiring holding companies were larger, more profitable, and had relatively less agricultural lending than the acquired banks. In addition, small holding companies usually acquire small banks. Banks with a greater percentage of lending activity in agriculture generally are acquired by holding companies which have a larger percentage of their loans in agriculture.

An analysis of pre- and post-acquisition activity indicated that agricultural lending did not decrease in relative importance after the acquisition. Smaller banks and agricultural banks increased lending to agriculture both in terms of volume and intensity. The rate of increase generally followed industry trends. Given the work on relationship lending, it is not surprising that acquisitions will not affect the relationships that already in place. As some of these relationships follow the life cycle, it may be possible that new relationships with new borrowers may not occur.

Banks involved in consolidation did not generally move away from the trend of increasing agricultural volume during the period studied. It should be noted that these results are conditional on only three years of performance data after the acquisition. Changes in operation within the holding company after this time period could affect the results. This study is consistent with other studies that suggest that strong economies or diseconomies of scope do not exist for agricultural lending. Thus, since agricultural banks and small banks are often acquired by holding companies with relatively higher agricultural lending activity and smaller holding companies, respectively, strong incentives do not exist for major changes in lending activity.

However, the theory of relationship lending would suggest that profitable relationships would not be severed. As these relationships follow their life cycle, it will be important to determine whether new relationships with new borrowers are initiated.

Table 1. Balance Sheet and Profitability Differences Between Acquired Banks and Acquiring Holding Companies

Variable	Acquired Banks	Acquiring Holding Companies
Total Assets	$636,892,000	$4,077,501,000
Rate of Return on Assets	0.67%	0.99%
Rate of Return on Equity	7.46%	12.52%
Agricultural Loan Ratio	15.09%	9.98%
Agricultural Loans	$10,047,000	$45,447,000
Net Income	$5,212,000	$31,650,000
Operating Expenses/Average Assets	3.07%	3.21%
Number of Mergers	785	

Table 2. Balance Sheet and Profitability Differences Between Acquired Banks with less than $100 Million in Assets and Acquiring Holding Companies

Variable	Acquired Banks	Acquiring Holding Companies
Total Assets	$42,690,000	$2,176,129,000
Rate of Return on Assets	0.57%	1.02%
Rate of Return on Equity	7.16%	12.59%
Agricultural Loan Ratio	21.10%	14.07%
Agricultural Loans	$3,523,000	$32,664,000
Net Income	$294,000	$19,707,000
Operating Expenses/Average Assets	3.07%	3.07%
Number of Mergers	494	

Table 3. Balance Sheet and Profitability Differences Between Acquired Banks with more than 20% of Lending in Agriculture and Acquiring Holding Companies

Variable	Acquired Banks	Acquiring Holding Companies
Total Assets	$43,452,000	$2,287,668,000
Rate of Return on Assets	0.65%	1.03%
Rate of Return on Equity	10.45%	12.30%
Agricultural Loan Ratio	41.80%	23.43%
Agricultural Loans	$7,728,000	$41,201,000
Net Income	$361,000	$20,341,000
Operating Expenses/Average Assets	2.76%	2.98%
Number of Mergers	219	

Table 4. Agricultural Portfolio Composition of Acquiring Holding Companies and Acquired Banks Pre and Post Acquisition

	All Banks		Small Banks		Agricultural Banks	
Year	Acquired	Acquiring	Acquired	Acquiring	Acquired	Acquiring
t-1	15.4%	11.5%	21.3%	14.4%	36.4%	22.5%
t	15.7	11.3	21.5	14.9	37.9	23.9
t+1	15.8	10.9	20.7	15.1	35.8	24.5
t+2	15.8	11.5	21.0	15.2	36.8	24.4
t+3	16.5	12.2	21.9	16.1	38.1	26.2
Number	206		132		65	

Table 5. Agricultural Loan Volume (Millions of Dollars) of Acquiring Holding Companies and Acquired Banks Pre and Post Acquisition

