

# Interstate Expansion and Bank Costs



The evolution of interstate banking will be influenced importantly by the relationships between banks' unit costs and their size—measured in assets, number of offices and geographic extent. Expansion of banks beyond their headquarters states implies increases in all three dimensions. The potential expansion will be limited to the extent that unit costs (operating costs per loan booked and deposit account serviced) rise as banking organizations grow through interstate expansion. If unit costs rise sharply, expansion would cut into profits and would be strictly limited. If unit costs remain constant or nearly so, more expansion would take place, and if unit costs decline with size, rapid expansion would be likely.

As previous articles in this **Review** have indicated, there are several methods of interstate expansion; these may affect bank costs differently. Whitehead's work (17) indicates that extensive interstate banking already occurs through a variety of methods. Because methods vary greatly from bank to bank and because rapid interstate expansion is relatively recent, there has been little systematic accumulation of data on or analysis of overall costs of these interstate operations or of the impact of expansion on costs.

We are better prepared to look at the potential impact of interstate branching if the McFadden Act is repealed and the impact of interstate bank holding company operation of banks if the Douglas Amendment is repealed. Costs of branching and bank holding company operations on an intrastate basis have been studied extensively. This article summarizes the results of these studies, discusses their limitations and draws implications from them.

Since banking structure appears to influence banks' pricing of their services, we would like to know how much consolidation of the system to expect. Since the

*Evidence suggests that bank costs increase as size increases. While interstate banking may bring more services to local markets, cost advantages of large banks do not seem great enough to trigger rapid consolidation within the industry.*

financial system's health is related closely to bank profits, we would like to know how expansion and consolidation would affect costs and, hence, profits. Since the public's outlays for financial services are influenced by the cost of such services, we would like to know how interstate banking would impact costs.

In order to judge how bank costs react to interstate expansion, we would like to see studies of bank costs based on interstate experience. These do not exist, at least not in published form, but there are cost studies that deal with banks of all types, including those with extensive intrastate office networks. These studies and other observations provide extensive, though incomplete, evidence on which to base some tentative conclusions about the reaction of costs to interstate expansion. (Two recent and more detailed discussions of these studies are found in papers by Benston, Hanweck and Humphrey (4 and 5) and McCall (13).)

### Branching and Unit Costs

As banks expand through branching, unit costs may rise, remain stable or fall. Will interstate banking expand quickly or slowly, or not at all? Will it result in extensive consolidation and will such branching significantly impact bank customers' costs? It all depends importantly on the reaction of costs to the size of branch banks and the costs of their unit bank competitors.

Studies of this relationship have appeared with some frequency over the past 30 years.<sup>1</sup> These studies generally have relied on formal production functions and individual bank cost data generated in the Federal Reserve Banks' functional cost analysis (FCA) program. They have built upon one another using increasingly elaborate methods of measurement and statistical analysis to estimate banks' unit operating costs in relation to the volume of specific financial services that they produce. A few have attempted to consider the impact of overall bank size on unit costs by adding together cost functions for individual products.<sup>2</sup> The two most recent studies in this line provide several advances over previous studies and analyses of recent banking cost data.<sup>3</sup> They will receive most of our attention.

<sup>1</sup>See Benston, Hanweck and Humphrey (4, pp. 17-20) for a detailed summary of these studies.

<sup>2</sup>These include studies by Bell and Murphy (2), Murphy (15) and Benston, Hanweck and Humphrey (4 and 5).

<sup>3</sup>These are the studies by Benston, Hanweck and Humphrey (4 and 5) and Gilligan, Smirlock and Marshall (7).

The study by Benston, Hanweck and Humphrey recently published in this **Review** (4) advances on previous studies in its measurement of bank output, the form of its cost function and its treatment of expansion by adding branches. Its method of measuring overall output allows the identification of upwards of 70 percent of bank costs with a single index of bank output. Its cost function allows, but does not require, U-shaped cost functions—functions that allow for declining unit costs at low levels of output and rising unit costs at higher levels of output. Its method of including branches corrects previous methods, which probably overestimated costs of adding branches at larger banks.

This study dealt with banks having deposits up to \$1 billion. Its authors found that unit banks experienced some diseconomies of scale as their size increased beyond \$75 million in deposits, that is, their average cost increased as their size increased. Branch banks experienced economies of scale when they expanded output without increasing their branches. However, when branch banks increased their output by adding branches (as they generally do and would be forced to do if they moved into interstate banking), they also experienced diseconomies of scale beyond the \$50 million—\$75 million deposit size.

The study's major conclusions with relevance to interstate branching were that a) costs increase slightly with bank size for branch and unit banks with \$50 million—\$75 million in deposits or more when branch banks expand by adding new branches and b) when normal methods of expansion are accounted for, branch and unit banks of similar deposit size have similar costs. These conclusions differ from those of earlier studies in that they find slight diseconomies of large-scale banking while the others generally find slight economies of large scale.<sup>5</sup>

The study by Gilligan, Smirlock and Marshall (7) is a pilot-type study combining measures of economies of scale and economies of scope in producing bank products. It uses a similar production function to that used by Benston and his colleagues (4) and analyzes FCA data. Its principal advance is its consideration of economies of scope.

<sup>4</sup>McNulty (14) found similar results for savings and loan associations in a study that used similar methods. This study also reviews cost studies of savings and loan associations—most of which have results that are generally consistent with the studies of banks.

<sup>5</sup>Murphy (15) studied banks as large as \$5.5 billion in deposits.

Economies of scope occur when the combined cost of producing two or more products in the same operation is lower than the combined cost of producing the same products separately. Banks are multi-product firms and they produce combinations of services with the same people and equipment. Tellers handle various types of deposits, computers keep records on all transactions and the same physical plant may house several functions. Thus, tests for economies of scope seem justified. If economies of scope are significant, banks might be able to decrease the unit cost of each type of output by adding new types of output as they grow.

The study by Gilligan, Smirlock and Marshall finds no evidence of economies of large scale in commercial banks. However, in its limited test, it found evidence of economies of scope in overall bank production when either of its two methods of measuring overall output was used. These results raise, rather than answer, the question of whether economies of scope show up when more detailed output measures are used and whether large banks offering multiple services might gain sufficient cost advantages to undercut small banks' prices on basic services.

These two studies show no evidence of scale economies for banks above a relatively small overall size. In this they differ from most previous studies which show slight scale economies. The two most recent studies, however, are among the few to use functional forms that allow U-shaped cost curves, thus allowing rising unit costs as size increases. They also analyze the most recent data (from the late 1970s), which might account for their findings.

Cost studies of individual bank functions have a history similar to estimates of overall costs. Most of these studies made no allowance for diseconomies of large scale through U-shaped cost curves. They found slight economies for most individual functions. Studies using more recent data showed less cost decline. The study by Benston and Hanweck (3) allowed for U-shaped cost curves and found them for the demand deposit function; other functions showed constant costs, except business loans, which showed continuing economies of large scale production. These results might have resulted either from changes in the way banks operate or from a method that allowed U-shaped cost curves. That the latter is more likely to be the reason is shown by a recent study by Dunham (6), in which economies of scale were shown for

all five of the functions measured, with a function that would not allow U-shaped curves.

Thus, economies of scale studies seem to indicate that large banks have no unit cost advantage over smaller ones—at least not over banks as large as \$50 million in deposits. Unit and branch banks have similar cost functions throughout the output range if branch banks increase output by adding branches. Advantages or disadvantages of any group of banks are slight. In a later section of this article, we will discuss some reasons why these results are not conclusive.

### Bank Holding Company Expansion

Interstate banking by bank holding companies involves an extension of the above evidence on economies of scale in branching. Since a bank holding company is a collection of banks, evidence already discussed on individual banks should tell us about the units that make up the holding company. That evidence indicates that branch

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and unit banks achieve economies of scale only up to a fairly small size and have slight diseconomies beyond \$50 million—\$75 million. But does ownership by a bank holding company impart anything to a collection of individual banks that would change their cost structures? If holding company ownership raises costs above those that an individual branching system might achieve, we would expect less consolidation and higher banking costs after removal of the Douglas Amendment than after removal of McFadden Act branching prohibitions. If it reduces costs, we would expect more consolidation and lower costs.