	All Banks		Small Banks		Agricultural Banks	
Year	Acquired	Acquiring	Acquired	Acquiring	Acquired	Acquiring
t-1	6.92	23.92	3.32	18.18	5.98	12.84
t	8.97	31.61	3.48	23.89	6.66	23.76
t+1	9.51	34.29	6.07	27.99	11.54	26.28
t+2	10.06	47.08	3.82	35.33	7.09	25.78
t+3	13.70	59.54	4.21	43.12	7.75	34.04
Number	206		132		65	

Table 6. Agricultural Loan Volume and Percentage of Agricultural Lending of All Banks

	All Banks		Small Banks		Agricultural Banks	
Year	Volume[a]	Percentage	Volume	Percentage	Volume	Percentage
1987	3.5	17.4	2.7	20.6	5.7	44.7
1988	3.7	17.0	2.8	20.5	6.1	44.7
1989	3.7	16.3	2.9	20.4	6.6	45.0
1990	4.0	16.1	3.1	20.4	7.2	45.1
1991	4.4	16.5	3.3	21.1	7.8	45.5
1992	4.7	16.4	3.4	21.3	8.2	45.3
1993	5.2	16.8	3.8	22.1	8.9	45.3

[a] Volume is in millions of dollars.

References

Applewhite, J.L. "Characteristics of Rural Bank Acquisitions: A Logit Analysis". Unpublished M.S. Thesis, Department of Agricultural Economics, Texas A&M University, December 1994.

Bank Expansion Quarterly. Various Issues. Golembe Associates: Washington D.C., 1986-88.

Berger, A.N., A.K. Kashyap, and J.M. Scalise. "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been." *Brookings Papers on Economic Activity* 2:1995(Forthcoming).

Berger, A.N., G.F. Udell. "Universal Banking and the Future of Small Business Lending." in *Financial System Design: The Case for Universal Banking*, A. Saunders and I. Walter, eds. Irwin Publishing, Homewood, IL, Forthcoming 1996.

Board of Governors of the Federal Reserve System. *Improved Fund Availability at Rural Banks*, Washington, D.C., June 1975.

Ellinger, P.N. "Potential Gains from Efficiency Analysis of Agricultural Banks." *American Journal of Agricultural Economics*, 76(August 1994):652-54.

Fama, E.F. "What's Different about Banks?." *Journal of Monetary Economics*, 15(January 1985):29-36.

Featherstone, A.M. and C.B. Moss. "Measuring Economies of Scale and Scope in Agricultural Banking." *American Journal of Agricultural Economics*, 76(August 1994):655-61.

Gilbert, R.A. and M.T. Belongia. "The Effects of Affiliation with Large Bank Holding Companies on Commercial Bank Lending to Agriculture." *American Journal of Agricultural Economics*, 70(February 1988):69-78.

Mergers and Acquisitions. Various Issues. Investment Dealer's Digest: New York, 1989-92.

Neff, D.L, B.L. Dixon, and S. Zhu. "Measuring the Efficiency of Agricultural Banks." *American Journal of Agricultural Economics*, 76(August 1994):662-68.

Petersen, M.A. and R.G. Rajan. "The Benefits of Lending Relationships: Evidence from Small Business Data." *Journal of Finance*, 49(March 1994):3-37.

Rose, P.S. "Characteristics of Merging Banks in the United States: Theory, Empirical Results, and Implications for Public Policy." *Review of Business and Economic Research*, 24(1988):1-19.

Rhoades, S.A., "Mergers and Acquisitions by Commercial Banks, 1980-1994," *Staff Study*, Federal Reserve Board, Washington, D.C. Forthcoming, 4th Quarter, 1995.

Sharpe, S.A. "Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relations." *Journal of Finance*, 45(September 1990):1069-87.

Siles, M, S.D. Hanson, and L.J. Robison. "Socio-Economics and the Probability of Loan Approval." *Review of Agricultural Economics*, 16(September 1994):363-72.

SNL Securities, L.P. Hoboken, N.J. Version 3.2, 1995.

Yellen, J.L. Testimony before the Subcommittee on Financial Institutions and Consumer Credit of the Committee on Banking and Financial Services. U.S. House of Representatives, October 17, 1995.