Bank holding companies can centralize some operations of their subsidiaries—investment, trust, audit, data processing and accounting for example. This may allow them to operate each subsidiary more efficiently and to achieve greater economies of scale than independent banks, but not necessarily more efficiently than branch organizations

of similar size. On the other hand, greater information and coordination costs inherent in larger, more formally structured organizations may cancel such efficiencies.

Several studies have tested the impact of bank holding company ownership on individual banks' costs to determine the effect of these forces on the unit costs of affiliated banks. Five studies have been published over more than a decade on the impact of holding company affiliation on efficiency. Their results occasionally conflict and are not, on the whole, conclusive because each study has important problems.

The two earliest studies (Schweitzer, (16) and Kalish and Gilbert, (8)) treat bank assets as their measure of bank size. Beyond that similarity, the studies differ in most important respects, including their conclusions. Schweitzer analyzed annual income and call report data for banks in the Minneapolis Federal Reserve District in 1964. Kalish and Gilbert analyzed national FCA data for 1968, computing cost relationships using only the most efficient banks.

For reasons not ascertainable because of important differences in methods, the two studies reached opposite conclusions about the impact of holding company affiliation on efficiency. Schweitzer found that small (assets less than \$25 million) affiliate banks were less efficient than small independents, while large affiliates were more efficient. Kalish and Gilbert, dividing small from large banks at \$10 million of loans and investments, came to the opposite conclusion.

Schweitzer's conclusions generally were echoed in a study of demand deposit costs of 1968 FCA banks by Longbrake and Haslem (12). Their study measured three components of demand deposit output: average account size, average number of accounts per office and number of offices. Their results indicated that affiliates with less than average account size and less than average accounts per office (generally smaller banks) had higher average costs than similar independents, whether branch or unit banks, while affiliates with greater than average account size and accounts per office had lower average costs. This study did not estimate cost functions for other bank functions or for the bank as a whole; consequently, it is not directly useful for drawing implications of expanded bank holding company activity for overall bank costs.

Benston and Hanweck (3) studied costs of several important banking functions using 1968-1974 FCA banks in an analysis of the overall

effects of affiliation on bank costs. For only one of these functions did affiliates' efficiency differ from that of independents. In the demand deposit function, affiliates had lower average costs than independents, and affiliates' advantages grew with holding company size (rising from 4 percent for a small company to 17 percent for a large company). In the other functions studied—time deposits, business and agricultural loans, real estate loans, installment loans, administration, occupancy, business development and promotion—holding company affiliation did not influence bank costs.

These results are consistent with those of Longbrake and Haslem to the extent that they indicate large holding companies have higher than average account size and accounts per office. The results indicate little other affiliate advantage. The study did not cover all bank functions, however, and the cost functions were not aggregated. Thus, overall effects were not strictly discernible from the Benston-Hanweck study.

To a great extent this criticism was obviated by a more recent bank cost study by Benston, Hanweck and Humphrey. This work, the most recent available, aggregates at least a large proportion of bank costs. It is probably our best guide in assessing the impact of affiliation on bank costs. Using a newly developed index of combined output of most functions that generate bank costs, these researchers studied 1974-1978 FCA banks. Accounting for both the fact of affiliation and the size of the bank holding company, they found no significant effects of affiliation on the bank costs they reviewed. Holding company size was not found to be an influence.

### Limitations of the Evidence

The cost studies reviewed here leave unanswered some questions that are important in the appraisal of interstate banking costs. Three of the most glaring questions involve very large banks. The studies we have reviewed do not cover the largest banks—those with deposits greater than \$1 billion—yet these are the ones most likely to act in the event the McFadden Act or Douglas Amendment is repealed. The studies also generally fail to deal with economies of scope—adding additional products to the output of an expanding firm. The one study that does test for economies of scope finds them, but its tests are not general.

In addition, they do not cover the influence on costs of widespread bank holding company and branching systems, since the banks studied operated statewide systems at the most.

Large banks and economies of scope are closely related. Gilligan and his colleagues (7) question recent evidence that most bank products suffer diseconomies of scale and that banks overall appear to suffer diseconomies when these individual cost functions are added up. They find such evidence inconsistent with the existence of large banks. Economies of scope that involve the interaction of bank product costs may explain the inconsistency. If additional products reduce costs of existing products, banks may be able to add new products as they grow and to reduce the costs of other products, thus overcoming diseconomies of large scale. Very large banks may thrive in such situations, though smaller institutions show no economies of scale in traditional products.

Direct evidence on these questions is limited to the two-product test of economies of scope in the Gilligan paper. However, indirect evidence that even very large banking organizations have had limited success when they enter new markets indicates that large banks' advantages are not extensive. This evidence is summarized in King (9 and 10); see also Keunreuter (11).

The cost impact of geographic extensions of bank branches or bank holding companies' subsidiaries beyond their headquarters states is not known. Certainly communication is complicated somewhat by greater geographic spread. Some large statewide banks reportedly have had difficulty collecting data rapidly enough to meet regulatory reporting deadlines. Decisions on participations and large loans also cause some delays in present branching and holding company systems. Available evidence does not tell us whether a nationwide system would increase communications and administration costs significantly for the bank operating it. On the other hand, modern electronic communications media may help to avoid extra communications costs. Indeed the continuing operation of interstate nonbank office networks by several bank holding companies (see Whitehead, 17) leads to the presumption that such costs are not significant.

Also missing from bank cost studies is recent and consistent product-by-product evidence on bank costs. Recent evidence on individual product costs would help us to analyze the implications of interstate banking for specialized bank

activities. For example, continuously decreasing costs of demand deposits as reported by Longbrake and Haslem (12) or for business loans as reported by Benston and Hanweck (3), would imply that large institutions specializing in demand deposits and business loans might exist alongside smaller local institutions specializing in time

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deposits and consumer loans. This type of specialization could save money for the public, though it might increase concentration in certain product lines. Evidence on individual product costs is, however, inconsistent from study to study.

A final blind spot in evidence on bank size and costs involves risk. Larger banks may be able to diversify their assets to a greater extent than smaller ones and, consequently, to incur lower risk. (See Baltensberger (1)). Evidence of such advantages for larger banks in practice has not been developed. In their review of the bank size—bank cost relationship, Whitehead and Schweitzer (18) conclude that "...no systematic evidence exists that small banks are at a competitive disadvantage in terms of risk." The lack of evidence, they also point out, may be the result of the woefully incomplete study of this relationship.

## Summary and Conclusions

Evidence from commercial bank and savings and loan cost studies indicates that diseconomies of scale exist for institutions of all sorts—branch and unit, affiliate and nonaffiliate—above relatively low levels of overall size. Costs increase, in other words, as size increases. This evidence indicates that for specific products other than business loans and demand deposits, such diseconomies may also exist above rather low output levels. Bank holding companies do not appear to influence the efficiency of affiliates.

This evidence is incomplete and not entirely conclusive because it generally fails to cover very large banks or to consider economies of scope, costs of extensive geographic communication or

risk. With one exception, its evidence on costs of individual products may be outdated. There are reasons to believe, however, that these omissions do not greatly influence the broad overall conclusions based on the evidence.

The existence of some diseconomies after low output levels implies first that large institutions gain little in the way of lower costs to threaten small banks, to benefit the public or to convince investors that their expansion will reap a return greater than alternative investments. Under such conditions, extensive consolidation of the commercial banking system seems unlikely. The competitive impact of interstate branching or bank holding companies on banking structure would be limited. Regulators could analyze the competitive effect of mergers or acquisitions in local markets without fear that by denying bank combinations they could foreclose a lower output cost alternative. It would be sufficient to analyze criteria based on competitive effects.

The evidence also has implications for the benefits of interstate banking in terms of costs of banks' services to bank customers. The best available evidence indicates that widespread expansion by large organizations would produce no lower costs and possibly higher costs of banking services offered in their markets to the public since unit costs may actually increase with size. Interstate banking may, on the other hand, bring more services to local markets if large banks offering a wide variety of services expand nationwide.

In general, interstate banking appears to be neutral in its impact on the public through banks' production costs. Cost advantages of large banks do not seem great enough (if they exist at all) to trigger rapid consolidation and concentration within the industry, inhibiting competition. Nor, on the other hand, does expansion seem likely to provide the public with lower on-site costs of financial services.

—B. Frank King

#### BIBLIOGRAPHY

- Baltensperger, E. "Economies of Scale, Firm Size and Concentration in Banking." *Journal of Money, Credit, and Banking*, 4 (May 1972), 467-488.
- Bell, Frederick W., and Neil B. Murphy. "Costs in Commercial Banking: A Quantitative Analysis of Bank Behavior and Its Relation to Bank Regulation." Federal Reserve Bank of Boston, Research Report No. 41, 1968.
- Benston, George J., and Gerald A. Hanweck. "A Summary Report on Bank Holding Company Affiliation and Economies of Scale," Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 1977.
- Benston, George J., Gerald A. Hanweck, and David B. Humphrey. "Operating Costs in Commercial Banking." *Economic Review*, Federal Reserve Bank of Atlanta, 67 (November 1982), pp. 6-21.
- Benston, George J., Gerald A. Hanweck, and David B. Humphrey. "Scale Economies in Banking: A Restructuring and Reassessment," *Journal of Money, Credit, and Banking*, 13 (November 1982, Part 1).
- Dunham, Constance. "Commercial Bank Costs and Correspondent Banking." *New England Economic Review*, Federal Reserve Bank of Boston, (September/October 1981), 22-36.
- Gilligan, Thomas W., Michael L. Smirlock, and William J. Marshall. "Cost Complementarities, Scale Economies and Natural Monopoly in Banking," Federal Reserve Bank of Chicago, *Proceedings of a Conference on Bank Structure and Competition*, 1982, 262-282.
- Kalish, Lionel and R. Alton Gilbert. "An Analysis of Efficiency of Scale and Organizational Form in Commercial Banking," *Journal of Industrial Economics*, 21 (July 1973) 293-307.
- King, B. Frank. "Changes in Large Banks' Market Shares," *Economic Review*, Federal Reserve Bank of Atlanta, 67 (November 1982), 35-39.
- King, B. Frank. "The Impact of Local Market Entry by Large Bank Holding Companies," *Economic Review*, Federal Reserve Bank of Atlanta, 67 (November 1982), 40-47.
- Kunreuther, Judith Berry. "Banking Structure in New York State: Progress and Prospects," *Monthly Review*, Federal Reserve Bank of New York, (April 1976) 107-115.
- Longbrake, William A., and John A. Haslem. "Productive Efficiency in Commercial Banking: The Effects of Size and Legal Form of Organization on the Cost of Producing Demand-Deposits Services," *Journal of Money, Credit, and Banking*, 7 (August 1975), 317-330.
- McCall, Allen S. "Economies of Scale, Operating Efficiencies and the Organizational Structure of Commercial Banks," *Journal of Bank Research II* (Summer 1980) 95-100.
- McNulty, James E. "Economies of Scale: A Case Study of the Florida Savings and Loan Industry," *Economic Review*, Federal Reserve Bank of Atlanta, 67 (November 1982), 22-31.
- Murphy, Neil B. "A Re-estimation of the Benston-Bell-Murphy Cost Functions for a Larger Sample with Greater Size and Geographic Dispersion," *Journal of Financial and Quantitative Analysis*, 7 (December 1972), 2097-2105.
- Schweitzer, A. A. "Economies of Scale and Holding Company Affiliation in Banking," *Southern Economic Journal*, 39 (October 1972), 258-266.
- Whitehead, David D. "Interstate Banking: Taking Inventory," *Economic Review*, Federal Reserve Bank of Atlanta, 68 (May 1983).
- Whitehead, David D., and Robert L. Schweitzer. "Bank Size and Bank Risk: A Note on the Evidence," *Economic Review*, 67 (November 1982) 32-34.